THE UNIVERSITY OF RHODE ISLAND

THINK BIG WE DO℠

2021–2022 CATALOG

Undergraduate Admission
401.874.7100

Graduate Admission
401.874.2872

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EFFECTIVE DATE

The academic information published in this catalog was true and correct as of July 1, 2021. Any changes in majors, requirements, prerequisites, etc., that were finalized after July 1, 2021, will not appear until the 2022-2023 edition of the URI Catalog.

OFFER YOUR FEEDBACK

If you notice any factual errors …

in a description of an undergraduate or graduate program of study, as it existed on July 1, 2021, contact the Dean's Office for that program (College or Graduate School).

in a course description, as it existed on July 1, 2021, email the discrepancy along with a copy of or a link to the approved legislation proving the error to facsen@etal.uri.edu. Approved bills can be found on the Faculty Senate site.

WANT A PRINTED CATALOG?

You can print individual sections of this Catalog from your computer. A complete printout of the 2021-2022 URI Catalog is available from URI Printing Services. Place your order directly with them for bound copies of the catalog.

NOTICE OF CHANGE

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

TAKE OUR WORD FOR IT

Please refer to the current online University of Rhode Island catalog at uri.edu/catalog for definitive curricular and course information. In case of discrepancies between the PDF version of the current catalog or departmental materials, the live version of the catalog found at uri.edu/catalog is considered the authoritative source. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

About URI

MISSION

The University of Rhode Island is the state's public learner-centered research university. We are a community joined in a common quest for knowledge. The University is committed to enriching the lives of its students through its Land and Sea Grant traditions. URI is the only public institution in Rhode Island offering undergraduate, graduate, and professional students the distinctive educational opportunities of a major research university. Our comprehensive education, research, and outreach serve Rhode Island and beyond. Students, faculty, staff, and alumni are united in one common purpose: to learn and lead together. Embracing Rhode Island's heritage of independent thought, we value:

Creativity and Scholarship

Diversity, Fairness, and Respect

Engaged Learning and Civic Involvement

Intellectual and Ethical Leadership.

ACCREDITATION

The University of Rhode Island is accredited by the New England Commission of Higher Education (NECHE). In addition, certain courses and programs of study have been approved by national accrediting agencies.

The New England Commission of Higher Education is the regional accreditation agency for colleges and universities in the six New England states: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The Commission is recognized by the U.S. Secretary of Education as a reliable authority on the quality of education for the institutions it accredits. The Commission is also recognized by the Council for Higher Education Accreditation (CHEA), affirming that its standards and processes are consistent with the quality, improvement, and accountability expectations that CHEA has established.

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

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

Inquiries regarding the status of an institution's accreditation by the New England Commission of Higher Education should be directed to the school's administrative staff or to the association at 3 Burlington Woods Drive, Suite 100, Burlington, Massachusetts 01803; 781.425.7785 or visit https://www.neche.org/for-the-public/.

The national accrediting agencies that have approved the quality of certain course offerings and programs of study include the Accreditation Board for Engineering and Technology (ABET), Accreditation Council for Pharmacy Education (ACPE), Association to Advance Collegiate Schools of Business (AACSB), Commission on Accreditation of Health Professional Programs (CAHEEP), Commission on Accreditation for Marriage and Family Therapy Education, American Chemical Society Committee on Professional Training, Accreditation Commission on Education for Nutrition and Dietetics (ACEND), Committee on Accreditation for the Exercise Sciences (CoAES), American Library Association, American Psychological Association, American Society of Landscape Architects, American Speech-Language-Hearing Association, Commission on Accreditation in Physical Therapy Education, Commission on Collegiate Nursing Education, National Association of School Psychologists, National Association of Schools of Music, and Council for the Accreditation of Educator Preparation (CAEP).

The University is also an approved member institution of the American Association of Adult and Continuing Education, the American Council on Education, the Association for Continuing Higher Education, the Association of American Colleges and Universities, the Association of Public and Land-Grant Universities, the Association of International Education Administrators, the Council for Higher Education Accreditation, the Council of Graduate Schools, the Institute for International Education, the Institute for the Recruitment of Teachers (IRT), the International Conference on Urban Education, National Education Finance Academy, the North American Association of Summer Sessions, NAFSA: Association of International Educators, the Northeast Alliance for Graduate Education and the Professorate, the Society for College and University Planning, and the University Continuing Education Association.

AFFIRMATIVE ACTION AND NONDISCRIMINATION

The University of Rhode Island prohibits discrimination, including harassment and retaliation, on the basis of race, color, creed, national or ethnic origin, gender, gender identification or expression, religion, disability, age, sexual orientation, genetic information, marital status, citizenship status, or status as a special disabled veteran, recently separated veteran, Vietnam era veteran, or any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized; in the recruitment, admission, or treatment of students, the recruitment, hiring, or treatment of faculty and staff, and in the operation of its activities and programs, except in those special circumstances permitted or mandated by law and cases that may arise under applicable federal and state law and regulations, including but not limited to Titles VI and VII of the Civil Rights Act of 1964, as amended; Title IX of the 1972 Educational Amendments to the Higher Education Act; the Age Discrimination in Employment Act of 1967; Sections 503 and 504 of the Rehabilitation Act of 1973, as amended; the Equal Pay Act of 1963; the Americans with Disabilities Act of 1990; ADA Amendment Act of 2008; the Genetic Information Nondiscrimination Act, Executive Order 11246, as amended; Executive Order 91-39; Executive Order 92-2; and Rhode Island General Law 28-5.1, as amended; and all other laws which pertain to access and equity.

Inquiries concerning compliance with antidiscrimination laws should be addressed to Roxanne Gomes, Title IX Coordinator and Director of Affirmative Action, Equal Opportunity, and Diversity, Suite 201, Carlotti Administration Building, 401.874.2442. Questions regarding provisions for students with disabilities should be directed to the director of Disability, Access, and Inclusion in the Office of Student Life, 330 Memorial Union, 401.874.2098 (TTY via R.I. Relay, 711).

Academic Policies

ACADEMIC REQUIREMENTS AND POLICIES

Introduction

This section deals with the University's definition of a "credit", as well as academic requirements and policies for undergraduates that are University-wide rather than specific to one or more of the colleges. The undergraduate graduation requirement, regardless of catalog year, consists of courses and credits required for (1) general education, (2) the major, and (3) free electives. There are additional requirements for overall minimum grade point average, and rules related to limits on transfer credit and credits taken at URI which are detailed in the section on graduation requirements and further detailed in the text of the description for each major and in the University Manual (primarily chapter 8).

Consistent with its policy of allowing the greatest latitude possible in course selection, the University offers a wide choice of courses to fill its general education requirements and encourages students to select free electives from course offerings outside their major department and college.

Basis for Credit.

The basis of a credit shall normally be three hours work; for example, one credit for each lecture or recitation and two hours of preparation, or one credit for each two-hour laboratory and one hour of preparation, or one credit for each three-hour laboratory with no outside preparation, the student workload for an online class shall be equivalent to the in-class and out-of-class work in its face-to-face equivalent. Individual evaluation of courses offering practice in a professional major shall be made by the respective deans to determine non-lecture hour credits and will include at least an equivalent amount of work as required in the definitions cited above. Additional information regarding course credits and the specific requirements for offering courses in non-traditional time frames can be found in the University Manual sections 8.31.10 – 8.32.13 (https://web.uri.edu/manual/chapter-8/chapter-8-3/)

Catalog Year/Requirement Term.

Every student is assigned a catalog year/requirement term which, at least initially, is set to match the student's first semester at URI (as a degree-seeking student). The catalog year refers to the curriculum and other degree requirements in the University Catalog for that academic year. Thus, a student admitted and attending URI for the first time in Fall 2018 follows the degree requirements for graduation in the 2018-19 Catalog. This quasi-contract governs all requirements, including General Education, major, University-wide, and College-specific. A student can have only one catalog year/requirement term at a time and ALL graduation requirements must be from that one catalog, even if the student is pursuing two majors or two degrees. It is not possible to pick and choose different catalog years for different requirements.

After the first year, a student may change their catalog year, and hence their degree requirements, if it is to their benefit to do so and the change is approved by their advisor and the academic dean of their College. A student pursuing majors in two different colleges or pursuing two degrees from different colleges must be approved by the academic dean in each college for the catalog year change to take effect.

A request to change catalog year/requirement term is made using the "Change of Catalog Year Form" and must be approved by your academic advisor(s) and your academic dean's office. For the most accurate advisement, requests to change catalog year should be made as early as possible in the student's career and must be made prior to filing an "intent to graduate" form with the degree-granting college. Adjustments to catalog degree requirements, whether for the initial catalog year or for a changed catalog year, require completion of a "program exception" form and approval by the relevant department head or dean.

NOTE:

The University administration may alter, abridge, or eliminate courses and programs of study. While every effort is made to keep this catalog current, not all courses and programs of study listed may be available at the time of student matriculation. Similarly, course and program requirements may be changed from time to time. In all cases, every effort will be made to accommodate individual students whose exceptional circumstances may make it difficult or impossible to meet the changed requirements. Changes in the academic calendar may also be made when deemed in the best interests of the University.

UNIVERSITY MANUAL

University regulations governing matters such as conduct, grading, probation and dismissal, academic integrity, withdrawal from the University, and graduation requirements are fully explained in the University Manual found at uri.edu/facsen. Such rights and responsibilities are also described in the Student Handbook, which is available from the Office of Student Life and at uri.edu/studentconduct/.

GENERAL EDUCATION REQUIREMENTS

Undergraduate students entering the university in Fall 2016 or after pursue the University-wide General Education requirements for graduation listed below. Students who entered the university prior to Fall 2016 also may follow these General Education requirements if they officially change their catalog year to 2016-17 or after. Otherwise, they follow the Gen Ed requirements in effect for their catalog year. For information regarding changing a catalog year please refer to Graduation

Requirements. Previous Gen Ed requirements can be found in archived catalogs found at uri.edu/catalog or at the URL for General Education: https://web.uri.edu/advising/general-education/.General education consists of 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits.

A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total.

At least one course must be a Grand Challenge (G designation). No more than twelve credits used to meet general education may be from the same course code, with the exception of honors HPR courses, which may have more than 12 credits. General education courses may also be used to meet requirements of the major or minor when appropriate.

General Education encompasses the following four key objectives (A-D), met by the following twelve outcomes:

A– Build **knowledge** of diverse peoples and cultures and of the natural and physical world through the following four outcomes:

A1– Understand and apply theories and methods of the **science, technology, engineering, and mathematical (STEM) disciplines.**

A2– Understand theories and methods of the **social and behavioral sciences.**

A3– Understand the context and significance of the

humanities using theoretical, historical, and experiential perspectives.

A4– Understand the context and significance of **arts and design** using aesthetic and technical perspectives on form, creativity, and performance.

B– Develop intellectual and interdisciplinary **competencies** for academic and lifelong learning through the following four outcomes:

B1– Write effective and precise texts that fulfill their communicative purposes and address various audiences.

B2– Communicate effectively via understanding audiences, listening, delivering oral presentations, and actively participating in teams or group work.

B3– Apply the appropriate **mathematical, statistical, or computational strategies**to problem solving.

B4– Develop **information literacy** to independently research complex issues.

C-Exercise individual and social **responsibilities** through the following three outcomes:

C1-Develop and engage in **civic knowledge and responsibilities.**

C2-Developand exercise **global responsibilities.**

C3– Develop and exercise responsibilities relating to **diversity and inclusion responsibilities.**

D-Integrate and apply these abilities and capacities, adapting them to new settings, questions, and responsibilities to lay the foundation for lifelong learning.

D1 Demonstrate the ability to **synthesize** multiple knowledge perspectives, competencies and responsibilities

G-Grand Challenge – Exploration of multiple perspectives of areas of contemporary significance, including their ethical implications

G1-A student must take one (1) course from those courses designated as Grand Challenge courses by the suffix "G" following the course code and number (e.g. COM 100G).

The honors version of a course approved for general education (identified by an "H" following the course number, e.g. MTH 142H) may be taken instead of the regular version by students who qualify by earning an overall GPA of at least 3.40. Incoming students who don't yet have a GPA at URI will be invited to participate for their first semester if they meet eligibility criteria.

Select courses sponsored by the Honors Program (subject code "HPR") also fulfill Gen Ed requirements.

General education credit may be granted for a course transferred from another institution provided the course is deemed equivalent to a general education course offered at URI.

MINORS–REQUIREMENTS FOR COMPLETION

For information on choosing and declaring a minor, and requirements for completing a minor, see Minor Fields of Study.

OTHER ACADEMIC REQUIREMENTS

University College for Academic Success and Degree Granting Colleges.

Upon entering URI, freshmen, transfer students with less than 24 credits, and many other transfer students are enrolled in the University College for Academic Success (UCAS). UCAS offers many opportunities for students and has both professional and faculty advisors for every major. However, UCAS is not a degree granting unit of the University and it does not offer any majors or minors. Students remain in UCAS until they meet the requirements to transfer to the degree granting college which houses the department offering their prospective major,

In most cases, students in UCAS may still register for courses in their major though restrictions may apply for upper level courses and for courses in certain colleges such as Business, Engineering, Nursing, and Pharmacy. However, such restrictions are normal and usual and should not pose any interference with completing one's degree in the usual timeframe.

The minimum requirements for transfer to the degree-granting college are the completion of 24 credits at URI and an overall GPA of 2.00. Many majors have more stringent requirements involving a higher number of credits, a higher GPA, and/or require completion of specific courses, some even with specific grades earned. The requirements to move from UCAS to the degree-granting college are listed elsewhere in the Catalog in the description of each major. They also can be found on the curriculum sheet for each major at uri.edu/advising/curriculum-sheets-all/ and on eCampus by calling up the academic progress report found under the "Academics" blue header in the drop-down menu by clicking on " academic requirements."

The transfer from UCAS to the degree-granting college is done for the student by the advisors in UCAS, usually after the freshman year is complete or sometime during sophomore

year, depending on when requirements are met and when the major accepts new students. Although the transfer requires no action by the student, the responsibility for meeting all course and credit requirements for the transfer–as well as ultimately for the degree–rests with each individual student. Contact your UCAS advisor for more details.

Credit restrictions for off-campus study and in Summer and Winter terms.

Students who desire to receive credit for courses taken at other institutions must have prior approval from their academic deans. (The Council on Postsecondary Education's policy on articulation and transfer between state institutions of higher education defines exceptions to this regulation.

See "Transfer Policies," Appendix F of the University Manual.)

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

Students desiring to take courses in the University's Winter J-Term shall be limited to four credits of coursework. Petitions to exceed this limit are not permitted.

GRADES

Grades and Points.

Final evaluation of a student's performance in a URI course is done by letter grade. Each graded course becomes part of the student's permanent academic record (transcript). Final grade reports are made available to all students via the eCampus system.

Refer to the University Manual, section 8.53 for additional information.

The following grading scale is used for letter grades:

Grades included in the GPA, with point values and definition

A 4.00 Superior

A- 3.70

B+ 3.30

B 3.00 Good

B- 2.70

C+ 2.30

C 2.00 Fair

C- 1.70

D+ 1.30

D 1.00 Low grade, passing

F 0.00 Failure

Grades not included in the GPA

I Incomplete

P Passing, course taken under the Pass-Fail option

S Satisfactory, course taught on S-U basis

S* Satisfactory, course taken by a graduate student under the Pass-Fail grading option

U Unsatisfactory, course taught on S-U basis

U* Unsatisfactory, course taken by a graduate student under the Pass-Fail option, not calculated into graduate GPA

NW Enrolled, no work submitted (credit not earned)

NR Enrolled, no grade reported (credit not earned)

W Course Withdrawal

Mid-semester grades*:*

Freshman receive a mid-semester progress report for each class which can be viewed via eCampus at the midpoint of each semester.

Reports of S (Satisfactory), S- (Marginal), or U (Unsatisfactory) are used. Midterm reports are intended to alert freshmen to their academic status in the course and to aid in advising, but do not become part of the student's permanent academic record, nor do they figure into their grade point average. Special populations also receive mid-semester grades (Talent Development participants, Athletes, as examples).

Incomplete.

A student shall receive a report of "Incomplete" in any course in which the coursework has been passing up until the time of a documented precipitating incident or condition, but has not been completed because of illness or another reason which in the opinion of the instructor justifies the report.

Undergraduate students must make arrangements with the instructor to remove the incomplete by the following mid-semester.

S/U grades.

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

Pass-Fail Grading Option.

The pass/fail grading option allows the student to receive a final grade of P (pass) or F (Fail) instead of the usual letter grades. This option encourages undergraduate matriculated students to increase their intellectual breadth and discover aptitudes in new areas of knowledge. A matriculated undergraduate student above the freshman level who is not on probation may register under this plan for courses considered to be free, unattached electives by the college in which he or she is enrolled. Courses designated in the student's curriculum as degree requirements, general education requirements, and military science courses may not be included. Nonmatriculating students are not eligible for the pass-fail grading option.

A student choosing to take a course under this plan must notify his or her advisor, academic dean, and the Office of Enrollment Services, in writing using the Pass-Fail Grading Option form, prior to the end of the add period of each semester. The instructor is not informed.

The P grade is credited toward degree requirements but not included in the grade point average. The F grade is calculated in the same manner as any other failure. A student may change from the P-F option to grade by notifying Enrollment

Services in writing before the mid-semester date on the academic calendar.

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

Repeating Courses.

Unless otherwise designated, no course may be repeated in which a grade of "C" or better has already been received except with the permission of the student's academic dean. The dean may require that the course be taken pass-fail. If such a course is repeated for credit, both grades are used in computing the QPA, and the credit requirement for graduation shall be increased by the number of credits repeated

A course may be repeated once in which a grade of "C-" or lower has already been received without seeking permission. The course may be repeated more than once only with the permission of the student's academic dean. If a course is repeated, the credit requirement for graduation shall be increased by the number of credits repeated.

Repeating Failed Courses and Courses with a Grade of C- or lower. Students are required to make up failures in required courses. The course should be repeated when next offered. Students are not required to make up failures in elective courses. A course may be repeated once in which a grade of "C-" or lower has already been received without seeking permission. The course may be repeated more than once only with the permission of the student's academic dean. If a course with a passing grade is repeated, the credit requirement for graduation shall be increased by the number of credits repeated.

Refer to the University Manual, section 8.33 for additional details on repeating courses.

Second-Grade Option.

Undergraduate students may exercise a "second-grade option" by repeating a course in which the student earned a C- or lower. Only courses that fall within the student's first 30 attempted credits taken at the University may be selected for this option. Students must exercise this option no later than the next two semesters for which the student registers after completing 30 credits. Transfer students may exercise the second-grade option for courses taken during their initial semester at the University. This option must be exercised during the next two semesters for which they register after their initial semester. Only the grade earned when the course was repeated will be used in the calculation of a student's grade point average, and only the credits earned for the repeated course will apply toward the graduation requirements. All grades earned for a given course shall remain on a student's permanent academic record. Please note that all grades earned while attending the university

shall be used in the calculation of Graduation with Distinction; this includes any courses utilizing the

Second Grade Option.

To take advantage of this option, students must obtain approval from their academic deans and submit the appropriate form to Enrollment Services prior to midterm of the semester in which the course is being repeated. The second-grade option may be used only once per course.

Grade changes.

Entries to a student's academic record shall not be changed after two years for the undergraduate student and after three years for the graduate student. Grade changes for grades received before graduation will not be permitted after graduation unless the change is based on clerical or procedural errors and the change is received and posted to the student's record by the last day of classes of the semester following the term in which the student graduates. Refer to University Manual, section 8.56 for more information.

DEAN'S LIST

Undergraduate matriculated students who have achieved certain levels of academic excellence are honored at the end of each semester by inclusion on the Dean's List. The University's Department of Communications and Marketing publishes a list of students earning Dean's List approximately one month after the conclusion of the fall and spring semesters. The department also notifies local media.

To appear on this list or have notification sent to local media, students must release certain

FERPA

restrictions no later than two weeks after the semester ends.

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

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

PROBATION, DISMISSAL, AND ACADEMIC INTEGRITY

Probation.

Students are in one of four possible academic standings: Good standing, probation, dismissal, or conditional status. A student leaves good standing and is placed on academic probation if his or her overall cumulative grade point average falls below 2.00. For purposes of determining the standing of part-time students, scholastic standing committees will consider an accumulation of 12 attempted credits as the minimum standard for one semester's work. Academic probation is a warning to students to improve their academic performance. Students on academic probation cannot enroll for more than 15 credits in Fall or Spring, and must obtain their advisor's approval to register or change registration.

Dismissal.

A student is dismissed for scholastic reasons when he or she has a deficiency of eight or more grade points below a 2.00 average after being on probation for the previous semester. A student on probation for the second successive semester who has a deficiency of eight or fewer grade points below a 2.00 average will continue on probation. At the end of the third semester of probation, a student will be dismissed. A student who obtains less than a 1.00 average in their first semester is dismissed automatically. Dismissals are for one semester or one year, as determined by the Scholastic Standing Committee.

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

Refer to the University Manual, sections 8.23 through 8.25 for detailed information on academic standards, academic discipline, reinstatement, and reinstatement on conditional status.

Academic Integrity.

Students are expected to be honest in all academic work. The University expects that all course papers, theses, and dissertations will be prepared, and all examinations taken, in conformance with accepted standards of academic integrity. This includes the proper citation and attribution of all material that is not the original product of the writer. It is the student 's responsibility to determine the appropriate style used in his or her discipline for presentation of material derived from other sources and to adhere to it scrupulously in all written presentations. Instructors have the explicit duty to take action in known cases of cheating or plagiarism. For details, consult the University Manual, section 8.27, at uri.edu/facsen and the *Student Handboo*k at uri.edu/studentconduct.

LEAVE OF ABSENCE

Undergraduate Students: Leave of Absence

Undergraduate students may apply for a leave of absence in order to take time off for medical, family, economic, or personal reasons. Request approval for a leave from the Dean's office in your College. A student on leave for up to two semesters retains student status and may register for the semester of planned return without applying for readmission. However, a student on leave is not enrolled in courses at URI which may affect their financial aid loan repayment status. It is the responsibility of the student to

consult their student loan holder for specific details regarding enrollment requirements and repayment schedules and to seek advice from the URI Financial Aid office as to how a leave may affect their overall financial aid.

The leave form can be approved only for students whose financial accounts with the University are up-to-date and in good standing. The effective date of a leave is the date the Leave of Absence form is approved by the College Dean's Office.

This date is noted on your permanent academic record and is the effective date used for calculating billing and/or refunds.

A Leave of Absence taken after the last day of classes, but before a semester ends, requires that the student is graded in all courses for which they are officially registered. A leave taken after mid-semester results in grades recorded solely for any course that has an officially specified completion date *prior* to the date of the leave.

For additional information regarding billing adjustments and refunds see:

uri.edu/enrollment/billing-adjustments-and-refunds

Download the Leave of Absence form

https://web.uri.edu/enrollment/files/Leave_of_Absence_Undergrad.pdf

Phone numbers for the Deans' Office in each college

University College for Academic Success

401.874.2993

College of Arts and Sciences

401.874.2566

College of Business

401.874.2337

Alan Shawn Feinstein College of Education and Professional Studies

401.277.5039

College of Engineering

401.874.5985

College of the Environment and Life Sciences

401.874.5026

College of Health Sciences

401.874.2125

College of Nursing

401.874.2766

College of Pharmacy

401.874.5842

Graduate Students: Leave of Absence

Graduate students who wish to take a leave of absence from a graduate program and the University must do so through the Graduate School. Address questions to the Graduate School in Quinn Hall or to 401.874.2262.

WITHDRAWAL FROM THE UNIVERSITY

Undergraduate Students: Withdrawal

Undergraduate students who wish to withdraw from the University must do so through their academic advisor and/or academic dean's office. All requests for withdrawal require the approval of the Dean's office from the student's College. A withdrawal differs from a leave of absence in that withdrawn students do not retain student status and must apply using the readmission process in order to return to URI as a degree-seeking student. Subsequent enrollment as a non-matriculating student is possible without formal readmission, although some programs may impose restrictions on credit taken as a non-matric should the student desire a return to degree status in the future.

The effective date of a withdrawal is the date the Withdrawal Form is approved by the College Dean's Office. This date is noted on your permanent academic record and is the effective date used for calculating billing and/or refunds. See additional information regarding billing adjustments and refunds.

Withdrawal from the University late in a semester is not a way to avoid poor or failing grades or to "cherry-pick" grades. University policy requires that a student is graded in all registered courses who withdraws after the last day of class but before the semester ends.

A student who withdraws from the University after midsemester can receive a final grade only for a course that has an officially specified completion date prior to the date of the

withdrawal.

A student who withdraws from the University after mid-semester and who seeks readmission for the next semester will be readmitted only with the approval of the Scholastic Standing Committee for the college or school in which registration is desired. Refer to University Manual, section 8.42 for more information on withdrawals and leaves of absence.

A student who does not formally withdraw yet does not enroll for the subsequent semester will be withdrawn administratively. The effective date of the withdrawal will be the last day of the semester for which they enrolled.

Download the UG Withdrawal form

uri.edu/enrollment/files/Withdrawal_Form.pdf

Graduate Students: Leave of Absence and Withdrawals

Graduate students who wish to officially withdraw from a graduate program and the University must do so through the Graduate School. Forms can be found at uri.edu/graduate-school/forms/.

Questions should be directed to the Graduate School in Quinn Hall or to 401.874.2262.

NON-MATRICULATING STUDENTS

Students who are not pursuing a degree and who are not enrolled in a regular graduate program of study may not receive a leave of absence, but may officially withdraw from the University.

Download the UG Withdrawal form

uri.edu/enrollment/files/Withdrawal_Form.pdf

GRADUATION REQUIREMENTS

To graduate, a student must meet the degree requirements in place for their catalog year, also known as the "requirement term." See the entry on "catalog year/requirement term" for a description and explanation of these terms and how they impact graduation. A student can have only one catalog year at a time and ALL graduation requirements must be from that one catalog. Once an Application for Graduation is filed, it may not be possible to change your catalog year without delaying graduation. Please check with your Academic Dean's Office for advice and regulations.

Changes and Exceptions to Degree Requirements.

Each undergraduate college has specific procedures for student requests for exceptions to courses of study or to other degree requirements or academic rules. Undergraduate students who seek exceptions to any University rule pertaining to their academic circumstances, including degree requirements and courses of study, may contact the offices of their respective college deans. Readmitted students who have been away from URI for 8 years or more will be required to satisfy the graduation requirements that are in effect at the time of their readmission.

Degree Requirements for the Bachelor's Degree (B.A., B.S., B.F.A., B.L.A., B.M., B.I.S.)

Complete of a minimum of 120 credits (some majors require more)

Earn a minimum overall grade point average of 2.00 (some majors require a higher overall GPA)

Complete the coursework and other requirements for the curriculum of the major with the minimum grades per course and overall grade point averages for that major, or portions of that major, as specified in the section of the catalog which describes the requirements for each major

Complete General Education requirements, as specified elsewhere in this catalog

Abide by community standards as defined in the University Manual and Student Handbook

Complete the senior year in residence at URI

Earn one half of the total number of credits needed in the major at URI (same for a minor, if one is being pursued)

Transfer no more than half of the credits required for graduation from a two-year institution

Earn at least one-fourth of the credits required for graduation in-residence at URI (usually at least 30 credits)* *Students should review all major/degree requirements with their academic advisor to ensure completion of all course, credit and GPA minimums.*

Double Majors/Dual Degrees. A double major represents the completion of work in two academic majors but for one degree. For example, fulfilling requirements of two majors, each leading to the B.A.

One diploma is granted, with both majors recorded on the student's permanent record and transcript. In contrast, a dual degree recipient has met the requirements in two academic majors with each major leading to a different degree. For example, a major leading to a B.A. and a major leading to a B.S. A dual degree recipient is awarded two separate diplomas and the permanent record and transcript records both majors as well as both degrees.

Graduation Honors for Undergraduate Students. Students who complete at least 60 GPA applicable credits at the University are eligible to graduate with honors. Except for the remedial course MTH 099, and courses offered through Cambridge Education Group (CEG 101, CEG 102, CEG 103), all courses, including those utilizing second grade option, are included in the calculation of the grade point average for graduation honors. The Commencement Program designates students who are eligible for honors based on grades at the time the Program is printed which is prior to the recording of final grades for the Spring semester, thus notations in the Program are subject to change. Final recognition of distinction for recording on the diploma and official transcripts is calculated after final grades are posted. Honors based on overall cumulative grade point average are as follows:

Summa cum laude: 3.70 or higher

Magna cum laude: 3.50 – 3.69

Cum laude: 3.30 – 3.49

Academic Calendars

Academic Calendars by Academic Year

uri.edu/enrollment/academic-calendars

Billing Dates and Deadlines

uri.edu/enrollment/billing-dates-and-deadlines

Final Exam Schedules for Kingston and Providence Campuses

uri.edu/enrollment/final-exam-schedules

Graduate Student Deadlines

uri.edu/graduate-school/academics/academic-calendar

List of important graduate school deadlines.

Summer Calendar

uri.edu/enrollment/academic-calendars

Dates and deadlines for summer sessions.

Enrollment Services

INTRODUCTION

The Office of Enrollment Services, located in Green Hall, is comprised of Billing and Collections, Financial Aid, and Registration and Records. Academic and financial services to current and former students are provided, including certification for VA educational benefits. Academic support services to faculty are also provided. Visit their website at uri.edu/enrollment/

TUITION AND FEE ASSESSMENT

The amount of tuition and fees varies depending on several factors, including matriculation status, full- or part-time study, residency status, admin unit (Kingston or Providence), student level, and program. Use the Schedule of Tuition and Fees to find your costs or refer to your bill or your eCampus account.

All charges are billed by the semester. Tuition, fees, and policies set forth in this catalog are subject to change without notice.

Definitions of student classifications are:

Matriculated

An undergraduate student admitted by the Office of Admission, or a graduate student admitted by the Graduate School, to degree-seeking status.

Non-matriculated

A student enrolled in courses at the University but not interested in pursuing a degree or not admitted to pursue a degree through a formal process of admission. See the Undergraduate and Graduate admission sections for application procedures to earn admission as a degree-seeking student.

Full-time

Matriculated undergraduate students enrolled in 12 or more credits per semester. Matriculated graduate students enrolled in 9 or more credits per semester and all teaching and research assistants.

Part-time

Matriculated undergraduate students enrolled in 1 to 11 credits. Matriculated graduate students enrolled in 1 to 8 credits who are not teaching or research assistants.

Resident

A student who is deemed a resident of the state of Rhode Island for purposes of establishing in-state tuition eligibility. A dependent student's parents or legal guardians must have been residents of the state for one year immediately preceding the first class day of the first term of a student's registration in order for that student to claim resident status. An "emancipated student" must establish the same bona fide residency. A nonresident student who reaches 18 years of age while a student does not, by virtue of that fact alone, become a resident student. A member of the armed forces (on active duty) or his or her spouse stationed in the state on military orders shall be entitled to classification as a resident student during any semester, the first class day of which is encompassed by the orders. Veterans who are eligible for federal GI Bill educational benefits, and dependents who are eligible for transferred federal GI Bill educational benefits and are living in Rhode Island, shall be entitled to classification as a resident student during any semester, the first day of which is encompassed by the Certificate of Eligibility.

Nonresident

A student from another state or from a foreign country who is in Rhode Island primarily for educational purposes, even though he or she remains in the state during vacation periods.

Regional

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

Residency Classification

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

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

Emancipated Student

An emancipated student is one who has attained the age of 18, and whose parents have entirely surrendered the right to the care, custody, and earnings of the student, have not claimed the student as a dependent for tax purposes for two years, do not provide regular financial assistance to the student, and whose income was not taken into account by any private or governmental agency furnishing financial educational assistance to the student including scholarships, loans, or otherwise. If any of these conditions are not met, he or she is presumed to be an unemancipated student.

PAYMENT POLICIES

Payments are due and payable upon receipt of the bill or by the due date indicated on the bill. Fees are charged for late payments. See "Late Payments" later in this section for details.

CAMPUS ADDRESSES

Kingston Campus, 6 Rhody Ram Way, Kingston RI 02881.

Bay Campus, 215 South Ferry Rd, Narragansett, RI 02882.

College of Education and Professional Studies, 80 Washington Street, Providence, RI 02903

Rhode Island Nursing Education Center (RINEC), 350 Eddy St., South Street Landing, Providence 02903

W. Alton Jones Campus, 401 Victory Highway, West Greenwich, RI 02817.

Tuition and Fees

MATRICULATED FULL-TIME STUDENTS

	Undergraduate Tuition Per Year (Providence and Kingston)	Graduate Tuition Per Year
Rhode Island residents	$13,250	$14,454
Out-of-state residents	31,272	27,906
Regional students	23,188	21,682

MANDATORY FEES PER YEAR

(1) Full-time undergraduate students admitted to a Kingston degree program, and all full-time graduate students:

Undergraduate

	Undergraduate	Graduate
Registration Fee	$60	$60
Student Health Services Fee	608	608
Student Services Fee	1,118	904
Technology Fee	296	296
Accident/Sickness Insurance *(may be waived with proof of comparable coverage)*	2,792	2,792
Total	**$4,874**	**$4,660**

(2) Full-time undergraduate students admitted to a Providence degree program

Registration Fee	$60
Activity Fee – Providence	40
Technology Fee	296
Total	**$396**

MATRICULATED PART-TIME STUDENTS, TUITION PER CREDIT

	Undergraduate (Providence and Kingston)	Graduate
Rhode Island residents	$552	$803
Out-of-state residents	1,303	1,550
Regional student	966	1,205

MANDATORY FEES PER SEMESTER

(1) Part-time undergraduate students admitted to a Kingston degree program, and all part-time graduate students

Registration Fee	$30
Activity Fee *(undergraduate students only)*	32
Graduate Tax *(graduate students only)*	5
Student Services Fee *(undergraduate)*	$41 per credit
Student Services Fee *(graduate)*	41 per credit
Technology Fee *(undergraduate and graduate)*	12 per credit

(2) Part-time undergraduate students admitted to a Providence degree program

Activity Fee – Providence	$20
Registration Fee	30
Technology Fee	$12 per credit

Nonmatriculated Students

Tuition Per Credit	Resident	Non-Resident
001-499 Level Courses	$552	$1,303
500 Level and Above Courses	803	1,550

Mandatory Fees Per Semester

Registration Fee	$30
Activity Tax	15
Technology Fee	$12 per credit

Important Note: Different rates may apply for graduate professional and special programs courses, travel and study abroad experiences, and fully online accelerated programs. Please consult related department websites for specific details related to these offerings.

MANDATORY FEES

STUDENT SERVICES FEE

This fee is mandatory for all full-time undergraduate students admitted to a Kingston degree program, and all full-time graduate students. The student services fee covers the cost of the Memorial Union, transportation, Fitness and Wellness Center, and capital projects. The undergraduate fee supports funds that are distributed to the Student Senate for a wide variety of student programs and activities. The graduate fee supports the above and, instead of the undergraduate Student Senate, the Graduate Student Association.

HEALTH SERVICES FEE

The health fee is mandatory for all full-time undergraduate students admitted to a Kingston degree program, and all full-time graduate students. It is optional for matriculating students admitted to a Providence degree program. All international students are assessed this fee regardless of admin unit or credit load. Part-time, matriculating students who choose to receive their health care at URI Health Services can be assessed this fee upon request, as well as the student accident/sickness insurance fee (which may be waived with proof of comparable coverage). The health fee covers the cost of the following:

routine office visits, including telehealth visits, with URI staff providers (the full cost of visits if insurance doesn't cover the cost and/or co-pay expenses in situations where insurance covers a portion), ambulance/emergency transport services (by URI EMS), pharmacy (most over-the-counter medicines, small co-pay for prescriptions for acute care, medications for chronic conditions at 50 percent of cost), administrative services provided at Health Services, and health education.

ACCIDENT/SICKNESS INSURANCE

It is URI policy that full-time students, and all international students and their dependents, have current health insurance to provide coverage for unexpected, extended, and expensive care resulting from accidents and illnesses that are not covered by the Student Health Services fee. School health insurance must be purchased unless evidence of comparable coverage in another plan is provided to the University through a completed waiver form. Waivers are done on line and instructions can be found at uri.edu/health. Questions should be referred to the Health Services Insurance Office at 401.874.4774.

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

TECHNOLOGY FEE

This fee is mandatory for all students taking courses at URI, at all campuses, including students taking courses online. The technology fee covers the cost of various University technology expenses.

ADDITIONAL FEES

BOOKS AND SUPPLIES

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

CREDIT OVERLOAD

A credit overload fee will be charged to all matriculated undergraduate students who register and/or enroll in excess of 19 credits. This fee is equivalent to the per-credit rate given for part-time undergraduate students. Matriculated graduate students who register and/or enroll in excess of 15 credits will be billed at the per-credit rate given for graduate students.

ENROLLMENT DEPOSIT

An enrollment deposit of $300 is required from all undergraduate students accepted into a Kingston degree program and is applied to the first-semester bill. The fall term enrollment deposit is 100 percent refundable through May 1, provided that the student sends written notification of intent to withdraw (mail to URI Office of Undergraduate Admission, 6 Rhody Ram Way, Kingston RI 02881). After May 1, the fall term enrollment deposit is not refundable. The spring term enrollment deposit is not refundable.

OFF-CAMPUS STUDY

Undergraduate students taking courses at another institution for credit at URI pay a fee of $582 per semester.

Graduate students taking courses at another institution for credit at URI pay a fee of $833 per semester.

There may be additional costs for national and international study abroad programs offered through the Office of International Education.

GRADUATE CONTINUOUS REGISTRATION

Graduate students maintaining continuous enrollment and registered for no credit (CRG 999) are required to pay a fee of $833 per semester.

TRANSCRIPTS

A transcript service fee of $50 is assessed to all students in their first semester of enrollment at the University. This fee covers the unlimited release of official transcripts in paper format. Official transcripts in electronic format are not included in this fee, but are available for an additional cost of $2.75 per transcript.

NEW STUDENT FEE

All new first-year and transfer undergraduate students will be charged a one-time new student fee of $220 that will cover activities and services applicable to students who are new to the University. These include orientation, advising, transfer and other forms of credit evaluation and posting, outreach, and support.

COURSES AND PROGRAMS

A course fee may be charged for certain undergraduate and graduate courses. Tier I fees are $25, Tier II fees are $55, and Tier III fees are $75 (per course).

Undergraduate engineering students pay a program fee of $585 per semester if attending full-time, or $49 per credit if attending part-time. Undergraduate nursing students pay a program fee of $850 per semester if attending full-time, or $71 per credit if attending part-time, commencing in their second year.

Undergraduate animal and veterinary science students pay a program fee of $600 per semester if attending full-time, and $50 per credit if attending part-time, commencing in their second year.

Undergraduate pharmaceutical sciences students pay a program fee of $1,375 per semester commencing in their third year.

Pharm D students pay a program fee of $3,250 per semester commencing in their third year.

Graduate physical therapy students pay a program fee of $1,800 per semester.

Graduate communicative disorder students pay a program fee of $500 per semester.

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

Students taking applied music courses are charged an additional fee of $400 for a one-credit course (half hour of a private lesson per week) and $800 for courses offering two, three, four, or six credits (one hour of a private lesson per week). Applied music courses for which students are charged an additional fee are MUS 110, 210, 310, 410, and 510.

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

GRADUATION

All newly matriculated students will be charged a one-time fee (per career) of $115 for graduation documents.

LATE AND SPECIAL FEES

LATE REGISTRATION

A late registration fee of $75 is charged to students who enroll for classes after the 7th calendar day of the semester.

LATE PAYMENT

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

Students using VA educational benefits under Chapter 33 (Post 9/11 GI Bill) or Chapter 31 (Voc Rehab) to pay for tuition (veterans as well as dependents of veterans) are exempt from late payment penalties while receipt of VA payment is pending, in accordance with the "Veterans Benefits and Transition Act of 2018." To be eligible for this exemption, the student must furnish the VA Certificate of Eligibility as well as the Veteran's Verification Worksheet and any additional information needed for proper certification no later than the first day of classes.

RETURNED PAYMENTS

A $20 returned payment fee is assessed with each check or electronic payment that is unsuccessfully transacted and returned by the bank.

UNIVERSITY MONTHLY PAYMENT PLAN

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

PARTIAL PAYMENT

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

COLLECTION AGENCIES

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

REASSESSMENT OF FEES POLICY

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

TUITION WAIVERS

The University of Rhode Island accepts tuition waivers from senior citizens, unemployed individuals, and disabled veterans; prerequisites are described below. Matriculated students who qualify for waivers must apply for financial aid, and any aid received (except loans) must be applied toward the amount waived. All other costs of attendance are to be paid by the individual student.

FOR SENIOR CITIZENS

Any Rhode Island resident senior citizen who submits evidence of being 60 years of age or over and of having a household income of less than three times the federal poverty level will be allowed to take courses at any public institution of higher education in Rhode Island with the tuition waived.

FOR THE UNEMPLOYED

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

FOR DISABLED VETERANS

Any Rhode Island resident who submits evidence from the Department of Veteran Affairs of having a service-related disability of at least 10 percent will be allowed to take courses at any public institution of higher education in Rhode Island with the tuition waived.

HOUSING AND DINING OPTIONS AND FEES

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

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

halls, suites, and apartments will appear on each resident's term bill; payment is due upon receipt of this bill. Students are encouraged to make their housing deposits online via eCampus. Checks made payable to the University of Rhode Island can also be accepted by the Office of Enrollment Services.

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

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

TELECOMMUNICATIONS FEE

There is a $178 telecommunications fee assessed to each resident of the University's residence halls, suites, or apartments.

UNIVERSITY REFUND POLICIES

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

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

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

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

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

ATTENDANCE PERIOD

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

The Accident/Sickness Insurance fee is not refundable unless the fee is waived, regardless of the date of withdrawal, since the student is covered for the entire academic year. The fee is cancelled, however, if the student withdraws prior to the first day of classes.

INDEBTEDNESS TO THE UNIVERSITY

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

Financial Aid

Financial aid is money made available from federal, state, local, or private sources that helps students attend the postsecondary institutions of their choice. At the University of Rhode Island, these varied sources are administered by Enrollment Services in Green Hall. URI's financial aid programs are designed to serve students from the widest possible range of society, and all students are encouraged to apply.

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

Financial aid to students is awarded without regard to race, sex, religion, age, color, creed, national origin, disability, or sexual orientation.

FINANCIAL NEED

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

ELIGIBILITY

Only U.S. citizens or eligible non-citizens are eligible to apply for financial aid. Foreign students desiring information about financial assistance should contact URI's Office of International Students and Scholars.

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

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

APPLICATION PROCEDURE

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

The awarding of financial aid for the current academic year may require validation and documentation of all information submitted to Student Financial Assistance. Therefore, students must be prepared to submit the following information if asked: verification worksheets, official tax transcripts of their own and their parents' U.S. income tax returns, and any other documentation requested.

APPLICATION PRIORITY DATES

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

FEDERAL AID AVAILABLE

FEDERAL PELL GRANTS

The Pell Grant, available to undergraduates, is designed to form the foundation of all financial aid received. Each applicant is issued a Student Aid Report, a copy of which is electronically sent to Enrollment Services if URI 003414 was put on the FAFSA. The amount of the Pell Grant is calculated according to the cost of attendance, the number of credits for which the student enrolls, and the Pell Grant Index printed on the Student Aid Report.

FEDERAL SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT

This program is intended to assist undergraduate students with the greatest financial need. Priority is given to students receiving Pell Grants.

NURSING STUDENT LOAN PROGRAM

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

HEALTH PROFESSIONS STUDENT LOAN PROGRAM

This loan program is restricted to undergraduate students with financial need majoring in pharmacy.

FEDERAL WORK-STUDY PROGRAM

This federally supported program provides undergraduates with part-time employment during the school term and full-time employment during vacation periods. The jobs may be either with University departments, or with off-campus, nonprofit, nonsectarian, and nonpolitical agencies. Other institutionally funded employment is also available.

THE WILLIAM D. FORD FEDERAL DIRECT LOAN PROGRAM

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

THE WILLIAM D. FORD FEDERAL DIRECT LOAN PROGRAM FOR PARENTS

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

UNIVERSITY AID AVAILABLE

UNIVERSITY GRANTS

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

ARTHUR L. HARDGE MEMORIAL GRANT

This grant is awarded to economically and socially disadvantaged undergraduate residents of Rhode Island who participate in the Talent Development program.

URI FOUNDATION AND ALUMNI ENGAGEMENT SCHOLARSHIPS

URI awards numerous scholarships each academic year through the fundraising efforts of the URI Foundation, Alumni, and the generosity of private donors. Some scholarships have specific restrictions, such as place of residence, major, and class year. For application information, see URI Foundation scholarships at: uri.edu/enrollment/grants-and-scholarships/

ATHLETIC GRANTS

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

REGULAR STUDENT EMPLOYMENT

Positions funded by the University are available to more than 1,500 undergraduate and graduate students. Job postings are available at: https://web.uri.edu/enrollment/student-employment/

UNIVERSITY LOANS

Emergency loans are available to full-time undergraduate and graduate students. These loans are short-term in nature (14-90 days), and can be made only when there is a means of repayment. Application forms are available in Enrollment Services.

STATE AND OTHER SOURCES OF AID

Many states offer grant programs. For more information, contact your state's scholarship agency.

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

SATISFACTORY ACADEMIC PROGRESS (SAP)

For the most up-to-date version of this policy on Satisfactory Academic Progress ("SAP"), visit: https://web.uri.edu/enrollment/satisfactory-academic-progress-sap/

FOR STUDENTS RECEIVING FEDERAL FINANCIAL AID

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

Federal Pell Grant

Federal Work Study

Federal Supplemental Educational Opportunity Grant

Health Professions Loan

Nursing Student Loan

The William D. Ford Federal Direct Subsidized Loan

The William D. Ford Federal Direct Unsubsidized Loan

The William D. Ford Federal Direct Parent Loan for Undergraduate Students (PLUS)

Some private/alternative loans

University of Rhode Island grant and scholarship programs (including Merit awards and Talent Development programs)

R.I. State Scholarship programs (including Academic Promise and College Crusade)

ELIGIBILITY

Your financial aid eligibility is based on satisfactory academic progress (SAP) standards that the University of Rhode Island's office of Enrollment Services is required by the U.S. Department of Education to establish, publish, and apply. The office of Enrollment Services measures your academic performance and enforces SAP standards to ensure that you, as a financial aid recipient, progress toward graduation. If you fail to meet these standards, you become ineligible to receive financial aid until you comply with all requirements.

Financial aid recipients will be reviewed for satisfactory progress at the end of the spring semester after grades are posted. A student who does not meet the satisfactory academic progress standards will be terminated from financial aid assistance for the next academic semester. This ineligibility will include the summer session even if the student has prior enrollment in the summer term. An aid-terminated student is ineligible for any further financial aid, including student loans, until satisfactory academic progress is re-established. Readmission to a program or removal from academic probation does not automatically constitute eligibility for federal aid.

SAP STANDARDS – UNDERGRADUATE STUDENTS

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

Qualitative Standard

– This component is represented by your cumulative grade point average. Your cumulative GPA must be a minimum of 2.0 after successfully completing 60 credits or your fourth term of enrollment, whichever comes first.

Quantitative Standard

– The quantitative component requires you to complete your degree within a maximum timeframe. The ratio between attempted and completed credits determines your credit completion ratio. You are eligible to receive financial aid for a maximum timeframe of 150 percent of the published degree credits required to complete your program. For example, if your undergraduate degree program requires 120 degree credits, you are eligible for financial aid up to 180 attempted credits (program restrictions apply). Each year, your cumulative credit completion ratio is calculated to ensure that you have earned at least 67% of the credits you attempted to maintain your aid eligibility. A grade of I or NW is not acceptable. Students who fail to complete attempted credit hours because of (I) Incomplete or NW

grades, or who withdraw from all classes after receiving financial aid, will have their financial aid terminated.

Transfer Credits

– These credits are counted in the total attempted and earned credits.

Withdrawals

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

Repeated Course

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

There is no regulatory limit on the number of times that a student may be paid to retake a failed course,

unless

the student has also previously passed that course. If the student previously passed the course, the student may receive Title IV aid to pay for that course only one more time.

Satisfactory/Unsatisfactory Grades-

Courses that have been designated with Satisfactory/Unsatisfactory grading are not factored into the qualitative component (GPA) of the SAP calculation.

However, the courses do count toward the quantitative measure and pace of progression.

For students with a mix of letter grades and S/U courses, all courses would count in the quantitative measure.

Appeal Process

– A student who is declared ineligible to receive aid for not maintaining financial aid SAP standards may appeal the decision to the Enrollment Services SAP committee. Appeals must be received by the deadline stated on the SAP appeal form for each semester. Appeals received after these semester deadlines will not be reviewed until the following semester.

If there are mitigating circumstances that resulted in the student's inability to make SAP, the student should write a letter of appeal documenting the circumstances and submit the letter to the Satisfactory Progress Appeals Committee, c/o Enrollment Services, 6 Rhody Ram Way, Kingston, RI 02881.

Before an appeal will be considered, the student must have an active FAFSA on file for the semester for which they are requesting financial aid, and not be dismissed from the University. If you will need more than one term to comply with the SAP policy (a minimum cumulative GPA of 2.0 and be completing at least 67% of cumulative credit hours attempted), you must provide a detailed academic plan approved by your advisor.

The academic plan must establish criteria for success on a term by term basis in order to show that you are progressing toward degree completion and satisfaction of the SAP policy.

If your appeal is approved, you are allowed to receive financial aid for one semester only. If you meet the conditions set forth in your approval letter and follow your academic plan,

you may continue to receive aid for subsequent semesters. Grades of F, I, NW, or U are not considered passing/satisfactory grades during this probationary period.

If your appeal is denied through this process, you will be notified in writing and will not receive financial assistance for the next period of enrollment. You may regain your financial aid eligibility by enrolling in and completing enough credits to meet the qualitative and the quantitative standards described in the policy.

You must submit another appeal to be considered for financial aid after this period.

The decision of the SAP committee is final.

SAP STANDARDS – GRADUATE STUDENTS

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

Qualitative standard

– As a graduate student, you must maintain a minimum cumulative GPA of 2.0 for the entire enrollment period.

Quantitative standard:

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

As a Ph.D. candidate, you must complete your degree within seven calendar years of being admitted to your doctorate program (program restrictions apply). Your progress within this maximum timeframe will be reviewed annually at the end of each spring semester. At this time, your cumulative credit completion ratio is determined to ensure that you have completed at least 67% of all credits attempted to maintain your financial aid eligibility. If you are unable to complete your degree within this timeframe, you may appeal for an exemption.

As a graduate student pursuing a Masters degree, you are eligible to receive financial aid for a maximum timeframe of 5 years after the date you are first enrolled as a graduate student at the University. Your progress within this maximum timeframe will be reviewed annually at the end of each spring semester. At this time, your cumulative credit completion ratio is determined to ensure that you have completed at least 67% of all credits attempted to maintain your financial aid eligibility. If you are unable to complete your degree within this timeframe, you may appeal for an exemption.

A grade of I (Incomplete)

or NW is not acceptable. Students who fail to complete attempted credit hours because of (I) Incomplete or NW grades, or who withdraw from all classes after receiving financial aid, will have their financial aid terminated.

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

Appeal Process

– A student who is declared ineligible to receive aid for not maintaining financial aid SAP standards may appeal the decision to the Enrollment Services SAP committee.

Appeals must be received by the deadline stated on the

SAP appeal form

for each semester. Appeals received after these semester deadlines will not be reviewed until the following semester.

If there are mitigating circumstances that resulted in the student's inability to make SAP, the student should write a letter of appeal documenting the circumstances and submit the letter to the Satisfactory Progress Appeals Committee, c/o Enrollment Services, 6 Rhody Ram Way, Kingston, RI 02881.

Before an appeal will be considered, the student must have an active FAFSA on file for the semester for which they are requesting financial aid, and not be dismissed from the University.

If you will need more than one term to comply with the SAP policy (a minimum cumulative GPA of 2.0 and be completing at least 67% of cumulative credit hours attempted), you must provide a detailed academic plan approved by your advisor.

The academic plan must establish criteria for success on a term by term basis in order to show that you are progressing toward degree completion and satisfaction of the SAP policy.

If your appeal is approved, you are allowed to receive financial aid for one semester only. If you meet the conditions set forth in your approval letter and follow your academic plan, you may continue to receive aid for subsequent semesters. Grades of F, I, NW, or U are not considered passing/satisfactory grades during this probationary period.

If your appeal is denied through this process, you will be notified in writing and will not receive financial assistance for the next period of enrollment. You may regain your financial aid eligibility by enrolling in and completing enough credits to meet the qualitative and the quantitative standards described in the policy.

You must submit another appeal to be considered for financial aid after this period.

The decision of the SAP committee is final.

GRADUATE FELLOWSHIPS, ASSISTANTSHIPS, AND SCHOLARSHIPS

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

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

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

FELLOWSHIPS

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

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

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

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

GRADUATE TEACHING ASSISTANTSHIPS AND RESEARCH ASSISTANTSHIPS

Assistantships are awarded to full-time graduate students to provide them with teaching and research training. Assistants may be required to provide service for up to 20 hours per week. Appointments are initiated by department chairpersons. To be eligible for such appointments, students must first be admitted as degree candidates. Applications for assistant-

ships should be completed by February 1. Appointments are announced in early April.

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

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

Teaching and research assistants receive a stipend for the academic year. In addition, tuition (12 credits maximum), 20% of the required standard fees, and health insurance are paid from University funds for each semester of the academic year of the appointment. The student is responsible for the remaining fees. Additional remuneration is given for appointments during the summer, although this cannot be guaranteed. Stipends and tuition remissions for students appointed to partial assistantships will be prorated for the period of the appointment. The student will be responsible for the remainder of the full-time tuition and fees. The same policy applies to assistantships terminated during the academic year.

TUITION SCHOLARSHIPS

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

Registration and Records

REGISTRATION PROCEDURES

Registration is the act of selecting and enrolling in courses. No student shall begin a course unless officially registered for that course. Official course registrations are made via URI's online eCampus system during the times designated in the academic calendar. It is to the student's advantage to register as early as possible. A student who attends a course without official registration by the last day of classes shall not receive a grade for that course. (Students in one of the accelerated, fully online programs, for example, Nursing B.S. and Dietetics M.S., follow the instructions for registration from their program. Most information that follows is addressed to on-campus students.)

Returning matriculated (official degree-seeking) students generally register in April for the following Fall semester and in October for the following Spring semester. Registration is by appointment and individual appointment times are available in eCampus. Incoming freshmen and transfer students entering in the fall semester register at specified dates during the summer as part of summer orientation. Registration times for Winter J Term and Summer Sessions are announced in the Academic Calendar. Official registration in all classes is expected prior to the end of any term/session a student participates in. A student who attends a course without official registration by the last day of classes shall not receive a grade for that course.

PRIORITY REGISTRATION FOR COMBAT VETERANS

As part of the State of Rhode Island's continuing efforts to recognize the men and women of our Armed Forces, and pursuant to **§30-30.2-3(2)** of the R.I. General Laws, the Council on Postsecondary Education has established a policy that supports veterans and service members with **Priority Registration for Combat Veterans**.

URI students who are combat veterans wishing to obtain priority registration must self-identify to the school certifying official (SCO) in Enrollment Services and submit the following items:

DD 214 (Certificate of Release or Discharge from Active Duty) which annotates service in a combat theater of operation including notation of medals awarded for service.

Service members currently on active duty who do not have a DD214 must present award citation and copy of deployment orders that demonstrated service in a combat theater of operation.

University of Rhode Island Student Veteran's Verification Worksheet.

Documentation must be submitted no later than fifteen business days prior to the first day of priority registration for the first term in which priority registration is sought (generally October for Spring registration and March for Fall registration). Once Combat Veteran status has been established for priority registration it will carry over to future terms. The combat veteran student does not need to be receiving VA educational benefits to be eligible for priority registration.

LATE REGISTRATION.

Students may register until the end of the add period as published in the academic calendar. Students who enroll for classes after the 7th calendar day of the semester are charged a late registration fee (see "Late and Special Fees").

A student who attends a course without official registration by the last day of classes shall not receive a grade for that course.

Additional information on registration procedures and policies is available from Enrollment Services and in the University Manual sections 8.33.10 through 8.35.10.

REGISTRATION AND FINANCIAL RESPONSIBILITY

Once registered for a course(s), students incur financial responsibility for all tuition and fees associated with that registration according to the policies established by the University and the RI Council on Postsecondary Education, detailed elsewhere in the Catalog and on the Enrollment Services website. See especially the sections on "Refunds", "Dropping a Course", and "Tuition and Fees."

REGISTRATION ADVISING AND PERMISSION

Assistance with selecting courses is available from several sources. These include personal meetings with an advisor, the curriculum sheets available for every major at uri.edu/advis-

ing/curriculum-sheets-all/, and the automated self-service academic progress report available for undergraduate majors through eCampus (also known as the academic requirements report). Freshmen and select other categories of students may be required to see an advisor prior to being allowed to register. These students are so notified via a "hold" notice on their eCampus home page. The “hold” prevents registration until removed by the advisor.

NONMATRICULATING STUDENTS

A person who is not admitted to URI through the Admissions Office to pursue a degree may register as a nonmatriculating student, also referred to as a non-degree student. An interactive Non-Degree Student Application Form is available on the web; or contact Enrollment Services for registration instructions. Registration for nonmatriculating students begins after matriculated students have registered.

A matriculated student who is academically dismissed may be allowed to take courses as a nonmatric with permission of their academic dean.

COURSE SCHEDULE

The listing of courses offered for a semester is referred to as the Course Schedule. The Course Schedule is available on eCampus in April for the Fall semester and in October for the spring semester. The Course Schedule for Winter J Term is available in November and it is available in February for Summer Sessions. The University reserves the right to cancel courses offered in the Course Schedule due to low enrollment or other reasons.

PAYMENT OF TUITION AND FEES

Complete and timely payments must be made according to the instructions issued by Enrollment Services which generally accompany the invoice or bill. Sanctions are imposed on students whose accounts are in arrears or not meeting financial responsibility. Sanctions include, but are not limited to, restrictions on access to official transcripts and ineligibility to register for upcoming semesters.

Students using VA educational benefits under Chapter 33 (Post 9/11 GI Bill) or Chapter 31 (Voc Rehab) to pay for tuition (veterans as well as dependents of veterans) are exempt from late payment penalties while receipt of VA payment is pending, in accordance with the "Veterans Benefits and Transition Act of 2018." To be eligible for this exemption, the student must furnish the VA Certificate of Eligibility as well as the Veteran's Verification Worksheet and any additional information needed for proper certification no later than the first day of classes.

ADDING COURSES

For Fall and Spring semesters, there is an "open" add period for seven (7) calendar days after the start of classes during which a course may be added using eCampus. An additional seven (7) calendar-day "permission" late add period allows the opportunity to add courses on eCampus via "permission numbers" which are given to students by the course instructor or Dean's office of the College offering the course. After this fourteen day add period, permission to add a course is granted only in exceptional circumstances. Different deadlines may apply to students in accelerated online programs or in off-campus courses offered by the Alan Shawn Feinstein College of Education and Professional Studies, School of Professional and Continuing Studies. A student who attends a course without official registration by the last day of classes shall not receive a grade for that course.

DROPPING A COURSE

Traditional Fall and Spring semesters.

Once a student is officially enrolled, a course must be officially dropped if the student no longer desires to attend, or has never attended, in order to avoid academic penalties as well as possible financial penalties. The student is responsible for dropping the course which may be done on eCampus until the deadline date given on the academic calendar. Depending on when in the term the drop takes place, the course either will not be transcripted or it will be transcripted with a "W".

The academic calendar lists the deadlines.

After the open drop period (weeks one through six), a student may drop a course only in exceptional circumstances and with the authorization of the academic dean of his or her college.

Dropping a course in J-term, Summer Sessions, or in off-campus courses or programs. In Winter J-term, a course may be dropped on eCampus through the first day of class. After that, it may be dropped only in exceptional circumstances with the authorization of the Academic Dean of the student's college, using the paper drop form delivered to Enrollment Services until the last day of class.

In Summer sessions, follow the deadlines on the Academic Calendar. Different drop deadlines may apply to students in accelerated online programs or in off-campus courses offered by the Alan Shawn Feinstein College of Education and Professional Studies, School of Professional and Continuing Studies. (The W designation is not used in J-term, Summer Sessions or for the accelerated online programs.)

Financial liability when dropping a course. For part-time students, or for students dropping from full-time to part-time, the date on which the drop occurs determines the financial liability that is incurred. Dropping a course once classes have begun does not automatically cancel tuition or fees. Attendance in class has no bearing on financial liability which is driven solely by the date on which a course is dropped. See the Academic Calendar as well as "Billing Adjustments and Refunds" and "Late and Special Fees" for information on tuition and fee liability once enrollment takes place or classes have begun.

Dropping a student from a course for non-completion of prerequisites. Before the first day of the semester, a student may be dropped from a course for which he or she has not satisfactorily completed the prerequisite(s). This action is generally taken by the department offering the course once grades are recorded for the semester in which the prerequisite course is taken. Departments are encouraged to send a notification to students who are dropped. Students can self-monitor their situation on eCampus. The student may seek reinstatement by demonstrating completion of the prerequisite to the satisfac-

tion of the department or they may register for an alternative course directly on eCampus.

Dropping a student from a course by the instructor. By University policy, a student who is absent from the first and second class meetings of a course and who does not notify the course instructor of their intention to attend future class meetings may have their name submitted by the course instructor and/or the department chairperson to the Office of Enrollment Services for deletion from the class roster. If the instructor does not exercise this option, the student remains enrolled in the course unless s/he drops it on their own. While an instructor has this drop option available to them, many do not exercise it. Students are cautioned not to rely on the instructor to drop them and are reminded that managing course enrollment is solely their responsibility.

WITHDRAWING FROM A COURSE(S)

A withdrawal differs from a drop in that a withdrawn course remains on a student's permanent record with a grade of "W". Any course dropped from the fourth week on is considered a withdrawal and is recognized on a student's transcript with a "W." If the student has not dropped or withdrawn from a course by the end of the withdrawal period (end of week 6), the instructor must submit a grade regardless of whether the student continues attending or unofficially stops attending.

After the withdrawal period ends, a request for late course withdrawal will be considered only in exceptional circumstances, with significant supporting documentation, and only with authorization of the dean of the college in which the student is enrolled. Failure, low grades, and lack of attendance do not constitute exceptional circumstances.

Withdrawals (W grades) are not used in Winter J-term, Summer Sessions, or accelerated on-line sessions.

AUDIT A COURSE

An auditor is a person who has permission to attend a course but is not taking it for credit or a grade. Admission to the class is on a space-available basis and requires

the instructor's consent as indicated by his or her signature on an audit authorization form, which must be filed in Enrollment Services before the end of the "add" period (14 days in Fall and Spring semesters, deadlines according to the academic calendar for Summer Sessions and J term) . The instructor determines the extent of the auditor's participation in class activities. The auditor's name does not appear on official class rosters, no grade is issued, and the course is not noted on an end-of-term

grade report or permanent academic record (transcript). A degree-seeking student enrolled in at least one other course may audit a course without tuition charges, though course fees may apply.

All other persons are charged an amount equivalent to tuition for one credit and course fees, if there are any, which must be paid at the time of handing in the audit authorization form. Auditing is not permitted in noncredit courses.

OFF-CAMPUS STUDY

A full-time student who wishes to study at another college and use that coursework to satisfy graduation requirements at URI must obtain signed approval for the off-campus courses from the dean of his or her college. If the courses are during Fall and Spring, the student must register on eCampus using the permission number granted by the dean's office. Undergraduates register for the OCS course code, and graduate students register for the OCSG course code. Registration into the OCS or OCSG course maintains the student's active status; lack of registration without an official leave of absence may lead to administrative withdrawal for lack of enrollment, thereby requiring readmission in order to re-enroll.

Off-campus study includes one or two semesters at another university in the United States or study abroad. Off-campus study during summer session or Winter J-Term may also require registration in OCS or OCSG. Ordinarily, a student may not study off campus during senior year as University policy requires that the work of the senior year be taken at URI. Refer to the University Manual, 8.22.11 for exceptions.

VETERANS EDUCATIONAL BENEFITS

URI is fully approved to certify eligible students (veterans or dependents) who wish to receive educational benefits provided by the U.S. Department of Veterans Affairs (VA). Descriptions of these benefits and information on obtaining the required VA Certificate of Eligibility can be gotten from your base education officer, the VA Regional Office, 380 Westminster Street, Providence, RI 02903, by calling in the U.S., 800.827.1000, and on the web at

http://www.va.gov/education/

In order to receive VA educational benefits, eligible students must be certified by the URI School Certifying Official (SCO) in Enrollment Services. In order to satisfy VA regulations and retain those benefits, students must promptly report all changes in academic status to the SCO. Additional information to assist students in completing the necessary paperwork to receive VA Educational Benefits can be found at https://web.uri.edu/enrollment/veterans/

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

However, in conformity with the Federal "Veterans Benefits and Transition Act of 2018," students receiving benefits under Chapter 33, Post 9/11 GI Bill, or Chapter 31, Voc Rehab, are exempt from the late payment policy while receipt of VA payment is pending, provided that the student furnishes the VA Certificate of Eligibility as well as the Veteran's Verification Worksheet and any additional information needed for proper certification no later than the first day of classes.

General Information

CHANGE OF ADDRESS

It is the responsibility of the student to report changes of local or home address to Enrollment Services. Students may update their address information through the eCampus system.

CONFIDENTIALITY OF RECORDS

Procedures for the release and disclosure of student records maintained by the University are in large measure governed by state and federal laws. For details of URI's policies, see uri.edu/enrollment/ferpa.

EMAIL

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

REQUIRED IDENTIFICATION FOR ID CARDS AND WORKING ON CAMPUS

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

READMISSION

Upon withdrawal from the University or simply not enrolling, a degree-seeking student's active status automatically terminates upon a break in continuous attendance (Fall or Spring semester) unless a formal leave of absence is granted. In order to return after a break in attendance and once again enroll toward a degree, readmission application and approval is needed.

Students should direct the Undergraduate Application for Readmission to the academic dean of the college in which admittance is sought. Students who have earned at least 25 credits towards graduation may submit their application for readmission directly to the degree-granting college. A readmitting student may seek readmission into a college and/or program different from which they formerly attended. Students with less than 25 earned credits submit their form to University College for Academic Success (UCAS) regardless of the sought-after major. Readmission is not guaranteed, and students must meet all GPA, course and/or college requirements for the major to which they seek to readmit. Students should contact the College directly for specific readmission requirements. The college directory can be found at: web.uri.edu/about/departments

Students dismissed for academic reasons may be reinstated either under conditional readmission or under probationary readmission. Refer to the University Manual, 8.25.10 – 8.25.17 for details.

Applications for readmission must be submitted to the degree-granting college or UCAS no later than August 15 for the fall semester, and December 31 for the spring semester. Additionally, students who graduated from the University and wish to pursue a second undergraduate degree must apply for readmission, even if there has been no break in continuity of attendance.

GRAD STUDENT REINSTATEMENT

Graduate degree candidates and permanent non-degree students who have withdrawn, or have not filed a leave of absence form with the Graduate School, and who wish to re-enroll after an absence of one or more semesters (from the Kingston campus) must be formally reinstated through the Graduate School. The appropriate forms and information may be obtained from the Graduate School. Deadlines are August 15 for the fall semester and December 31 for the spring semester.

TRANSCRIPTS

Students can obtain a copy of their transcripts via the eCampus system. Former students or alumni who last attended before 1982 should submit a written request to Enrollment Services. Transcripts are not issued to students who have financial obligations to the University.

HEALTH REQUIREMENTS FOR NEW STUDENTS

NEW STUDENT REQUIREMENTS FOR URI HEALTH SERVICES:

Effective for the fall 2021 semester, all URI students must submit proof of a completed COVID-19 vaccine series or a COVID-19 Vaccine Exemption form (medical or religious).

This information must be uploaded in the

patient portal. In addition, all incoming full-time undergraduate and graduate students and all international students must log into the

Patient Portal

in order to enter and upload required immunization information and to complete the required online forms (Health History for New Students, Student and Emergency Contact Form, TB Screening Form, and Texting Opt-in/Opt-out).

All community members will be required to follow the health and safety guidelines at the University.

Students who have an approved exemption will be expected to participate in routine surveillance testing, masking, physical distancing, and have a plan for off-campus accommodations should they become exposed, infected, and/or an outbreak is determined on campus.

Detailed instructions regarding the requirements and how to complete them can be found at health.uri.edu.

Failure to complete the above requirements by the deadline will result in a sanction that will prevent the student from registering for classes for the next semester.

University policy requires that all full-time and international students have health insurance while enrolled at URI.

A University sponsored health insurance charge will be added annually to the tuition bill and can be waived if you have

comparable coverage by completing a waiver prior to the deadline.

This waiver must be completed every year. Waiver instructions can be found at health.uri.edu and submitted via e-campus.

Student Life and Services

An enriching college life includes a well-balanced mix of academic and extracurricular activities. The University is committed to creating inclusive and collaborative learning experiences that ignite a lifelong pursuit of knowledge, equity, justice, and well-being in every student.

We support a community that celebrates diverse ideas, beliefs, values, experiences, and individuals. We strive to cultivate a sense of connection and belonging for all students through critical conversations, advocacy, new and existing traditions, and student-focused organizations, services, programs, and events that enhance learning, growth, and global citizenship.

STUDENT GOVERNMENT

UNDERGRADUATE

The URI Student Senate is the legislative body that represents the undergraduate students to the administration and faculty. It oversees student organizations and provides funding for them by distributing a portion of the Student Activities Fee. Students can contact the Student Senate Office in person, by phone, via the website or by email.

Office:
Memorial Union, Room 201

Phone:
401.874.2261

Website:
uri.edu/studentsenate

Email:
info@rhodysenate.org

GRADUATE

The Graduate Student Association (GSA) is a government body maintained by and for the graduate students of the University with the purpose of enhancing the academic, intellectual, and social opportunities of its members. Officers and members of the GSA, who are elected annually from the entire graduate student body, distribute GSA funds to graduate students for conference attendance and thesis binding, organize social events, and serve as graduate student representatives on University-wide committees. GSA can be reached by email or via the website.

Email:
gsaofuri@gmail.com

Website:
uri.edu/gsa

HOUSING

UNDERGRADUATE HOUSING

Residence halls and special interest facilities are available to URI students during the regular academic year and during summer sessions. Most first-year students live on campus (95%), but all students can choose to live on campus for additional years based on availability. Some students prefer the option of living in a fraternity or sorority or off-campus. On-campus housing for incoming transfer students is typically available for students who apply early.

ON-CAMPUS RESIDENCE HALLS

There are 26 residence halls of a variety of undergraduate living arrangements and a graduate student apartment complex. The university also offers multiple Living-Learning Communities (LLCs) on campus. Nine-month housing, including break housing, is available in all university on-campus residence halls. Incoming first-year students who have deposited by June 7, 2021, are eligible to be assigned to the designated first-year housing spaces, including living-learning communities. All other new students will be assigned on a space-available basis. Every effort is made to honor mutual roommate requests. Continuing residents may elect to return to the on-campus residence halls and participate in room selection for the following academic year based on availability. Students who move off-campus to later return to on-campus housing will typically be placed on a waitlist and assigned on a space-available basis.

For residence hall descriptions, rates and policies, applications for residence hall living, and current living-learning communities, please visit the Housing and Residential Life website.

GRADUATE AND FAMILY HOUSING

Limited on-campus housing is available for graduate students and families. Interested students should contact Housing and Residential Life.

Dining Experiences

URI Dining Services: We feed URI and support healthy minds and bodies with meal services in our two all-you-care-to-eat dining halls and seven retail facilities, including a food court, coffee shops, a roving food truck, and a convenience store! We feature home-style favorites, regional and ethnic dishes, sushi, and made-to-order options. Have special dietary needs? You'll find vegan, vegetarian, and gluten-free options throughout our breakfast, lunch, dinner, and late-night services. Our dedicated dietician is here to support all students and especially those living with a food allergy/sensitivity. We offer six different Meal Plans, plus Ram Account, so Commuters and Campus Residents alike will find the perfect fit. Manage your plan online, in-person, through our Campus ID and Dining Office. Our commitment to sustainability means we support local producers whenever possible, including foods grown right here on campus at the URI Agronomy and Peckham Farms, and serve fresh locally caught seafood, in addition to the national brands you use at home. Stay informed about daily menus, events, specials, and more through the Rhody

Connect App (iOS and Android), URI Dining website, and social media channels. We always welcome your feedback, so reach out through Txt-n-Tell on social! You can focus on your classes while we focus on your food.

FRATERNITIES AND SORORITIES

New England's largest Greek life community is comprised of 25 organizations, two undergraduate governing boards, and an alumni-governing board, which represent the 15 men's groups (fraternities) and 10 women's groups (fraternities/sororities). The total Greek life student population of approximately 3,000 active members accounts for 22% of the undergraduate student body.

Each chapter completes individual service projects donating both service hours and dollars annually for charity. Collectively, past philanthropic work includes the Maddie Potts, URI Research Grants, Hasbro Children's Hospital, Circle of Sisterhood School Build in Africa, Cops n Kids School Supplies, Sojourner House, Rhody Outpost Food Pantry, and over $500,000 raised for the URI South County Habitat for Humanity partnership providing significant funding to complete the four Old North Village homes adjacent to campus. Greek life facilities generate a gross room and board revenue of $8.4 million annually and provide 700 on-campus beds creating economic development for South County and the State of Rhode Island.

The community provides internal support to the university by actively participating in Multicultural Student Services Center programs, LGBTQ programs, and is interwoven into academic life. Greek students also support multiple URI Athletics events and teams as well as general student life. The community is a Northeast Greek Leadership Association award-winning campus, exemplifying Greek Life's focal points of fellowship, scholarship, leadership, and community service.

For more information about Greek Affairs, phone 401.874.4667 or visit uri.edu/greek

OFF-CAMPUS HOUSING

The Commuter Affairs Office is located in the Lower Level of Adams Hall, 2 Butterfield Road, and maintains an online database of rental property and roommate listings available to URI students, faculty, and staff. The Office is an on-campus resource for landlord and tenant questions and also provides information on resources available to off-campus students.

There are approximately more than 6,000 undergraduate and graduate students who commute from the surrounding neighborhoods daily to URI to attend classes, study in the library, and stay involved on campus. The most popular rental communities are in Narragansett, South Kingstown, and Kingston. A majority of the off-campus properties that students rent are beachfront properties that are available during the academic year, September through May. Students generally pay rents between $500-$800 per person per month to live in a furnished or unfurnished house. Supermarkets, laundromats, restaurants, shopping centers, and recreational facilities are nearby.

Commuter students receive RIPTA bus discounts and commuter meal plans. RIPTA bus discounts are available through the Memorial Union Information desk located on the 2nd floor. Commuter meal plan information is available by contacting the Campus ID and Dining Office in Memorial Union, Room 216 or by visiting the Dining Services website at uri.edu/dining.

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

STUDENT SERVICES

CENTER FOR CAREER AND EXPERIENTIAL EDUCATION

See the Center for Career and Experiential Education in the University College for Academic Success section of this catalog.

CHAPLAINS

The URI Chaplains Association is a body of religious professionals who, in addition to serving their own faith communities, work together to foster dialogue, understanding, and respect among people of different faiths and traditions. The University chaplains are active in providing religious services and community service opportunities as well as in counseling, advising campus groups, teaching, and programming. Currently representing Roman Catholic, Jewish, Protestant, Buddhist, Unitarian, and Muslim communities, each of these groups welcomes visitors and encourages URI students to explore and learn about religious diversity. See uri.edu/chaplains.

COUNSELING

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

Counselors work closely, as appropriate, with other health care providers in Health Services and the community.

Information shared in counseling is confidential. Center hours are Monday through Friday 8:30 a.m-4:30 p.m. with extended hours until 6:30 p.m. on Tuesday and Wednesday. The Counseling Center now offers 24-hour phone support from a counselor as needed. After our business hours, we have enlisted the support of Protocall services. This service will directly connect you to a counselor after hours simply by calling our office number (401) 874-2288.

To get connected with a counselor, students may use our walk-in hours M-F 10 am – 3 pm. If you need help with an urgent matter come in any time we are open, and ask to speak to the counselor-on-call. Phone: 401.874.2288. website: uri.edu/counseling.

OFFICE OF DISABILITY, ACCESS, AND INCLUSION

The Office of Disability, Access, and Inclusion works with students and all units of URI to create inclusive, sustainable learning and working environments. We facilitate access, discourse, and involvement through innovative services, programs, leadership, and collaboration.

Using a Supported Education Model, designed to enhance self-determination, and in response to federal disability civil-rights laws, we promote academic success, self-advocacy, and equal opportunity through education, awareness, and the understanding that disability is a matter of cultural diversity and social justice.

Additional duties of the office include:

recommend and coordinate reasonable accommodations (exam, course, program, housing, transportation);

encourage student development through self-advocacy and personal decision making;

support student commitment to academic success, retention, and graduation;

provide information to faculty and administrators regarding the inclusion of persons with disabilities.

Please visit our website at uri.edu/disability for detailed information about policies, procedures, and resources. We are happy to discuss specific concerns in person, by virtual meeting, by phone, or by email. Our office is located at 302 Memorial Union, Kingston, RI 02881. For more information, phone 401.874.2098 (TTY via R.I. Relay at 711), or email to dss@etal.uri.edu.

HEALTH SERVICES

Located in the Potter Building, at 6 Butterfield Road and adjacent to the residence halls, The Health Services provides primary ambulatory care to eligible students. Health Services is available weekdays from 8 a.m. to 8 p.m. and 10 a.m. to 4 p.m. weekends during the academic year. Physicians and nurse practitioners see students by appointment Monday through Friday from 9 a.m. to 7:30 p.m. and offer a range of services including acute care and primary care. Laboratory, x-ray, and pharmacy services are available weekdays during the academic year. Limited services are available on Saturdays, Sundays, and most holidays with physician, laboratory, and pharmacy coverage from noon to 4 p.m.

Specialists in gynecology and psychiatry hold regular clinics at the Health Services. An immunization/travel clinic is available to administer vaccines. Allergy injections are administered, providing the allergy serum and orders are supplied by the student's allergist. Full-time students can be seen at Health Services even if they do not have school-sponsored insurance.

Care provided at Health Services is billed to the student's insurance company. Balances for lab and x-ray will be billed to the student after the claim is processed by the insurance company. The mandatory health service fee for full-time students covers all office visits not covered by insurance. Co-payment for pharmacy is expected at the time of service.

Hospital care is available in the local community, as are specialists services. All medical expenses incurred outside the University's Health Services are the responsibility of the student. Therefore, all full-time students are required to have adequate health insurance. Students who choose a private physician assume responsibility for expenses incurred. See "Accident/Sickness Insurance" for additional details or consult the Health Services brochure, *"To Your Health." (*http://health.uri.edu/forms/*)*

To promote personal health and well-being, health educators provide a variety of services including wellness clinics, outreach activities, awareness days and peer workshops. Nutrition education from a registered dietitian is also available.

An emergency medical service (URI EMS), staffed by student volunteer EMTs, responds to campus emergency medical calls 24 hours a day, 7 days a week throughout the year and routinely transports patients to local Hospital Emergency Departments.

We encourage you to visit our website at health.uri.edu to view comprehensive program information.

INDEPENDENT STUDENTS

Independent or nontraditional students make up over 10% of URI's undergraduate population. Any students over the age of 23 who are either returning to the University for a second degree or starting anew are eligible to benefit from the services provided at the Dean of Students Office. The office is always on hand to lend individual support and ease an independent student's transition to college life. For more information please call 401.874.2098 or visit the Dean of Students Office.

THE GENDER AND SEXUALITY CENTER

The Gender and Sexuality Center at URI strives to create and maintain a welcoming, safe, supportive campus climate for all people, regardless of sexuality or gender. The Gender and Sexuality Center works closely with students, staff, faculty, and community members to provide space, programs, and services that foster education, advocacy, support, and engagement. From our Coming Out Month activities in October to our Lavender Graduation ceremony in April, many are sure to find events that strike their interests. On May 6, 2015, URI opened our brand new Gender and Sexuality Center at 19

Upper College Road. Our $2.1 million, 4,300 square foot site is a safe and affirming place for all members of the community. URI is the first institution of higher education in the country to design and build a free-standing Gender and Sexuality Center. For more information, please call 401.874.2894, visit our website at uri.edu/gender-sexuality, or visit our Center at 19 Upper College Rd. in person.

MEMORIAL UNION

The center for campus programs and activities, the Memorial Union houses a wide variety of social, educational, cultural, travel, and recreational services and facilities for undergraduate and graduate students. These services include meeting and conference rooms, lounges, study spaces, radio station and student newspaper, offices for student organizations, scheduling and information office, and larger meeting and performance spaces. Student Involvement staff are available for our student organization leaders with advising and assist-

ing of planning for their student organization's events.

Among the services provided are a hair salon, financial institution, cafeteria, coffee shop, copy center, campus store, computer store, along with the sale of the monthly RIPTA bus passes at the URI Campus Store.

Students can contact the Memorial Union in person, by phone, or via the website.

Office:
Memorial Union, Room 210

Phone:
401.874.2056

Website:
uri.edu/memorialunion

MULTICULTURAL STUDENT SERVICES CENTER

The Multicultural Student Services Center promotes access, equity, and individual growth for traditionally underserved students and collaborates with campus partners to provide developmentally appropriate programs and building resources which connect and support the URI community in becoming just and culturally competent global citizens who inspire hope for the future.

Located in the heart of campus, the Multicultural Student Services Center traces its origins to the activism of a diverse array of student organizations whose initiatives are grounded in the values upon which the theory and practice of multiculturalism were founded: social justice, learning, and personal, social, and cultural development. Advising, programming, and other services are also provided by the staff of the Multicultural Student Services Center. Phone: 401-874-5851. Website: uri.edu/mcc.

SUBSTANCE ABUSE PREVENTION

The mission of the URI Office of Substance Abuse Prevention Services is to continually monitor, measure, and improve our approaches to increase safety and reduce risks for members of our university community. Whether working individually with students or providing population-wide programs, our primary goal is to empower students to make healthy choices regarding substance use while encouraging environments conducive to academic and social success.

Recognizing that not everyone who abuses alcohol or other drugs necessarily requires or desires treatment, Substance Abuse Prevention Services (SAPS) offers resource materials and information so that students can make educated choices.

SAPS is available to provide student training in a variety of settings ranging from one-on-one consultation to large student group training. SAPS works with students involved with a community standards violation or with any student looking for support or information. Using a harm-reduction approach, SAPS addresses the causes and consequences of student substance use. Frequently, students find a single consultation appointment to be beneficial to them in making better decisions regarding their own substance use. For more information about SAPS, phone 401.874.2098 or visit uri.edu/substance-abuse.

TALENT DEVELOPMENT

Founded in 1968, the University of Rhode Island's Talent Development Program recruits and serves Rhode Island high school graduates with college potential who come from historically disadvantaged backgrounds, a majority of whom are Scholars of color.

Talent Development's core values are grounded in the University's mission of enriching students' lives through its land, sea, and urban grant traditions. This is reflected in our ongoing commitment to

Respect,

Academic Excellence,

Mental Health and Wellness, and

Scholar Success. We are invested in cultivating the intellectual, social, and cultural development of our Scholars. We inspire Scholars to discover, create, and innovate while fostering leadership and personal growth to build a foundation for persistence.

Scholars admitted to the TD Program have taken the required core academic courses in high school, however, the average academic profile for students accepted to TD is different from that of students accepted through the regular admission process. To be considered for the TD Program, students apply for admission to URI indicating their interest in TD and then are considered through a competitive review process. Once accepted, participate in the TD Summer Success Program, a fully residential academic program prior to the start of their first fall semester. The Summer Success Program is designed to assist Scholars' academic and social transition from high school to college and introduce them to the tools they need to be autonomous and successful in their college career. Upon successful completion of the Summer Success Program, Scholars are admitted to URI and continue their enrollment in the fall. TD Scholars receive intensive academic advisement and key support services from an assigned TD Advisor and most receive the need-based Hardge/Forleo Grant to assist with the cost of tuition.

From that first class of 13 students in '68 to the 1,100 current Scholars, and over 3,800 alumni, TD is a proud community of accomplished individuals in this state, around the country, and throughout the world.

For more information on the Talent Development Program at URI or the application process, ask your guidance counselor, call 401.874.2901, or visit uri.edu/talentdevelopment.

WOMEN'S CENTER

uri.edu/womenscenter

The University of Rhode Island's Women's Center partners with the URI community to promote social justice for every member of our community regardless of gender, gender identity, body, ability, sexual orientation, race, spirituality, and ethnicity.

The Women's Center educates students of all genders through transformational programs and services that focus on gender equity and equality, social justice, women's rights, and the social, political, and economic empowerment of women. Programs and services sponsored by the Women's Center are

open to students, staff, faculty, and the greater University community.

VIOLENCE PREVENTION AND ADVOCACY SERVICES (VPAS)

Potter Building, 6 Butterfield Road (401) 874-9131 https://health.uri.edu/vpas/

VPAS, located in the Potter Building within Health Services, provides programming and educational opportunities to increase awareness of and reduce tolerance toward all forms of interpersonal violence. VPAS is a confidential survivor-centered, trauma-informed resource to provide students support, advocacy, information and resources. Our mission is to partner with campus members and community agencies to foster individual and collective action to end sexual and relationship violence. VPAS provides violence prevention education, outreach, training, and intervention strategies to the campus community.

VPAS utilizes peer educators as a tool to engage and educate students around issues of interpersonal violence.

VPAS envisions a safe campus climate that is free of sexual assault, dating violence, domestic violence, and stalking.

STUDENT INVOLVEMENT

Educational, social, cultural and recreational programs are sponsored by many different offices and student organizations at the University. These events are funded by student fees, and opportunities abound for students to become involved in selecting and coordinating them. The Student Entertainment Committee sponsors an extensive series of social programs featuring concerts, local and regional musicians, other live entertainment, lectures, and films. The one-hundred-plus student organizations recognized and funded by Student Senate provide a wide range of engagement, leadership, and participation opportunities for all students at the University.

In addition to intercollegiate athletic teams, a number of student organizations represent the University in competitions, exhibitions, and public performances. Cheerleaders are active at varsity football and basketball games and other special events and rallies. The University Band, Chorus, and Orchestra are under Music Department direction, and students may receive credit for participation in any one of these. The University Theatre, under the direction of the Theatre Department, presents several plays each year.

Students publish a newspaper, The Good Five Cent Cigar, once per week and an annual yearbook, Renaissance Yearbook. The radio station, WRIU 90.3 FM, with local FM reception and streaming on RIU2, reaches all of Rhode Island and parts of Connecticut and Massachusetts, is student-run, and operates 365 days a year. There is also a 24-hour student-run ambulance service.

Over 100-plus student organizations exist in which students can get involved. Covering a wide range, these organizations may be academic, cultural, media-related, political, recreational, religious, social, or special-interest groups. There are also about 30 professional organizations on campus related to academic areas. Student organizations are supported in their program and event planning by Student Events Advising (SEA) Office. Thousands of students participate in the activities coordinated by these organizations. For information, students are directed to the Office of Student Involvement:

Office:
Memorial Union, Room 210

Phone:
401.874.2726

Website:
uri.edu/studentinvolvement/

ATHLETICS

The Department of Athletics provides experiences that are consistent with the mission of the University and the NCAA Division I philosophy. The Department provides opportunities for student-athletes that encourage the pursuit of commitment, teamwork, competitive success, development of personal character, and leadership skills. We maintain an environment that values academic achievement, integrity, diversity, gender equity, and sound fiscal management. URI Athletics strives to provide quality programs that cultivate an exciting atmosphere for the University and the community.

The intercollegiate athletics department sponsors 18 NCAA Division I programs for men and women. A member of the Atlantic 10 Conference in most sports, URI also holds membership in the CAA Football League (FCS). On the men's side, URI sponsors the following sports: baseball, basketball, cross country, football, golf, soccer, and indoor and outdoor track and field. Women's intercollegiate teams participate in basketball, cross country, rowing, soccer, softball, volleyball, indoor and outdoor track and field, swimming and diving, and tennis.

The 7,657-seat Thomas M. Ryan Center is the cornerstone of URI's athletic complex and serves as the home of Rhode Island men's and women's basketball teams. The Ryan Center boasts three tiers of seating in the arena to bring all 7,657 seats within 74-feet of the court, creating a frenzied atmosphere. Every seat in the Ryan Center has a chairback, and there are eight luxury suites that overlook both the Meade Stadium football field and the Ryan Center basketball court. The 200,000 square-foot arena combines the heart and spirit of the venerable Keaney Gym with the amenities, services, and conveniences of a modern arena.

Meade Stadium has served as the home of Rhody's football team since it opened in 1928. The west side of the stadium features chairback seating, and the suite level in the Thomas M. Ryan Center overlooks the entire field. In 2019, a $4.2 million project was completed to install lights and synthetic turf to Meade Stadium.

Opened in 1953 and named for URI's Hall of Fame men's basketball coach Frank W. Keaney, the 3,385-seat Keaney Gym is the site of Ram volleyball matches. Keaney Gym was the home of the men's and women's basketball teams for 49 seasons until the Ryan Center opened its doors in 2003.

Bill Beck Field is the home of the URI baseball team. In 2007, a $1+ million donor-initiated facility renovation equipped the Rams with a FieldTurf playing surface and indoor hitting facility, as well as a new backstop, scoreboard, fencing, and bullpens.

Mackal Fieldhouse, which opened in 1991, is the home for the men's and women's track and field programs. The facility is often used to host the Atlantic 10 Indoor Track Championships, as well as numerous other athletic competitions.

Additional on-campus, varsity competition facilities include the Tootell Aquatics Center, the URI Soccer and Softball Complexes, and the Hassenfeld Tennis Courts.

CAMPUS RECREATION

Campus Recreation enriches the URI Community through diverse, recreational opportunities. We are driven to inspire a sense of belonging and to promote a life-long commitment to holistic well-being. The Department fosters student success through our values of belonging, holistic well-being, integrity, student development, and sustainable practices. Campus Recreation offers programs and facilities for Aquatics, Fitness and Wellness, Sailing, Sports, and drop-in open recreation. In addition, Campus Recreation hosts programming and initiatives aimed to enrich your well-being and help you floURIsh as you transition to this new part of your life.

There are 17 competitive club sports teams through the Department, including but not limited to: crew, equestrian, field hockey, gymnastics, men's and women's ice hockey, men's and women's lacrosse, men's and women's rugby, sailing, men's and women's swimming, tennis, men's and women's ultimate frisbee, men's volleyball and wrestling. The Intramural Sports Program offers all-male, all-female, coed, and open (no gender requirement) leagues. There are over 20 sports offered, including but not limited to: basketball, flag football, indoor and outdoor soccer, sand and indoor volleyball, softball, floor hockey, ice hockey, spike ball, cornhole, badminton, and dodgeball.

The University has a number of facilities for recreation, included in the cost of tuition:

The Anna Fascitelli Fitness and Wellness Center is a 33,000 square foot two-level facility that opened in 2013. The Fascitelli Center includes 3 group exercise studios, cardio and strength equipment, and the Wellness Resource Center. This facility has been certified LEED Gold from the U.S. Green Building Council.

The Mackal Field House contains fitness rooms complete with weight training and cardio equipment, a Mondo 200-meter track, and four basketball courts. Mackal also houses the Athletics and Campus Recreation Departments' administrative offices.

The Tootell Physical Education Complex offers an aquatic center with competitive and instructional programs; and a group exercise studio. In addition, the Tootell West Gym is utilized for Intramural Sports games and drop-in open recreation.

The Bradford R. Boss Arena is one of only two ice facilities in the state that operate for the entire year and are open for public skating. It also hosts Men's and Women's Club Hockey and Intramural Ice Hockey.

The Arrigan Sailing Center is located off-campus. The Sailing Center is home to the URI Sailing Teams. In addition, academic classes are hosted there, where you can learn to sail. Lastly, the Sailing Center offers kayak and paddleboard rentals FREE to URI students.

The North Recreation Fields are located on campus and are lighted for evening Intramural Sports games. Club Sports has fields for the field hockey, lacrosse, rugby, and ultimate frisbee teams. In addition, the campus has three beach volleyball courts and two outdoor basketball courts for recreational use.

CENTER FOR STUDENT LEADERSHIP DEVELOPMENT

Since its founding in 1997, the Center for Student Leadership Development (CSLD) has provided academic leadership courses and countless hours of leadership development training to URI students and the surrounding community. Through academic course offerings in the Leadership Studies minor, internships, values, and strengths-based leadership development training, and multiple programs throughout the year, CSLD provides developmental opportunities for students to become informed, inclusive, and effective leaders in their career, communities, family lives, and field of study. Programmatic highlights include the annual Leadership Institute weekend, the North Woods Challenge Course, the Rose Butler Browne Women of Color dinner and conference, the award-winning peer-led student group the Student Organization Leadership Consultants (SOLC), and group development consulting services. In addition, the CSLD professionals coordinate and serve as presenters, facilitators, and instructors within URI's minor in Leadership Studies. For more information, please visit the Center for Student Leadership Development:

Office:
Memorial Union, Room 210

Phone:
401.874.2261

Website:
uri.edu/leadership

Email:
leadership@etal.uri.edu

STUDENT-RUN BUSINESSES

The Memorial Union offers students an opportunity to run a business under full-time supervision, but with a large amount of independence. Enterprises such as the 193° Coffee House allow for management training and excellent work experience.

Location:
Memorial Union, Room 200

FEINSTEIN PROVIDENCE CAMPUS

While all URI students have access to all Kingston Campus opportunities, there are also a range of unique services available at the nonresidential Feinstein Campus in Providence. For more information, call 401.277.5000 or visit uri.edu/ceps.

STUDENT RECORDS AND THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT

The University of Rhode Island complies with the Family Educational Rights and Privacy Act of 1974. This Act was designed to protect the privacy of education records, to establish the right of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data through formal and informal hearings.

As a general rule, students attending a college or university, regardless of age, have the right under FERPA to control the disclosure of information from their educational records.

FERPA generally requires the University to obtain written consent prior to the disclosure of personally identifiable information from a student's education records. The University may disclose directory information without such consent unless you have notified the school otherwise.

What is Directory Information?

Directory information is basic information related to a student that the school may include in certain school publications such as yearbooks, graduation programs, sports activity sheets, honor roll or other recognition lists, etc. Some of the information is included in the University's online directory.

The University currently designates the following as directory information:

Student's Full name

Campus, local, home address, email address

Telephone listings (campus, local and home)

Website Address

Date and place of birth

Major field of study

Full/part-time status

Participation in officially recognized activities and sports

Weight and height of members of athletic teams

Date(s) of attendance

Degrees, honors, and awards received

The most recent previous educational institution attended

Class year

Graduation dates

Who might receive Directory Information?

Releasing directory information is generally not considered harmful or an invasion of a student's privacy. Some examples of outside organizations that might receive directory information include companies that manufacture class rings or publish yearbooks. In addition, two federal laws require schools receiving certain federal funds to provide military recruiters, upon request, with the following information – names, addresses, and telephone listings.

May I opt out of Directory Information disclosure?

Directory information is considered public information and may be released upon request unless the student activates a "privacy hold" in eCampus. If you do not want the University to disclose directory information from your education records without your prior written consent you can manage your FERPA restrictions through eCampus. To do so, log in to eCampus and go to Main Menu - Self Service - Personal Information - FERPA Restrictions.

Can I grant a third party, like parents, access to my information?

As a student, you may assign guest access to eCampus to a third party to view your billing, academic records, and/or financial aid information. A guest can be a parent, guardian, grandparent, sibling, employer, or another third-party payer. Details to grant third-party access can be found at: web.uri.edu/enrollment/third-party-access/.

All other information is considered private, and will not be released outside the university without the written permission of the student unless a specific exception under FERPA applies. Additional information about student records can be found in the Student Handbook.

How do I request to inspect and review my student educational records?

To access educational records, eligible students must submit a written request to Dr. Carnell Jones, Director of Enrollment Services. The letter must identify the record(s) they wish to inspect. Within 45 days of receiving the request, the University will either make arrangements for access and notify the eligible student of the time and place where the records may be inspected, or the University may provide copies of the records, or portions of the records, for a fee. Students may ask school officials to amend a student's educational records that they believe are inaccurate, misleading, or violate the student's privacy rights under FERPA. Students may file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA.

URI FERPA Contact: Questions concerning student rights under FERPA should be sent to Director Jones, Green Hall, Kingston RI 02822 (401-874-9500).

Federal FERPA contact: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW; Washington, D.C. 20202-8520.

CAMPUS ID CARD

Each student's Campus ID Card must be carried at all times on campus and presented upon request. Use of the card constitutes acceptance of all applicable terms and conditions. This card will remain the property of URI. Lost, stolen, or damaged cards must be reported immediately to the Campus ID and Dining Office (Room 216, Memorial Union) 401-874-2055.

Undergraduate Admission

OFFICE OF ADMISSION

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

Students are selected for enrollment on the basis of a holistic review of all application materials; without discrimination based on race, gender, religion, age, color, creed, national origin, disability, sexual orientation, sexual expression, or veteran status. The University has been authorized under federal law to enroll nonimmigrant foreign students.

PRIOR TO ADMISSION

INFORMATION SESSIONS

Admission information sessions are offered for prospective students and their families. Some academic colleges and departments also offer sessions. For details visit uri.edu/admission/visit-us and explore our in-person and virtual offerings. Follow the instructions to register for events, or watch recorded events on our YouTube channel.

CAMPUS TOURS

Student tour guides conduct walking tours of the campus for visitors year-round Monday through Friday and most Saturdays. There is also a virtual tour on the website. Group tours for high schools, school counselors, and other organizations may also be arranged. For more information, refer to the "Tour" section on the website: uri.edu/admission/visit-us.

Tours of the Narragansett Bay Campus and the Graduate School of Oceanography may also be arranged. Call 401.874.6211 for details.

FIRST-YEAR STUDENT ADMISSION REQUIREMENTS

Admission to the University of Rhode Island is competitive, and each applicant receives individual consideration. In the evaluation process we consider the rigor of the high school curriculum, academic performance, standardized test scores (please note that for 2021 and 2022 we are "test optional"), extracurricular activities, employment, leadership, community service, and unique talents. The students offered admission for fall 2021 had an average recalculated GPA of 3.65/4.0, with an average SAT Math and Reading/Writing combined score of 1236/1600; and an average, and an ACT composite score of 28.

A minimum of 18 Carnegie units of college preparatory classes in high school are required as follows: 4 in English; 3 in mathematics including Algebra I, Algebra 2, and geometry; 2 in a physical or natural science including at least one laboratory science; 2 in history or social science; 2 in the same foreign language; and 5 additional college preparatory units to total 18.

All students are encouraged to select their additional units from the areas of English, foreign language, mathematics, social science, or laboratory science. The strongest applicants take the most rigorous secondary school courses available to them.

See uri.edu/admission/first-year/ for more specific information.

Certain programs at URI are highly selective due to limited enrollment capacity. The following are additional requirements related to specific colleges and majors:

We recommend that applicants to Business, Chemistry, Computer Science, Engineering, Physics, and Pharmacy complete 4 units of mathematics (including precalculus or trigonometry).

Engineering applicants must complete 4 units of mathematics including pre-calculus or calculus, and 3 units of physical science classes with laboratories including 1 unit of physics, 2 other physical sciences, and chemistry is recommended.

Business, Engineering, Music Therapy, Nursing, and Pharmacy applicants who submit complete applications by the December 1 Early Action deadline will be given preference for admission.

Applicants to all music programs must audition and should contact the Department of Music at 401.874.2431 for audition dates and requirements.

See uri.edu/admission/first-year/ for more specific information.

Applications are not reviewed until all required materials are received by the Office of Admission. These materials include:

A completed Common Application

Application fee of $65

Official high school transcript (preferably submitted through the Common Application)

List of senior courses (admission is contingent upon successful completion of all senior course work and graduation from high school)

Official SAT or ACT scores for those who wish to have them considered (MUST be sent electronically by the testing services: the URI ID code is 3919 for SAT and 3818 for ACT). Note that we are test optional for 2021 and 2022.

Essay (pharmacy and nursing applicants must include an additional statement regarding why they have selected the major)

At least one letter of recommendation (please limit to two). Pharmacy applicants are required to provide two letters of recommendation.

STANDARDIZED TESTS

Please note that we are test optional for 2021 and 2022. Students who wish to submit their SAT or ACT scores are required to have their test scores submitted electronically to the

University by the testing services. Full information concerning these tests may be obtained from local high schools and is available online at collegeboard.org or act.org.

APPLICATION PROCEDURES

Students should discuss their plans for study at the University with their school

counselors as early as possible to establish realistic goals and program selections. The University is a member of the Common Application group. URI admission counselors will be glad to answer applicants' questions. Requests for information should be sent to

admission@uri.edu. Applicants may also call 401.874.7100, or visit the Admission website at uri.edu/admission.

Students may enroll at the beginning of the fall semester in September and at the beginning of the spring semester in January.

Not all programs enroll new students in January. High school seniors are urged to submit applications, including first quarter grades (when they become available), early in the academic year. Early Action applicants who submit complete applications by December 1 will receive a decision by the end of January. All other applicants will hear by March 31. The deadline for submitting fall term first-year student applications is February 1. The deadline for submitting spring term (January) first-year student applications is November 1. Enrollment and housing deposits are due by May 1.

EARLY ACTION AND MERIT SCHOLARSHIPS

All applicants are considered for merit scholarships by submitting a complete application for admission. There is no separate scholarship application. To be considered for the full range of scholarships, we recommend that you apply by the December 1 Early Action deadline. These scholarships are awarded to U.S. residents and international students. Minimum requirements for scholarship consideration are:

A challenging curriculum

Recalculated GPA of 3.2/4.0

Involvement in school and/or community

Satisfaction of the minimum criteria listed here does not guarantee a scholarship; the overall applicant pool determines the degree of competition for these awards.

Most Early Action applicants receive their admission decision by the end of January. Early Action is non-binding. Merit scholarships are four-year awards (they are six-year awards for those in the Pharm.D. program), renewable each semester as long as students maintain continuous full-time enrollment (12 credits per semester) and a minimum GPA of 2.80. If a scholarship recipient's tuition classification (in-state/out-of-state/regional) changes, the award amount will also change to reflect the amount for the new tuition category.

EARLY ENROLLMENT/EARLY ADMISSION

Students who have completed their junior year of high school with superior records may be eligible for early admission. Early admission students must have completed (by the end of the junior year) three years of English, three of mathematics (Algebra 1 and 2 and geometry), two of the same foreign language, two to three of social studies or history, and two of natural or physical science with at least one laboratory science. Students must have the endorsement of their high school counselor or principal. High school administrators must be willing to accept credits earned during the first year at URI toward remaining high school graduation requirements. Those interested should plan with their high school counselor early in their junior year, and direct further inquiries to the Office of Admission. An interview may be required. Please note: Early admission is not a dual enrollment program; these students are no longer enrolled at their high school and are fully matriculated at the University.

Early admission candidates must submit a complete application by the December 1 Early Action Deadline. These applicants may be considered for merit scholarships. Because early admission candidates have not yet graduated from high school, they are not eligible for need-based aid. After receiving their high school diploma, they may apply for financial aid.

A part-time study program (dual enrollment) may be arranged for students wishing to begin college study in their senior year while continuing their high school work. Students may register for appropriate classes through the Office of Enrollment Services.

ADVANCED PLACEMENT

First-year students can earn advanced placement credit for college if they have completed college-level courses in a high school participating in the Advanced Placement Program and have passed (with a score of 3 or better on most examinations) the CEEB Advanced Placement Examination. For more information about Advanced Placement credit, please refer to URI's website at uri.edu/admission/advanced-placement.

INTERNATIONAL BACCALAUREATE DEGREE PROGRAM

URI awards credit for most higher-level examinations taken in high school and passed with a score of 5, 6, or 7. Course credit is awarded at the discretion of individual departments. No credit is awarded for standard level examinations. Refer to URI's website at uri.edu/admission/advanced-placement.

GCE, ADVANCED LEVELS (A-LEVELS)

URI awards credit to enrolled students who have obtained a grade of A, B, or C on specified A-level exams. Students who have taken A-level exams in unspecified subject areas may submit their transcripts to the Transfer Resource Center for determination of specific transfer credit. Refer to URI's website at uri.edu/admission/advanced-placement.

ADVANCED STANDING

In addition, students can take proficiency examinations administered by University departments to be granted advanced standing. Entrance with advanced standing can ac-

celerate the completion of degree requirements or enrich the undergraduate program by allowing for additional elective or advanced courses.

PROFICIENCY EXAMINATIONS

Students showing evidence of advanced knowledge or who have taken "enriched" programs in high school may be exempt from certain courses and requirements if they take departmental proficiency exams. A student who successfully passes such an exam earns credits as well as exemption from the course. Students interested in taking these exams should contact their academic advisor or dean during their first semester at URI. New students may obtain further information during orientation from their advisor in University College for Academic Success. Proficiency exams must be completed by the beginning of the second semester of full-time registration.

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

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

Academic departments may use CLEP Subject Examinations as proficiency exams to test the student's mastery of the subjects taught by the department. A department that judges a CLEP Subject Examination to be a satisfactory proficiency exam decides what credit should be awarded within the department to students passing the exam, establishes the minimum score for credit, decides whether students must answer the optional essay questions supplied by CLEP, and decides whether students must pass a supplementary department test, such as a lab exam.

CLEP Examinations are administered through CCRI. Please visit ccri.edu/advising/clep/ for more information.

For more information about transferring CLEP credit, go to toritransfers.org/how-courses-transfer/how-courses-transfer-for-apclep.

HOME-SCHOOLED APPLICANTS

Requirements for home-schooled applicants are the same as for students who have followed a traditional schooling profile. Those students who have had an established working relationship with a home-schooling agency that supplies curriculum outlines and reviews and grades work completed should submit a transcript from that agency. We consider the following information when making an admission decision for a home-schooled applicant:

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

(see First-Year Student Admission Requirements)

Earned Grade Point Average

Standardized testing results (SAT or ACT) that support the content competencies (URI may require SAT Subject exams if specific course content is unclear)

Students who have not worked with a home-schooling agency may be required to submit the results of SAT subject exams in the following subjects to demonstrate competencies:

Writing

American History or World History

Math Level C

Biology, Chemistry, or Physics (select 2)

Any foreign language (two units in the same language)

Other options for demonstrating course competency include transcripts showing completion of college courses covering the subject areas previously listed, results of Advanced Placement exams in those same subjects, or CLEP exam results. Home-schooled applicants are required to complete the Home-School Supplement of the Common Application.

INTERNATIONAL APPLICANTS

International applicants must meet all admission requirements previously listed. Scans or copies of original academic documents are accepted for admission purposes, however, official academic documents must be presented to the Office of Admission at the time of enrollment.

ENGLISH PROFICIENCY REQUIREMENTS

All international applicants whose first language is not English must provide proof of English language proficiency. English language proficiency may be demonstrated by one of the following:

TOEFL iBT: minimum score of 79 (Pharm.D.:100)

IELTS: minimum score of 6.5 (Pharm.D.:7.0)

Cambridge English Scale: 176-184 (Pharm.D.:185-190)

Pearson Test of English (Academic): minimum score of 53 (Pharm.D.: 68)

Eiken Test of English: completion of level Pre-1 (Pharm.D.: Completion of Grade 1)

Duolingo English Test (DET): minimum score of 105 (Pharm.D.: 125)

Applicants who have attended a secondary school or post-secondary school where the language of instruction is English may be exempt from submitting English proficiency examination results depending upon their English grades and their Reading/Writing SAT and/or ACT scores (if submitted). Such exemptions are determined on a case-by-case basis.

DOCUMENT EVALUATION

International transfer applicants must have all post-secondary transcripts formally evaluated by a NACES certified credential evaluation agency at the time of enrollment. Please visit NACES.org for a list of approved credential evaluators. Evaluations must be based on original or attested copies of academic

documents. Applicants should request a course-by-course evaluation and have an official report sent directly to URI. Also, please be aware that official course descriptions and/or syllabi (in English) may be requested by the head of the student's department before URI transfer credit is awarded.

I-20/FINANCIAL DOCUMENTS

The Office of Admission generates the Form I-20 for all first-time admitted international first-year students and transfer students. This form is used to schedule a visa interview at a United States Embassy/Consulate in a country outside of the United States. In order to issue the Form I-20, the following documents must be received by the Office of Admission:

Certificate of Financial Responsibility, legible PDF of a bank statement (valid within 30 days of issuance), or government issued financial guarantee. These documents must prove that the student/family/sponsor possesses funds covering the full cost of attendance for the first year of study, and that the funds for subsequent years will be available.

Legible copy of the student's passport biographical page.

Preferred mailing address.

Transfer-In Form. This is ONLY required of students who are currently studying in the U.S. on an active student visa/I-20.

If government or reserve bank permission is required to transfer funds from the student's country to the United States, a notarized copy of the permission is required. No need-based financial aid is available to international students, although all applicants are eligible for merit-based scholarship consideration. Inquiries from international students concerning non-immigrant visas, transfers, funding, etc., should be emailed to the Office of Admission at internationaladmission@uri.edu.

TALENT DEVELOPMENT

The Talent Development Program (TD) at URI serves R.I. high school graduates who come from underrepresented backgrounds. Students admitted to TD have taken the required core academic courses in high school. However, the average academic profile for students accepted to the TD program is not the average academic profile for students accepted through the regular admission process. The TD program includes an intensive summer experience prior to the start of the fall semester during which students take college courses and live on campus. Those who successfully complete the program continue with their enrollment at URI in the fall.

TD students receive academic and individual support from TD advisors and mentors, and most receive the Hardge-Forleo grant (based on demonstrated financial need); need is determined by the filing of the Free Application for Federal Student Aid (FAFSA). Interested students must submit the application for admission and ALL supporting material by December 15 of their senior year in high school. For more information, please visit: web.uri.edu/talentdevelopment/.

TRANSFER ADMISSION REQUIREMENTS

A transfer applicant is one who has attended another regionally accredited college or university in any capacity after graduating from high school, regardless of whether any credits have actually been earned. Admission preference is given to applicants who have completed college-level academic courses covering a range of subjects including mathematics, communications, humanities, social sciences, natural sciences, and fine and performing arts. Remedial/developmental courses and vocational courses (e.g. culinary, applied technical science) are not transferable.

A minimum cumulative GPA of 2.50 is required, but most successful applicants have much higher GPAs. Certain programs may require a higher GPA or specific prerequisite courses. Transfer applicants must submit official transcripts directly to URI from all colleges and universities, regardless of whether applicants expect or desire credit for such work. High school transcripts must also be submitted.

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

JOINT ADMISSION

The Joint Admission Agreement (JAA) is available to Community College of Rhode Island (CCRI) students who, prior to earning 30 credits, matriculate into one of the recognized JAA transition plans. Each transition plan specifies at least 32 credits that transfer to URI in fulfillment of general education requirements.

For first-time college students who intend to begin their college studies at CCRI and complete their bachelor's degree at URI, the Joint Admission Agreement (JAA) may make the transition more efficient. Depending on their intended major, they may be guaranteed admission to URI by enrolling in the JAA by earning a 2.4 Grade Point Average (GPA), and completing courses listed in a JAA Transition Plan. A minimum of 60 credits will be accepted at URI through the JAA Program.

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

NEW ENGLAND REGIONAL STUDENT PROGRAM

Through a cooperative plan sponsored by the New England Board of Higher Education, students from other New England states may enroll in a small number of selected programs at URI which are not offered in their own state institutions. Certain programs at other New England state universities are open to Rhode Islanders on a reciprocal basis. In most cases, the regional tuition covers all four years of the program. For some majors, however, the regional tuition does not take effect until later in the program. When tuition is reduced from out-of-state to regional, merit scholarships are reduced to the

corresponding regional scholarship amount.

Visit uri.edu/admission/regional-tuition-majors to see a list of URI regional majors by state.

Students who are applying for readmission through the Office of Enrollment Services must contact that office at 401.874.9500 to check on eligibility for Regional Tuition.

SCHOOL OF PROFESSIONAL AND CONTINUING STUDIES AT THE URI FEINSTEIN PROVIDENCE CAMPUS

Visit uri.edu/ceps.

The School of Professional and Continuing Studies (SPCS) is part of the Alan Shawn Feinstein College of Education and Professional Studies (CEPS) and is located at the University's Feinstein Providence campus.

The Feinstein Providence campus is a good choice for adult learners who want a high quality URI education, but prefer a nonresidential campus in the state's urban center. Because it is smaller and nonresidential, the Feinstein Providence campus has a reduced fee structure that gives commuter students a greater value for their tuition dollars.

The Bachelor of Interdisciplinary Studies *General Studies* degree is designed for STAR students—working professionals who identify as Service-members, Transfer, Adult, and Returning students. This major is well-suited for students who enter into the University of Rhode Island with a substantial amount of credits or for those students who want an academic degree that includes learning opportunities from a diverse array of academic programs. Students will complete coursework in three distinct subject areas of their choosing, while concurrently honing their critical thinking, communication, and research skills and synthesizing their learning in BIS core courses, including a capstone experience.

The Bachelors of Interdisciplinary Studies *Learner Designed* degree is also designed for STAR students. This innovative major is well-suited for those whose career goals call for training in more than one discipline or who want a breadth of knowledge in several fields, rather than a depth of knowledge in a single discipline. This "three-minor" major provides an opportunity for students to develop and pursue a course of study centered on a self-selected unifying theme, problem, or issue from three distinct minor programs at the University of Rhode Island.

Eligible adult learners can be considered for admission under "performance-based admission" (PBA). PBA is available to applicants with no, or limited, prior college attendance whose last formal, full-time educational experience occurred at least three years ago, and who have graduated from high school or earned a general equivalency diploma (GED).

Undergraduate Programs

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

Undergraduate students can earn the following degrees at URI:

Bachelor of Arts (B.A.)

Bachelor of Science (B.S.)

Bachelor of Fine Arts (B.F.A.)

Bachelor of Landscape Architecture (B.L.A.)

Bachelor of Music (B.M.)

Bachelor of Interdisciplinary Studies (B.I.S.)*

Doctor of Pharmacy (Pharm.D.)**

*Alan Shawn Feinstein College of Education and Professional Studies; School of Professional and Continuing Studies

**The College of Pharmacy offers a six-year entry-level program leading to the Pharm.D. degree.

UNDERGRADUATE PROGRAMS PRESENTED BY COLLEGE

ARTS AND SCIENCES

Bachelor of Arts

Africana Studies
Anthropology
Art
Art History
Chemistry
Chinese
Classical Studies
Communication Studies
Communication Studies Degree Completion Program
Computer Science
Criminology and Criminal Justice
Data Science
Economics
English
Film/Media
French
Gender and Women's Studies
German
Global Language and Area Studies
History
International Studies and Diplomacy Program
Italian
Journalism
Mathematics
Music
Philosophy
Political Science
Public Relations
Sociology
Spanish
Sports Media and Communication
Theatre (open to Education majors only)
Writing and Rhetoric

Bachelor of Science

Chemistry
Chemistry and Forensic Chemistry*
Computer Science
Data Science
Economics
Mathematics
Physics
Physics and Physical Oceanography

Bachelor of Fine Arts

Art
Theatre

Bachelor of Music

Music

BUSINESS

Bachelor of Science

Accounting
Finance
General Business Administration
Global Business Management
Innovation and Entrepreneurship
Management
Management Information Systems *Marketing
Supply Chain Management
Textile Marketing
Textiles, Fashion Merchandising and Design

Undergraduate Certificates

Innovation and Entrepreneurship Undergraduate Certificate **

ALAN SHAWN FEINSTEIN COLLEGE OF EDUCATION AND PROFESSIONAL STUDIES

Bachelor of Arts

Elementary EducationSecondary Education

Bachelor of Interdisciplinary Studies

Interdisciplinary Studies -General Studies major

Interdisciplinary Studies -Learner Designed major

Bachelor of Science

Early Childhood Education
Health and Physical Education
Nonprofit Administration
Professional Leadership Studies
Secondary Education

ENGINEERING

Bachelor of Science

Biomedical Engineering
Chemical Engineering
Civil Engineering
Computer Engineering
Electrical Engineering
Industrial and Systems Engineering
Mechanical Engineering
Ocean Engineering

ENVIRONMENT AND LIFE SCIENCES

Bachelor of Arts

Biology
Marine Affairs

Bachelor of Science

Animal Science and Technology
Aquaculture and Fisheries Science
Biological Sciences
Biotechnology
Cell and Molecular Biology
Environmental and Natural Resource Economics
Environmental Science and Management
Geology and Geological Oceanography
Interdisciplinary Neuroscience (Molecular)
Marine Affairs
Marine Biology
Medical Laboratory Science
Plant Sciences
Sustainable Agriculture and Food Systems (SAFS)
Wildlife and Conservation Biology

Bachelor of Landscape Architecture

Landscape Architecture

Undergraduate Certificates

Energy Economics and Policy Undergraduate Certificate **
Marine Technical Certificate Program **

HEALTH SCIENCES

Bachelor of Arts

Psychology

Bachelor of Science

Communicative Disorders
Health Studies
Human Development and Family Science
Interdisciplinary Neuroscience (Clinical)
Kinesiology
Nutrition and Dietetics
Psychology

NURSING

Bachelor of Science

Nursing (4-year B.S.)
Nursing (R.N. to B.S.)

PHARMACY

Bachelor of Science

B.S. in Pharmaceutical Sciences (B.S.P.S.)
Interdisciplinary Neuroscience (Neuropharmacology)

Doctor of Pharmacy

Doctor of Pharmacy (Pharm.D.)

Undergraduate Certificates

Cannabis Studies Undergraduate Certificate

UNIVERSITY COLLEGE FOR ACADEMIC SUCCESS

All Kingston freshmen who enter the University to earn a bachelor's degree are first enrolled in University College for Academic Success. All undergraduates at the University, whether at our Kingston or Providence campuses, have a wide choice of programs from which to choose a major, and our advising programs provide help in making this important decision and in choosing appropriate courses.

SPECIAL ACADEMIC OPPORTUNITIES

To learn about the Honors Program, International Student Resources, Pre-Professional Advising Programs, and more, see Special Academic Opportunities.

NOTES:

** Degree program is not accepting applicants.* Search uri.edu/programs to learn if the field of study is available under a different program.

*** Undergraduate Certificate Program is available for currently enrolled degree-seeking undergraduates only.*

Minor Fields of Study

Undergraduate students may declare a "minor" field of study. A minor is a secondary concentration of courses. Requirements may be satisfied by: (1) completion of 18 or more credits of any of the approved interdepartmental minors; or (2) completion of 18 or more credits of related studies offered by one or more departments or programs and sponsored by a faculty member competent in the minor field of study.

REQUIREMENTS FOR CHOOSING AND DECLARING A MINOR

To declare a minor, a student must have the approval of the department chairperson of the minor field of study (or faculty sponsor in option 2 of the paragraph above) and the student's academic dean. Application for the minor must be filed in the academic dean's office no later than the beginning of the student's final semester or term, but may be filed as early as the first semester of the junior year. Filing for a minor earlier than the junior year is subject to approval by the student's degree-granting college. Non-business students wishing to obtain a departmental minor in the College of Business should expect to take the six courses required for that minor over a period of two years. Admission to the minor in Business is on a space-available basis and therefore not guaranteed.

REQUIREMENTS FOR COMPLETING A MINOR

To complete a minor, a minimum grade point average of 2.00 must be earned in the minor courses, and at least 12 of the 18 credits must be at the 200 level or above. At least eight of the credits required for the minor must be earned at the University of Rhode Island. Courses used to fulfill General education requirements may also be used for the minor. Up to two courses required in a major program may be used to apply to both the major and minor fields of study. Minor courses may not be taken on a pass-fail basis. The requirements for the minor must be completed prior to graduation. Upon graduation, successful completion of a minor is noted on the student's official transcript. Graduates who have earned an undergraduate degree with a minor from URI and who are then readmitted to the University to pursue an alternate major or degree, may apply for that purpose all credits earned in pursuit of the previous minor field of study.

Descriptions of approved **departmental minors** and their specific requirements may be found in the departmental sections of this catalog.

Descriptions of approved **interdepartmental minors** may be found below. For more information about minors available within each field of study, visit the website or contact the dean's office of the relevant college.

INTERDEPARTMENTAL MINORS

Africana Studies
American Studies
Arabic Language and Culture
Asian Studies
Business Analytics and Intelligence Minor
Business of Digital Media
Community Planning
Comparative Literature Studies
Film Media
Forensic Science
Gender and Women's Studies
Geography
Gerontology
Global Water Resources
Hunger Studies
Innovation Management and Entrepreneurship
International Development
International Relations
Japanese Language and Culture
Justice, Law, and Society
Latin American, Caribbean and Latinx Studies
Leadership Studies
Linguistics
Medieval Studies
New England Studies
Nonviolence and Peace Studies
Oceanography
Public Relations
Restoration Science and Management
Social Justice and Civic Responsibilities
Special Populations
Sports Media and Communication
Statistical Science
Sustainability
Thanatology (Death, Dying, Bereavement and Loss)*

Underwater Archaeology
Work, Labor, and Social Justice*
Writing

** Program is not accepting applicants.* Search uri.edu/programs to learn if the field of study is available under a different program.

Accelerated Bachelor's to Master's (ABM) Programs

URI's accelerated bachelor's to master's (ABM) programs allow students to earn both degrees in just five years, by applying credits taken as an undergraduate to the graduate degree. Specific requirements vary by program.

ABM PROGRAMS

Applied Mathematics 5-Year B.S./M.S.

Chemical Engineering 5-Year B.S./M.S.

Civil Engineering 5-Year B.S./M.S.

Communication Studies ABM

Computer Science and Cyber Security ABM/PSM

Electrical Engineering 5-Year B.S./M.S.

English ABM

Environmental and Natural Resource Economics ABM

Environmental Science and Management (M.E.S.M.) ABM (Natural Resources Science option)

Environmental Science and Management (M.E.S.M.) ABM (Sustainable Food Systems option)

History ABM

Human Development and Family Science ABM

International Relations ABM

Kinesiology ABM

Labor Relations and Human Resources ABM

Mechanical Engineering and Applied Mathematics 5-Year B.S./M.S.

Medical Physics 5-Year B.S./M.S.

Nutrition and Food Science ABM

Pharmaceutical Sciences ABM

Speech Language Pathology 5-Year B.S./M.S.

Supply Chain PM/ABM

Systems Engineering 5-Year B.S./M.S.

Textiles, Fashion Merchandising and Design ABM

Graduate Degree Programs

See **About the URI Graduate School** for additional information regarding admission and registration, calendars, and requirements and policies.

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 students 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. students 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 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, go to directories or visit the website of the relevant department(s) at uri.edu.

Graduate Fields of Study

Presented by Degree

MASTER OF ARTS

Communication Studies
Education
English
History
International Relations (See Political Science)
Marine Affairs
Spanish*

MASTER OF SCIENCE

Accounting
Biological and Environmental Sciences
Chemical Engineering **
Chemistry
Civil and Environmental Engineering **
College Student Personnel
Computer Science
Dietetics (See Nutrition and Food Sciences)
Electrical Engineering **
Environmental and Natural Resource Economics
Finance*
Healthcare Management
Human Development and Family Science
Kinesiology
Labor Relations and Human Resources
Mathematics
Mechanical Engineering
Medical Laboratory Science *
Medical Physics (See Physics)
Neuroscience
Nursing
Nutrition
Ocean Engineering **
Oceanography
Pharmaceutical Sciences
Physics
Psychology *
Quantum Computing (See Physics)
Speech-Language Pathology
Statistics
Systems Engineering **
Textiles, Fashion Merchandising and Design

DOCTOR OF PHILOSOPHY

Applied Mathematical Sciences *
Biological and Environmental Sciences
Business Administration
Chemical Engineering **
Chemistry
Civil and Environmental Engineering **
Computer Science
Education (joint URI-RIC)Electrical Engineering **
English
Environmental and Natural Resource Economics
Health Sciences
Industrial and Systems Engineering **
Marine Affairs
Mathematics
Mechanical Engineering
Neuroscience
Nursing
Nutrition and Food Science
Ocean Engineering **
Oceanography
Pharmaceutical Sciences
Physics
Psychology

PROFESSIONAL DEGREES

Doctor of Business Administration - (D.B.A.)
Doctor of Nursing Practice - (D.N.P.)
Doctor of Physical Therapy - (D.P.T.)
Master of Business Administration - (M.B.A)
Master of Environmental Science and Management - (M.E.S.M.)
Master of Library and Information Studies - (M.L.I.S.)
Master of Marine Affairs - (M.M.A.)
Master of Music - (M.M.)
Master of Oceanography - (M.O.)
Master of Public Administration - (M.P.A.) (See Political Science)
Professional Master of Science in Supply Chain Management and Applied Analytics - (P.M.S.C.M.A.A.)
Professional Science Masters in Cyber Security - (P.S.M.)
Teacher Certification

POST-BACCALAUREATE CERTIFICATE PROGRAMS

Aquaculture and Fisheries (See Environmental Science and Management)
Chemical Engineering (Polymers)
Community Planning
Cyber Security (See Computer Science)
Data Science (accelerated online program) (See Mathematics)
Digital Forensics and Incident Response (See Computer Science)
Digital Literacy (See Education)
Dyslexia Knowledge and Practice (See Education)
Early Childhood Education (See Education)
Electrical Engineering (VLSI)*
Embedded Systems (See Electrical Engineering)
Fashion Merchandising (See Textiles, Fashion Merchandising and Design)
Fisheries Science (See Environmental Science and Management)
Gender and Women's Studies
Geographic Information Systems and Geospatial Technologies (See Environmental Science and Management)
Geographic Information Systems and Remote Sensing (GIS/RS) (See Environmental Science and Management)
Gerontology and Geriatrics
Healthcare Management
Hydrology (See Environmental Science and Management)
Information Literacy Instruction (See Library and Information Studies)
Interdisciplinary Neuroscience (See Neuroscience)
Labor Relations and Human Resources
Policy Analysis (See Political Science)
Professional Certificate in Public Administration and Policy (See Political Science)
Public Management (See Political Science)
Science Writing and Rhetoric (See Environmental Science and Management)
Thanatology

POST-MASTER'S CERTIFICATE PROGRAMS

Nursing

NOTES:

** Degree program is not accepting applicants. Search uri.edu/programs to learn if the field of study is available under a different program.*

*** Program includes the option of earning dual degrees from URI and from Technische Universität Braunschweig, Germany. For more information, visit uri.edu/iep*

Special Academic Opportunities

CAPSTONE EXPERIENCES

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

ENGLISH LANGUAGE STUDIES

Visit web.uri.edu/global.

Non-native-speaking students who want to continue to perfect their English and enhance their overall academic success may do so by taking courses in the English Language Studies (ELS) Program. ELS courses are graded, grant academic credit and are offered to both undergraduate and graduate students. Students are strongly encouraged to take these courses in their first year.

Undergraduate ELS courses are designed to strengthen students' skills in reading, writing, listening, and speaking; thus, enabling students to succeed in all other academic coursework. ELS 112 and ELS 312 are offered in the fall semester on the Kingston Campus, and ELS 122 and ELS 322 are typically offered in the spring semester on the Kingston Campus.

The ELS graduate-level courses are designed to strengthen international teaching assistants' (ITA) skills in pronunciation, listening, speaking, oral presentations, and teaching. These courses prepare graduate students to succeed as teaching assistants in their graduate programs. ELS 512 is offered in the fall semester on the Kingston Campus, and ELS 612 is offered in the spring semester on the Kingston Campus.

E-mail: oie@uri.edu

Website: web.uri.edu/global/coming-to-uri/settling-in/english-language-studies/

Phone: 401.874.2395

HONORS PROGRAM

Visit uri.edu/honors

The University Honors Program offers motivated students opportunities to broaden their intellectual development and strengthen their preparation in major fields of study. The program consists of courses that emphasize discussion and project-based learning, a colloquium that brings nationally and internationally distinguished speakers to campus, and independent research projects under the guidance of a faculty sponsor. Honors courses at the 100 and 200 levels fulfill general education requirements; those at the 300 and 400 levels are more specialized and often are used to fulfill either a general education requirement or the requirements of a major.

Students may participate in the Honors Program if they meet the following standards: Sophomores, juniors, and seniors must have earned at least a 3.40 cumulative grade point average at URI; transfer students must have received a GPA of 3.40 or better at their previous institution to be eligible for honors courses.

Incoming freshmen are invited to participate in the Honors Program based on one of the following: they must have earned a cumulative grade point average (recalculated) of 3.60 or higher in high school and must have a combined score of 1,300 on the critical reading and math portions of the SAT exam (or ACT score of 27 or higher); or they must have earned a cumulative 3.80 GPA (recalculated) in high school, and SAT scores are not considered.

Eligible students may participate in the Honors Program in one of two ways: they may take honors courses on an occasional basis, registering for any number or pattern of courses that interest them; or they may do honors work on a regular basis, meeting the specific requirements to receive the transcript notation "Completed the University Honors Program." To achieve this certification a student must complete a minimum of 18 honors course credits that meet the following requirements: 1) three credits in Honors at the 100 or 200 level; 2) three credits of Honors Colloquium; 3) three credits in Honors at the 300 or 400 level; 4) six credits at the 400 level, which may be either six credits of Senior Honors Project (HPR 401, 402) or three credits of Senior Honors Project (HPR 401) and three credits of Senior Honors Seminar (HPR 411/412, or other approved Senior Seminar); 5) three additional honors credits taken at any level; and 6) a 3.40 grade point average for honors courses and a 3.40 cumulative grade point average.

HONOR SOCIETIES

Honor Societies.

The University has chapters of a number of national honor societies, invitation to which is recognition of scholarly accomplishment. Several societies recognize scholarship over a wide range of disciplines:

Phi Beta Kappa, a national liberal arts honor society;

Phi Eta Sigma, a national honor society for first-year students;

National Society for Collegiate Scholars, a national honor society for first- and second-year students;

Phi Kappa Phi and the Golden Key, national honor societies for general scholarship; and

Tau Sigma, a national honor society for transfer students.

More specialized honor societies include the following:

Alpha Kappa Delta (sociology)

Alpha Mu Alpha (marketing)

Alpha Phi Sigma (criminal justice)

Alpha Pi Mu (mechanical engineering)

Beta Alpha Psi (accounting/finance)

Beta Gamma Sigma (business)

Beta Phi Mu (Beta Iota chapter, library science)

Chi Epsilon (civil engineering)

Eta Kappa Nu (electrical engineering)

Gamma Kappa Alpha (Italian)

Kappa Delta Pi (education)

Lambda Alpha (anthropology)

Lambda Pi Eta (Beta Gamma chapter, communication studies)

Lambda Tau (medical technology)

Omega Epsilon (ocean engineering)

Omicron Delta Epsilon (economics)

Omicron Delta Kappa (leadership)

Onyx (African-American scholarship)

Order of Omega (fraternity/sorority)

Phi Alpha Theta (history)

Pi Kappa Lambda (Zeta Epsilon chapter, music)

Phi Lamba Sigma (pharmacy-peer recognition)

Phi Sigma Tau (philosophy)

Phi Sigma Iota (foreign languages, literature, and linguistics)

Pi Delta Phi (French)

Pi Mu Epsilon (mathematics)

Pi Sigma Alpha (Gamma Epsilon, political science)

Pi Tau Sigma (mechanical engineering)

Psi Chi (psychology)

Rho Chi (pharmacy)

Sigma Delta Pi (Spanish)

Sigma Iota Epsilon, Sigma Lambda Alpha (landscape architecture)

Sigma Pi Sigma (physics)

Sigma Theta Tau (nursing)

Tau Beta Pi (engineering)

Triota (gender and women's studies)

Office of National Fellowships and Academic Opportunities.

The URI Office of National Fellowships and Academic Opportunities (ONFAO) advises and assists qualified undergraduates interested in applying for national and international scholarships and fellowships, and also supports recent URI alumni and current graduate students in applying for certain highly prestigious international awards which require nomination or endorsement.

URI students and recent graduates have won or been finalists in a wide range of prestigious competitions, including the Boren, Fulbright, Gates, Goldwater, Marshall, Rhodes, Truman, and Udall Scholarships.

For more information please visit uri.edu/fellowships.

INTERNATIONAL STUDENTS AND SCHOLARS

Visit web.uri.edu/global

The Office of International Student and Scholar Services (OISS) supports global educational engagement through the delivery of services and event programming that ensures international students, scholars, and their dependents have a successful transition and integration into campus life, the local community, and American culture at URI. The office oversees institutional compliance in matters related to immigration regulations governing URI's visa sponsorship and serves as the immigration liaison for the URI international community with various U.S. government agencies.

E-mail: issoff@etal.uri.edu

Website: web.uri.edu/global/for/international-students/

Website: web.uri.edu/global/for/visiting-scholars/

Phone: 401.874.2395

MILITARY SCIENCE AND LEADERSHIP (ARMY RESERVE OFFICERS' TRAINING CORPS OR "ROTC")

The Department of Military Science and Leadership (Army ROTC) is recognized as one of the best leadership programs in the country and is part of the University of Rhode Island curriculum. Military Science and Leadership classes involve one elective course and one lab per semester. Although the courses include hands-on field training as well as classroom work, they are standard college classes that fit into a normal academic schedule. These courses provide students with an education in leadership theory and application as well as practical experience leading others.

Undergraduate students may participate in the basic program, including MSL 101, 102, 201, and 202, without any service obligation. In certain circumstances, Graduate students may participate in the program, as well. Students from any academic major may take classes but the course of instruction is particularly well-suited for those interested in pursuing careers in defense and national security, law enforcement, diplomacy and development, intelligence, aviation, engineering, logistics or supply chain management, nursing and health sciences, and STEM. Upon completion of the URI ROTC curriculum, cadets have the opportunity to commission as Army Active Duty, Reserve, or National Guard Officers.

Students who meet eligibility requirements and agree to commission for a period of service upon graduation may compete for scholarships that can pay full tuition and fees as well as a monthly stipend of $420 and additional paid summer training and internship opportunities. University of Rhode Island Army ROTC paid $600,000 in scholarship benefits to students in the academic year 2020 – 21.

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

Faculty: Professor Cornelius “Tad” Granai (LTC, U.S. Army), *chairperson.* Assistant Professors MAJ Angie Anderson, MAJ Shea Leap, CPT Andrew Marsh, and SFC Jonah Hudson.

For additional questions about the URI ROTC Program, please contact the URI ROTC Recruiting Operations Officer, Mr. Sean Ritchie at sean_m_ritchie@uri.edu .

NATIONAL STUDENT EXCHANGE

Visit web.uri.edu/global

The National Student Exchange (NSE) inspires academic enrichment, personal exploration, and student development by facilitating accessible collegiate study away among member colleges and universities throughout the United States, Canada, Guam, Puerto Rico and U.S Virgin Islands for a semester or academic year. With nearly 175 member institutions, students have access to many options. Some NSE campuses offer unique opportunities beyond traditional classroom learning including: internships, research, field study, and/or other experiential learning opportunities.

Affordable payment options, as well as many forms of financial aid, are available for participants.

E-mail: nse@etal.uri.edu

Website: web.uri.edu/global

Website: www.nse.org

Phone: 401.874.2395

NEW ENGLAND LAND-GRANT STUDENT EXCHANGE PROGRAM

Visit: nebhe.org

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

PRE-HEALTH PROFESSIONS ADVISING PROGRAMS

The URI pre-health advising program and

Health Professions Advisory Committee (HPAC)

helps students preparing for medical school, dental school, optometry school, physician assistant programs, and any other health profession training program requiring a bachelor's degree for admission. The program offers students academic counseling, and guidance on the admissions process. For details, visit uri.edu/prehealth. Students interested in veterinary school can visit

uri.edu/favs/preveterinary-program/.

PRE-LAW STUDIES

For students who are planning professional study of law and plan on applying to law school, whatever your major may be, our team of advisors are here to guide you through your undergraduate studies and help you choose the degree program(s), courses, experiential opportunities, and other activities that will pave your way to law school, and beyond. For more information, visit uri.edu/politicalscience/pre-law-program

RHODE ISLAND INTERINSTITUTIONAL EXCHANGE

Full-time students matriculated at one of the public institutions of higher education in Rhode Island may enroll for a maximum of seven credits of their full-time schedule per semester for study at one of the other public institutions at no additional expense. Each institution will determine and maintain the integrity of the degree to be awarded. Students will be subject to the course selection process applicable at the receiving institution. Off-Campus Study and Alan Shawn Feinstein College of Education and Professional Studies, School of Professional and Continuing Studies, Office of Strategic Initiatives (formerly the Office of Special Programs) courses are not included in this program, nor are students who are taking courses only during Summer Session. Students interested in this arrangement should contact Enrollment Services.

EDUCATION ABROAD

Visit web.uri.edu/global

The Office of International Education and National Student Exchange promotes the internationalization of education and building of students' global competency skills through educational opportunities in a variety of global environments in the U.S. and abroad.

Hundreds of study abroad options are available in over 80 countries through URI sponsored programs and global affiliations; off-campus credit-bearing experiences are available for students in all academic disciplines. Experiential opportunities beyond traditional classroom learning are available including: international internships, research, field study, and sea-based research voyages.

Semester and short-term programs during the Winter J-Term and Summer Session are available each academic year.

The office provides comprehensive advising and programming services – from program selection to pre-departure preparation and reentry programming – to support student success in all aspects of the education abroad process.

In a concerted effort to increase accessibility and affordability, student assistance in securing local and national scholarship awards is provided.

E-mail: oie@uri.edu

Website: web.uri.edu/global/study-abroad/

Phone: 401.874.2395

SUMMER SESSIONS

The University provides a full range of undergraduate and graduate course offerings during two five-week sessions and a ten week session on the Kingston and Providence campuses. Courses begin immediately after Commencement and are

offered during day and evenings as well as on-line. Summer intensives are offered at varying dates in the alternate session, and a number of special programs, including study in foreign countries, internships, and clinical placements, are available. Students may attend either or both campuses and enroll in any summer session. Students who are not matriculated at URI who are expecting to apply summer credit to their academic degree program are advised to obtain prior approval from their home campus before registering. Maximum course load is eight credits per summer session, including simultaneous courses in the alternate session. Exceptions are allowed with permission of the student's academic dean.

TEACHER EDUCATION PROGRAMS

Teacher Education Programs.

The University of Rhode Island offers a variety of academic programs leading to teacher certification at both the undergraduate and the graduate levels. For more information, see the specific academic program in which you are interested. The School of Education and the Office of Teacher Education provide the coordination, planning, evaluation, and promotion of all teacher education programs at the University. For details about admission to URI's teacher education programs, and about earning certification to teach, visit the website of the Office of Teacher Education:

https://web.uri.edu/education/office-of-teacher-education/

WINTER J-TERM

The University provides a unique range of undergraduate and graduate course offerings during the winter session. This mini-semester, approximately in the 3 week period between January 2 and the day before the spring semester begins, consists of credit-bearing courses that offer new value-added experiences to students not possible during standard semesters.

Examples may include but are not limited to: travel courses (domestic and international); gateway courses or modules to help students catch up; experiential learning opportunities, including student research, projects, service learning, and internships; high-demand laboratory and/or clinical courses; and popular general education or other existing courses. Maximum course load is 4 credits. Students who are not matriculated at URI who are expecting to apply Winter J-term credit to their academic degree program are advised to obtain prior approval from their home campus before registering. Federal financial aid is not available, however discounted tuition is offered. Registration occurs in the fall semester. Winter J-term courses will be shown on student transcripts. Students are not eligible to graduate in this Winter J-term session. However, students completing their final course during this session should confirm spring graduation eligibility with their Dean's Office prior to registration.

Colleges and Majors

University College for Academic Success

INTRODUCTION

Linda C. Moffat, *Assistant Dean*

Jennifer Burgess, *Director, Academic Enhancement Center*

John Rooney, *Coordinator, Transfer Resource Center*

Kimberly Stack, *Director, Center for Career and Experiential Education*

Kimberly White, *Director*, Academic Advising

University College for Academic Success (UCAS) is where all students will find support as they enter the university. All new students are enrolled in UCAS, regardless of major, until they matriculate to the academic college from which they will graduate. We provide academic advising to all majors, including a focus on those who are undecided about their major. We also provide support in the many aspects of undergraduate education that will help students to be successful, such as internships, career advising,service learning, transfer resources and assistance with becoming better learners. We are here to support the journey from admission to graduation. We focus on getting the first years off to a great start with our seminars and orientation for first-year students, and early alert and mentoring programs. We continue this support through the undergraduate years, helping students to find the right majors and careers that will lead to success.

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

In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

UNDERGRADUATE ORIENTATION

New Student Orientation.

All new first-year undergraduate students engage in orientation events to learn about their academic programs, meet with an academic advisor and register for first-term courses, learn about URI, and begin to acquire the skills essential for successful transition from high school and home to the University community. Admitted students begin receiving orientation information in early spring. Parents and family members of new students are invited to engage in family-specific orientation events.

Transfer Orientation.

Once admitted, transfer students are able to meet with academic advisors and register for courses. Visituri.edu/transfer for the latest orientation opportunities for transfer students.

Orientation for International Students.

The Office of International Students and Scholars (OISS) holds an International Welcome Week of helpful workshops and presentations on academic support, enrollment services, advising

and residence life, and immigration sessions for international students.

For more information email issoff@etal.uri.edu.

Academic Enhancement Center Visit uri.edu/aec

Academic Enhancement Center (AEC)

Located in Roosevelt Hall, the AEC offers face-to-face and online services to undergraduate students seeking academic support. Peer tutoring is available for STEM-related courses through drop-in centers and small-group tutoring.

The Writing Center peer consultants offer feedback focused on supporting undergraduate writers at any stage of a writing assignment.

The UCS160 course and one-to-one Academic Skills Consultations offer strategies for improving studying and test-taking skills.

Complete details about each of these programs, up-to-date schedules, contact information, and self-service study resources are all available on the AEC website, uri.edu/aec.

Center for Career and Experiential Education (CCEE)

Visit uri.edu/career

The Center for Career and Experiential Education (CCEE) engages students and alumni in a high quality personal and professional educational experience. Career Education Specialists educate students on career and internship search, networking strategies, resume and cover letter development, and self-assessments. The center offers Handshake, an online database of jobs, internships, volunteer opportunities, and events for our students and alumni.

We also offer career development classes (ITR 300). Through the study of key careerdevelopment theories and practices, combined with self-reflection exercises, students learn how to integrate self-knowledge into occupational decision making, explore career choices, and devise customized strategies to attain their career goals.

The academic ITR Internship Program (ITR 301-304) enables students to gain academic credit for full-time or part-time experiential learning opportunities (fall, spring, and summer). The program is designed for motivated students who wish to apply classroom learning to field experiences in career related settings. Student interns are supervised by a qualified professional at their placement site and by a URI Career Education. Students from most undergraduate majors may apply for part-time or full-time internships and may earn from 6-15 free-elective credits. To apply to the program, student must have a minimum GPA of 2.0, a minimum of 60 earned credits, and be in good social standing.

CCEE seeks to create an engaged campus through service and community engagement that fosters student leadership; support for faculty scholarship in service learning; and direct service and advocacy work that meets local, state, national and global community needs.

Programs include: Alternative Spring Break; URI S.A.V.E.S.;

Service-Learning Courses (CSV 301-303); and Social Change Internships.

For more information, visit us on the first floor of Roosevelt Hall, online at uri.edu/career or call 401.874.2311.

Courses that Support Student Academic Success
A maximum of 12 CSV credits may be earned between all CSV courses

CSV 301: Course-based Community Service – PRA: (1-3 crs.) Learning through a community service experience related to course content. Experience defined by a job description and learning contract; includes orientation and reflection. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. Concurrent enrollment in a course that offers community service experience. May be repeated for a maximum of 6 credits. S/U only.

CSV 302: Community Service at URI – PRA: (1-4 crs.) Learning through a community service project that addresses a specific community need at the University. Project proposed and supervised by an instructor, and varies each semester. Includes mandatory seminar. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 9 credits. (Approved for Online)

CSV 303: Service in the Community – PRA: (1-4 crs.) Learning through a community service project that addresses a specific need in the off-campus community. Project proposed and supervised by an instructor and varies each semester. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 8 credits. S/U only.

CSV/SUS 306: Sustainability and Service Leadership – PRA/SEM: (3 crs.) Students will learn to identify and examine critical sustainability issues and develop communication skills, campaigns, and peer education events that lead to behavior change and a shift in campus culture. Pre: junior standing or permission of instructor. (Approved for Online)

CSV 400: Community Based Field Experience – PRA: (0 cr) Undergraduate students completing approved community based Field Experience for zero credit. Fall, Spring, Summer, and Winter J Semester. Minimum 40 hours field experience. Registration by permission number only. Pre: Permission number required.

A maximum of 24 ITR credits may be earned between all ITR courses

ITR 300: Career Planning: Concepts and Skills – SEM: (1-3 crs.) Identify personal strengths, interests, and professional values related to career exploration. Develop professional job and internship search skills. (Approved for Online)

ITR 301: Field Experience I – PRA: (3-12 crs.) Field experience gained at placement site through participation in the ITR program. The experience will be defined by a job description and learning contract arranged by the ITR director between the student intern, the intern's faculty advisor, and the relevant agency supervisor. (Practicum) Pre: junior and senior standing, participation in the ITR program, permission of faculty advisor, and (a minimum quality point average of 2.0 or permission of the department chair of the student's major). May be repeated for a maximum of 24 ITR credits. S/U credit. (Approved for Online)

ITR 302: Field Experience II – PRA: (3-12 crs.) Field experience gained at placement site through participation in the ITR program. The experience will be defined by a job description and learning contract arranged by the ITR director between

the student intern, the intern's faculty advisor, and the relevant agency supervisor. (Practicum) Pre: junior and senior standing, participation in the ITR program, permission of faculty advisor, and (a minimum quality point average of 2.0 or permission of the department chair of the student's major). May be repeated for a maximum of 24 ITR credits. S/U credit. (Approved for Online)

ITR 303: Colloquium I – SEM: (3 crs.) Seminar format. Discussions of issues and problems raised by internship experiences in public service agencies. (Seminar) Pre: concurrent enrollment in 301 for 303. Required for and open only to students enrolled in the ITR program.

ITR 304: Colloquium II – SEM: (3 crs.) Seminar format. Discussions of issues and problems raised by internship experiences in public service agencies. (Seminar) Pre: concurrent enrollment in 302 for 304. Required for and open only to students enrolled in the ITR program.

ITR 305: Workplace Readiness for Social Science Majors – SEM: (1 cr.) An online career readiness workshop designed for social science majors in the College of Arts and Sciences. Students create personalized content and discuss various related topics with associated URI alumni. Pre: sophomore, junior or senior standing; for CCJ, ISD, AAF, SOC, APG, ECN, GWS, or PSC majors only. S/U only. (Approved for Online)

ITR 400: Off Campus Field Experience/Internship – PRA: (0 cr.) Undergraduate students completing approved off-campus Field Experience or Internship for zero credit. Fall, Spring, Summer Semester. Minimum 40 hours field experience. Registration by permission number only. Pre: Permission number required.

UCS 160: Success in HigherEd Learning Environments – SEM: (1 cr.) Analyze learning and studying in college settings; Assess college learning needs, apply effective study and work management strategies to academics, and improve metacognitive awareness and academic skills. (Seminar 1) Pre: permission of instructor. (Approved for Online)

UCS270: Academic and Career Decisions – SEM: (1 cr.) Development of skills and knowledge necessary to make educational and career decisions; utilize self-assessment inventories to identify aptitudes, values, and interests as they relate to majors and careers. (Seminar) Pre: Not for students with more than 75 credits. (Approved for Online)

UCS/SPC305: Learning and Career Fundamentals for Adult Students- SEM: (3 cr.) For adult learners. Focus on development of learning strategies and skills for academic and career success. Emphasis on major and career pathways, time-management, learningstrategies. Professional development and deliverables required. PBA (Performance Based Admission) student, newly admitted veteran student or permission of instructor; not open for students with credit in ITR300, UCS160, UCS270 or EDC278. (Approved for Online)

URI 101: Planning for Academic Success – SEM: (1 cr.) Introduces first-year students to the traditions of higher education and academic culture and to significant societal and personal issues that bear on developing goals for the undergraduate years. Required of all new freshmen and new transfer students with less than 24 credits. May not be repeated for credit. (Approved for Online)

Arts and Sciences

INTRODUCTION

Jeannette E. Riley, *Dean*

Brian Krueger, *Associate Dean*

Nedra Reynolds, *Associate Dean*

Earl N. Smith III, Assistant Dean

Kimberly A. Balch, *Coordinator*

Catherine Robinson, *Business Manager*

The College of Arts and Sciences has two main objectives: to enable all students to understand our intellectual heritage, the physical and biological world in which we live, and our social, economic, and political development; and to provide programs of professional education in selected fields as well as a strong foundation for graduate study. The college has programs of study leading to the following degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Fine Arts, and Bachelor of Music.

For information on pre-law, pre-physical therapy, pre-medical, pre-dental, pre-veterinary, and teacher education programs, see Special Academic Opportunities.

For more information, visit uri.edu/artsci or call 401.874.2566.

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CURRICULUM REQUIREMENTS

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

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

Undergraduate students in the College of Arts and Sciences shall be allowed to use up to 12 credits of approved courses interchangeably for two or more separate majors among those programs which accept or require said courses.

In order to meet graduation requirements, a student must maintain a 2.00 grade point average in all courses for his or her major. This restriction applies in every case, unless a different policy is explicitly stated in the description of the degree program. At least half of the total number of credits needed in a given major must be earned at the University of Rhode Island.

Curricular Modifications.

In consultation with the advisor/department chairperson and

with the approval of the dean, a student will be permitted to modify the normal requirements of the major. The decision of the department chair is final. Requirements outside the major may be modified only with approval of the Scholastic Standing and Petitions Committee of the College of Arts and Sciences. Petition forms are available in the Office of the Dean. Minimum grade point average and total credit requirements are not petitionable.

2. General Education.

General education consists of 40 credits.

For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

3. Electives.

Electives are courses that are not included in general education or major requirements, and that students may freely select to earn the total number of credits required for graduation. Many students use their elective credits to develop a second major or a minor field of study (see Minor Fields of Study).

Course Load.

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

Repeating Courses for Credit.

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

Graduation.

It is the responsibility of the student to be familiar with University and College requirements and to file for graduation with the Office of the Dean.

Deadlines for filing are as follows:

May Graduation—October 1

August Graduation—March 1

December Graduation—May 1

Seniors completing their final course work off-campus must file a Senior Off-Campus Study Form with the Office of the Dean and should file for graduation before leaving campus.

BACHELOR OF ARTS

The Bachelor of Arts curricula provide a general cultural background and an opportunity to major in any one of 32 fields of study.

Each candidate for a B.A. degree must meet certain minimum curricular requirements in quantity and quality. These requirements include at least 120 passed credits, with at least 42 credits in courses numbered 300 or above, and an overall grade point average of at least 2.00. In addition to meeting the requirements of the general education program, each candidate must complete a major and a number of elective courses. The major totals 27-36 credits.

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

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

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

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

See above for a complete list by degree of undergraduate majors offered by the College of Arts and Sciences.

BACHELOR OF SCIENCE

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

All candidates for the B.S. degree must fulfill the requirements of the general education program and complete a major of 30-55 credits within a department or program. In addition, a department may require for its major certain courses in other departments. Students must earn an overall grade point average of at least 2.00. No more than 130 credits can be required in a program. At least half the credits in the major must be earned at URI. Each major within the B.S. curriculum has certain specific requirements as listed in the description of the individual major.

See above for a complete list by degree of undergraduate majors offered by the College of Arts and Sciences.

BACHELOR OF FINE ARTS

URI's Bachelor of Fine Arts curricula provide the opportunity to discover and develop creative capacities in the fine arts. The emphasis is on richness of program and quality of experience rather than the development of isolated skills. All candidates for the B.F.A. degree are required to meet the requirements of the general education program and to earn an overall grade point average of at least 2.00. At least half the credits in the major must be earned at URI.

See above for a complete list by degree of undergraduate majors offered by the College of Arts and Sciences.

BACHELOR OF MUSIC

The Bachelor of Music curriculum is designed to prepare qualified students for careers in the field of music. Students may select one of three majors depending on their aims and abilities. For information on admission requirements for the music education program visit the Office of Teacher Education and see the School of Education section of this catalog.

All candidates for the B.M. degree are required to meet the general education requirements and to earn an overall grade

point average of at least 2.00. At least half the credits in the major must be earned at URI. Students are expected to attend department-sponsored events each semester.

See above for a complete list by degree of undergraduate majors offered by the College of Arts and Sciences.

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

About the Harrington School of Communication and Media

Ammina Kothari, Director

Justin Wyatt, Associate Director

Ann Salzarulo-McGuigan, Coordinator

Located in the College of Arts and Sciences, the Harrington School of Communication and Media was established in 2008 to create a forward-thinking school of communication and media that prepares students for the rapidly evolving and increasingly globalized communication ecosystem.

The Harrington School is a dynamic community of outstanding teachers, world-renowned scholars, and passionate learners committed to scholarly, practical, and professional approaches to the study and practice of communication and media in all its historical, contemporary, and future manifestations. Our faculty and students are principled professionals skilled in critically evaluating and strategically producing information, messages, and media by employing and enhancing communication theories, multimedia platforms, and traditional and cutting-edge technology. In our evolving communication ecosystem, our graduates are equipped with the fundamental skills and abilities needed to adapt to an ever-changing communication and media landscape and possess an intellectual commitment to lifelong learning and service to the world through their communication skills and creative abilities.

The school has undergraduate programs and concentrations in communication studies, film/media, journalism, public relations, sports media and communication, and writing and rhetoric. The school is also home to graduate programs in library and information studies (M.L.I.S), and an M.A. and ABM (accelerated bachelors to master's) programs in communication studies. Communication studies also offers an Accelerated Degree Completion Online (B.A.) program.

THE HARRINGTON CORE

The Harrington core curriculum was developed to ensure that all Harrington School graduates have a shared set of essential skills from across the contemporary communication and media landscape, and is required for students in each of the six undergraduate majors. The core curriculum reflects the unique contributions that each program makes to our understanding of communication and media. Beyond fulfilling many of the core requirements in general education, the Harrington core provides students with the unique opportunity to develop and enhance their digital media production skills via the Production and Presentation Fundamentals (SCM 105) requirement; competencies that are essential and applicable across a wide variety of industries and careers. Lastly, the core curriculum recognizes the value of interdisciplinary education for all Harrington students.

COMPONENTS OF THE HARRINGTON CORE CURRICULUM

Harrington Core is required for students in each of the six undergraduate majors currently offered in the Harrington School of Communication: communication studies, film/ media, journalism, public relations, sports media and communication, and writing and rhetoric.

COM 100 (Fundamentals of Communication)

WRT 104 (Writing to Inform and Explain)

SCM 105 (Production and Presentation Fundamental)

JOR 110 (Introduction to Mass Media) or FLM 101 (Introduction to Film/Media), and

The Harrington Capstone Experience: COM 410, FLM 495, JOR 411, PRS 490, or an alternative by permission of the chair.

Every student is required to specialize in a particular area or discipline called the major. The requirements for each major vary from field to field, and are described in the catalog under the particular major. Undergraduate majors in the Harrington School shall be allowed to use up to 12 credits of approved courses interchangeably for two or more separate majors among those programs which accept or require said courses.

In order to meet graduation requirements, a student must maintain a 2.00 grade point average in all courses for his or her major. This restriction applies in every case, unless a different policy is explicitly stated in the description of the degree program. At least half of the total number of credits needed in a given major must be earned at the University of Rhode Island.

For more information, visit harrington.uri.edu or call 401.874.2110.

Arts and Sciences Undergraduate Programs

AFRICANA STUDIES

Faculty: Professor John-Camara, chair; Professors Gititi, and Rogers; Associate Professors Ferguson, Harris, McCray, Nevius, Widell, and Wynder Quainoo; Assistant Professors Haile and Keller; Adjunct Faculty Barber, Jones, O'Connor, and Smith; Professor Emeriti Dilworth, Gilton, and Hamilton.

Africana Studies is an interdisciplinary program. Students may choose to study abroad in affiliated programs in the following countries: Belize, Cape Verde, and Ghana. Programs related to the African diaspora may also qualify for AAF credit. The major's objective is to broaden students' intellectual and global

experiences through the study of Africa and African diaspora.

Students selecting this major must complete a minimum of 30 credits including AAF 201 and 202. Six credits must be selected from each of the following areas: history and politics (AAF 290, 300; AAF/HIS 150, 359, 388; AAF/PSC 380, 408, 410, 415, 466; PSC 472; WMS 351); arts and humanities (AAF/ART 330, 331; AAF/ENG 247, 248, 360, 362, 363, 364, 474); and social and behavioral science (AAF 300; AAF/COM 333; COM 310A, 465). The remaining 6 credits must be chosen from courses approved for the above groups.

In order to transfer from University College for Academic Success into the College of Arts and Sciences, students must earn 24 credits with a 2.00 or higher GPA.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. A minor is also available (see Africana Studies) in Interdepartmental Minors.

ANTHROPOLOGY

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

Faculty: Professor Bovy, chairperson. Professor Dunsworth; Associate Professors Garcia-Quijano and Lloréns; Professor Emeritus Poggie.

Students desiring to major in anthropology must complete a total of 31 credits (maximum 46 credits) in anthropology including introductory courses: APG 200, 201, 202, and 203 (12 credits); methods course: APG 302, 320, 411, 412, 414, or 417 (3-6 credits); theory course: APG 399, 401, or 417 (3 credits; 417 cannot fulfill both theory and methods requirements); and the capstone course: APG 427 (4 credits). The remaining nine credits may be from any APG course. No more than six credits in independent study and/or field experience courses may be used toward the 31 credits required for the major.

It is strongly recommended that anthropology majors take at least one course in inferential statistics (e.g., STA 220 or 308), complete a foreign language through the intermediate level, and gain computer proficiency. Successful anthropology majors double major or minor in programs such as (but not limited to) biology, history, political science, psychology, or a foreign language. Students who plan to go on to graduate school should meet with a faculty member for curricular counseling.

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

ART

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

Faculty: Associate Professor Anderson, chairperson. Professors Matthew; Assistant Professor Tom; Teaching Professor Quick; Senior Lecturer Quick; Senior Lecturer Carubin; Professors Emeriti Calabro, Hollinshead, Holmes, Hutt, Leete, Onorato, Pagh, Richman, and Roworth.

BACHELOR OF ARTS

All B.A. majors in either track are required to take 15 core credits (five 3 credit courses). This includes 9 credits of art history (ART 251, 252, and one 300+-level course from the following: ART 361, 362, 364, 375, 380) and 6 credits of art studio courses (ART 207 and 3 credits from ART 101, 103, or 105).

Each student then selects either the Studio Art or Art History track requirements.

Studio Art Track. It is recommended that students in the studio art track plan to complete three foundation studio courses (ART 207 and two courses from ART 101, 103, and 105) and one art history course (ART 251 or 252) in the freshman year. For graduation, a minimum of 33 credits in the major (maximum 48) must be completed, including: studio courses ART 207 and 6 credits from ART 101, 103, and 105; art history courses ART 251, 252; and 6 credits of art history at the 300 level or above, one of which must be selected from the following modern or contemporary art courses: ART 361, 362, 364, 375, 380.

Students must participate in ART 002, Sophomore Review, in the first semester of their sophomore year. Sophomore Review is a special evaluation set up to provide individual studio art majors with timely feedback from the art department faculty. Eligible students are sophomore or junior art majors (B.A. or B.F.A) who have completed ART 207 and 6 credits in ART 101, 103, or 105 with at least a 2.3 GPA in these courses.

Eligible students should: Register for ART 002 in the first semester possible (freshman may register in the spring semester for the Fall Sophomore Review). They should prepare a portfolio of 15 but no more than 20 of their best works from the studio foundation courses. A student should fill out the Statement of Purpose form available in the department office or website when registering for the course.

An additional 6 credits must be selected from one of the following sequences of studio courses: ART 204, 304; 208, 309; 213, 314; 214, 315; 215, 316; 221, 322; 231, 332; 233, 334; 243, 344. This sequence must be completed by the end of the junior year. An additional 3 credits of studio art on the 200- or 300-level must be selected and 3 more credits must be selected from 300-level studio courses (except 301) or ART 405. Many students choose to do an internship in their junior or senior year. Consult with your advisor before registering for ART 477.

A total of 120 credits is required for graduation. Students must fulfill the requirements of the general education program and take a minimum of 21 credits in studio art and 12 credits in art history with a maximum of 48 credits of studio and art history courses. Of the 120 credits required for graduation, 42 credits must be in courses numbered 300 or above.

Art History Track. It is recommended that students selecting the art history track plan to complete a minimum of 9 credits in art history and 3 credits in studio art by the end of the sophomore year. For graduation, students must complete a minimum of 33 credits (maximum 48 credits) in the major, including ART 251 and 252, 3 credits from the following modern or contemporary art courses: ART 361, 362, 364, or 375, and 6 credits in studio art– 3 credits from ART 101, 103, or 105, and ART 207.

At least 3 credits must be taken from ART 354 or 356; and 3 credits from ART 359 or 365; and 9 more credits from ART 354, 356, 361, 362, 364, 375, or 380. In addition, ART 480 is required. It is recommended that students who expect to pursue graduate studies in art history take ART 470.

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

A total of 120 credits is required for graduation. Students must fulfill the requirements of the general education program and take a minimum of 27 credits in art history and 6 credits in studio art with a maximum of 48 credits of studio and art history courses. Of the 120 credits required for graduation, 42 credits must be in courses numbered 300 or above.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

BACHELOR OF FINE ARTS

It is recommended that students intending to enter the B.F.A. program complete three foundation courses (ART 207 and 2 courses from ART 101, 103, and 105) and one art history course (ART 251 or 252) in the freshman year. B.F.A. majors should complete a minimum of 30 credits in ART courses by the end of the sophomore year.

Students in the B.F.A. program must complete a minimum of 72 credits in the major. Art courses required of all majors include 6 credits from ART 101 (3), 103 (3), or 105 (3), and 6 credits from ART 207 (3) and 405 (3). An additional 18 credits must be selected from 200-level ART courses, and an additional 27 credits must be selected from 300-level ART courses.

Students must participate in ART 002, Sophomore Review, in the first semester of their sophomore year. Sophomore review is a special evaluation set up to provide studio art majors with timely feedback from Department faculty once they have completed the foundation courses (ART 207 and 6 credits from ART 101, 103, and 105) and are ready to take more advanced and specialized studios. Eligible students are Sophomore or Junior ART Majors who have completed ART 101, 103, 105, and 207 with at least a 2.3 GPA in foundation courses.

Eligible students should: Register for ART 002 in the first semester possible (freshman may register in the spring semester for the Fall sophomore review). They should prepare a portfolio of 15 but no more than 20 of their best works from the Foundation courses. A student should fill out the Statement of Purpose form available in the department office or website when registering for the course.

By the end of sophomore year, the B.F.A. student is encouraged to complete at least 24 credits in studio art and at least 6 credits in art history.

B.F.A. students must take 15 credits in art history, including ART 251, 252, nine (9) credits at the 300 level or above, three credits of which must be selected from the following modern or contemporary art history courses: ART 331, 361, 362, 364, 374, 375, 380 (with topic approved by chair), 480 (with topic approved by chair).

Many students choose to do an internship in their junior or senior year. Consult with your advisor before registering for ART 477 Art and Art History Internship.

Outstanding students may be permitted by the department to substitute other studio courses for the 100 and 200 level courses listed above after a portfolio review arranged by their departmental advisor.

A minimum of 120 credits is required for graduation, including the following: major requirements in art (57), and art history (15). Students must meet the requirements of the general education program.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

CHEMISTRY

The Department of Chemistry offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree. The B.S. is offered with either the general chemistry track or the forensic chemistry track. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in chemistry.

Faculty: Professor Euler, chairperson. Professors DeBeof, Dwyer, Freeman, Lucht, Oxley, and Smith; Associate Professor Kiesewetter; Assistant Professors Hayes, Kim, Mosca, Thomas, and Wang; Professors Emeriti C. Brown, Cheer, Dain, Kirschenbaum, Nelson, Rosen, Traficante, and Yang.

BACHELOR OF ARTS

Students in this program must complete a minimum of 31 credits (maximum 45) in chemistry by taking either 10 credits as CHM 191, 192 or 8 credits as CHM 101, 102, 112, 114; and 20 credits as CHM 212, 226, 227, 228, 335, 431, and 432 or 20 credits as CHM 212, 291, 292, 335, 431, and 432. One additional course must be chosen from CHM 401, 412, 427, or 441. CHM 229 and 230 may be substituted for CHM 226.

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

BACHELOR OF SCIENCE

The B.S. degree offers either a general chemistry track or a forensic chemistry track. Either track prepares the student for myriad careers in chemistry. Either curriculum provides a thorough training in both theory and practice in the fields of analytical, physical, organic, biochemistry, and inorganic chemistry. Those completing either curriculum are prepared to practice as a chemist, pursue graduate studies, or enroll in a professional school related to areas such as medicine, dentistry, pharmacy, etc. Students pursuing the forensic chemistry track and students in the general chemistry take most of the same classes, with differences in the seminar series they attend. The general chemistry track requires general

chemistry seminar while forensic chemistry students take a specialized forensic chemistry seminar. Independent research requirements include either specifically forensic chemistry projects or many other aspects of chemical research for the general chemistry track. Also, the third semester of physics is not required for forensic chemistry. Pre-professional studies can be focused through the use of electives.

The B.S. degree is accredited by the American Chemical Society Committee on Professional Training of Chemists. Graduates receive a certification card issued by the society and are eligible for senior membership after two years of experience in the field of chemistry. It is strongly recommended that WRT 104 or 106 be taken in the freshman year. CHM 425, 427 should be taken in the junior year by students planning research or advanced course work in organic chemistry. Six credits of "curriculum requirements" shall include either CHM 353 or any 500-level courses with department approval.

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

A total of 120 credits is required for the B.S. degree. Accreditation guidelines require chemistry majors to take 55 credits toward the chemistry major.

B.S. in chemistry, general track requires the following courses:

Freshman Year First semester: 16-18 credits

CHM 191 (5) (or CHM 101, 102 [4]); MTH 141 (4), General Education requirements (5-6).

Second semester: 16-18 credits

CHM 192 (5) (or CHM 112, 114 [4]); MTH 142 (4), General Education requirements (5-6).

Sophomore Year First semester: 17 credits

CHM 212 (4); CHM 227 or 291 (3); MTH 243 (3); PHY 203, 273 (4), General Education requirements (3).

Second semester: 18 credits

CHM 292 (5) (or CHM 226, 228 [5]); MTH 244 (3); PHY 204, 274 (4), General Education requirements (6).

Junior Year First semester: 15 credits

CHM 335 (2), 431 (3); PHY 205, 275 (4); General Education requirements (6).

Second semester: 17 credits

CHM 412 (3), 414 (2), 432 (3); General Education requirements (9).

Senior Year First semester: 14-19 credits

CHM 353 (3), 401 (3), 425 (2), 427 (3), curriculum requirements (3-6), General Education requirements (3-5).

Second semester: 15 credits

CHM 353 (3), 492 [capstone] (1), 402 (2), 441 (3), curriculum requirements, free electives (9).

B.S. in chemistry, forensic track requires the following courses:

Freshman and sophomore years follow the same program as the B.S. in chemistry.

Freshman Year First semester: 16-18 credits

CHM 191 (5) (or CHM 101, 102 [4]); MTH 141 (4), General Education requirements (5-6).

Second semester: 16-18 credits

CHM 192 (5) (or CHM 112, 114 [4]); MTH 142 (4), General Education requirements (5-6).

Sophomore Year First semester: 17 credits

CHM 212 (4); CHM 227 or 291 (3); MTH 243 (3); PHY 203, 273 (4), General Education requirements (3).

Second semester: 18 credits

CHM 292 (5) (or CHM 226, 228 [5]); MTH 244 (3); PHY 204, 274 (4), General Education requirements (6).

Junior Year First semester: 15 credits

CHM 335 (2), 354 (3), 391 (1), 431 (3), General Education requirement (3), free elective (3).

Second semester: 17 credits

CHM 392 (3), 412 (3), 414 (2), 432 (3), General Education requirement (6).

Senior Year First semester: 15 credits

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

Second semester: 16 credits

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

CHEMISTRY AND FORENSIC CHEMISTRY*

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

*Admission suspended effective fall 2020. Beginning fall 2020 Forensic Chemistry is available as an option under the Chemistry B.S.Coordinator: Professor Smith

Students who earn a degree in chemistry and forensic chemistry have a number of potential career opportunities. Most forensic chemists work in government laboratories, typically affiliated with a medical examiner's office. The degree is accredited by the American Chemical Society.

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

A total of 120 credits is required for graduation.

Freshman and sophomore years follow the same program as

the B.S. in chemistry.

Freshman Year First semester: 15-16 credits

CHM 191 (5) (or CHM 101, 102 [4]); MTH 141 (4), General Education requirements (6-7).

Second semester: 15-16 credits

CHM 192 (5) (or CHM 112, 114 [4]); MTH 142 (4), General Education requirements (6-7).

Sophomore Year First semester: 17 credits

CHM 212 (4); CHM 227 or 291 (3); MTH 243 (3); PHY 203, 273 (4), General Education requirements (3).

Second semester: 18 credits

CHM 292 (5) (or CHM 226, 228 [5]); MTH 244 (3); PHY 204, 274 (4), General Education requirements (6).

Junior Year:

First semester: 15 credits

CHM 335 (2), 354 (3), 391 (1), 431 (3), General Education requirement (3), free elective (3).

Second semester: 17 credits

CHM 392 (3), 412 (3), 414 (2), 432 (3), General Education requirement (6).

Senior Year:

First semester: 15 credits

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

Second semester: 16 credits

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

For more information see chm.uri.edu.

CHINESE

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

Faculty: Professor Wayne He, section head; Assistant Professor Yu Wu; Senior Lecturer Xiaoyan Hu.

Students selecting the Chinese major are required to complete at least 30 credits (maximum 45) in Chinese. Students must complete at least six CHN credits at the 400-level.In addition, students must take six credits in Chinese/Asian culture such as Chinese/Asian politics, history, philosophy, arts, etc. offered through other departments. Students must choose these six credits from the courses listed below or from other courses on Chinese culture and civilization as approved by the section head: HIS 171, 374; PHL 331; PSC 116, 377; RLS 131; THE 382.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

CLASSICAL STUDIES

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

Faculty: Teaching Professor Carpenter, section head.

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

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

Classical Civilization and Culture Track. Students selecting classical civilization and culture as a major must complete a minimum of 30 credits. Students must complete a Latin sequence through LAT 302 or a Greek sequence through GRK 302 (12 credits). Students must take five courses (15 credits) from the following list of courses: APG 417; ART 354, 475; CLA 391, 395, 396, 397; ENG 366, 368; GRK 497; HIS 110, 111, 300, 303, 490; PHL 321; LAT 497. Other courses may be substituted with permission of the section head. The final requirement (3 credits) is CLA 497, which is the capstone course for the major.

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

Only two 100-level courses may count for the major (usually LAT 101, 102 or GRK 101, 102). Courses that may be taken multiple times are CLA 497; GRK 302, 497; LAT 302, 497.

COMMUNICATION STUDIES

Part of the Harrington School of Communication and Media (harrington.uri.edu), the Department of Communication Studies offers the Bachelor of Arts (B.A.) degree in Communication Studies and a Master of Arts (M.A.) in Communication Studies, and the Accelerated Bachelor to Master of Arts (ABM) in Communication Studies. Communication Studies also offers the Accelerated Degree Completion Online (B.A.) program.
Faculty: Professor N. Mundorf, chairperson. Professors Chen, DiCioccio, Healy- Jamiel, Hobbs, McClure, Salazar, Swift, Torrens, and Ye; Associate Professors Derbyshire, Leatham, Petronio, Reyes, Quainoo, and Wyatt; Assistant Professors Diamond, Kim, Kushner, and Xiong; Lecturers August, Bell, Cabral, Chiang, Daly- Van Oot, Greene, Greenwood, Henderson, Jalette, Munksgaard, Morrison, J. Mundorf, Poulakos, Proulx, and Waitkun; Professors Emeriti Anderson, Brownell, Devlin, Doody, Ketrow, and Wood.

URI's program in communication studies provides maximum flexibility in planning for a variety of academic and occupational goals. The curriculum is personalized for each student. The student plays an important role in curriculum planning; his or her program is closely supervised by an advisor. Departmentally approved courses provide diversity or a more focused approach, depending on the student's needs and goals. Courses outside the department that relate to the student's

needs and goals are also encouraged along with minors and double majors.

Students selecting this major may pursue studies in public communication and persuasion, organizational and professional communication, intercultural and interpersonal communication, media studies, and science, environmental, and health communication.

The program requires a minimum of 36 credits (maximum 51) in the major, including COM 202, 221, 381, 382, and 383. The remaining credits are distributed as follows: at least two courses (6 credits) of COM 200 level; at least two courses (6 credits) of COM 300 level; and at least three courses (9 credits) of COM 400 level. Students may elect to complete a focus area or concentration by taking 9 credits from among the following:

Public Communication and Persuasion: COM 208 or 208H, 210, 230, 302, 308, 316A or 316B, 334, 335, 405, 411, 415, 416, and 435

Media Studies: COM 243G, 246 or 246H, 271, 307, 340, 341, 342, 346, 372, 414, 417, 440, 441, 442, 445, 446, and 447

Intercultural and Interpersonal Communication: COM 321, 322, 324, 326, 361 or 361H, 421, and 422

Organizational and Professional Communication: COM 251, 325, 351, 354 (BUS 317), 402, 450 and 461

Science, Environmental and Health Communication: COM 315, 320, 455, 460, and 462

A student must maintain a 2.00 grade point average in her or his major to meet graduation requirements. Courses of independent study (COM 491, 492) and internships (COM 477) do not fulfill the requirements for the major or minor.

The Harrington School of Communication and Media requires students in each of the six undergraduate majors to also complete the Harrington core requirements.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher. They must also a achieve a passing grade in COM 100.

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

Accelerated online degree completion program in Communication Studies

The program offers students who have completed 45 or more credits the opportunity to join the Bachelor of Arts program in Communication Studies and complete the remaining requirements for their undergraduate degree completely online. Students will transfer a minimum of 45 credits to the University of Rhode Island. These students may enter the program with up to 15 transfer credits in Communication Studies. The program is also available to qualified students in the Finish What you

Started (FWYS) program at URI. Prior course work in communication, public relations, writing, journalism, advertising or film is preferred, but not required.Courses are offered in 7-week sessions through our accelerated online calendar, with two sessions in each term (Spring, Summer, Fall). Students can start the program in any term.

Students will typically be able transfer up to 18 General Education credits, requiring another 22 general education credits (including 15 credits tied to specific general education outcomes) at the University of Rhode Island. They will be able to complete remaining General Education credits through course offerings in the RN to BS program, or other accelerated program, which runs parallel to the Degree Completion in COM program.

Students may also obtain elective credits (including Internship COM477 and Special Problems COM491/492) towards the 120 credits required for graduation. At least 42 credits have to be at the 300+ level (including 24 credits in COM).

We expect that students will need a minimum of 2 years for program completion, including a minimum of 7 COM courses (21 cr). See URI Online for details.

Admission Requirements: Applications may be submitted after completing 45 credits at an accredited Post-secondary Institution with a 2.4 minimum cumulative grade point average. Application will include a personal statement, current transcript, example of scholarly writing and two letters of recommendation.

Degree Requirements: Degree requirements for participants in the Degree Completion Program in Communication Studies are the same as for students completing a conventional four-year undergraduate degree in Communication Studies as outlined in the University of Rhode Island catalog.

Accelerated Bachelor's to Master's Degree

Students may choose to join the Accelerated Bachelor's to Master's (ABM) program and receive both degrees in 5 years. Up to one-third of the required graduate-level credits may be used toward both the undergraduate and graduate degree. Students interested in this option must apply to the program in their junior year and after earning no fewer than 75 credits. Students will be enrolled in the ABM upon successful completion of 90 credits, completion of Graduate School admission requirements, and acceptance into the Graduate School. All undergraduate program requirements must be met prior to receiving a Bachelor's degree and beginning the Master's program. See Communications Studies ABM in the ABM section of this catalog for more information. For a list of Master's degree requirements, please see Communication Studies in the graduate portion of the catalog.

COMPUTER SCIENCE

The Department of Computer Science and Statistics offers the Bachelor of Arts (B.A.) and the Bachelor of Science (B.S.) degree in computer science. The department also supports the B.S. in computer engineering (described in the College of Engineering section). At the graduate level, the department offers the Master of Science (M.S.) in Computer Science, a Professional Science Masters (PSM) in Cyber Security, and the Doctor of Philosophy (Ph.D.) in Computer Science. The department also offers a Graduate Certificate in Digital Forensics and a Graduate Certificate in Cyber Security.

The department offers a minor in computer science, a minor in cyber security, a minor in digital forensics, and a minor in web programming.

Faculty: Professor DiPippo, chairperson. Professors Fay-Wolfe and Lamagna; Associate Professors Hamel and Hervé; Assistant Professors Alvarez, Brown, Daniels, Hendawi, and

Venkatasubramanian; Lecturers Armenti, Conti, and Mandal; Adjunct Associate Professor Ravenscroft; Adjunct Assistant Professor Dickerman; Professors Emeriti Baudet, Carrano, Kowalski, and Peckham; Joint Appointments Assistant Professor Schwartz (BIO/CELS) and Assistant Professor Zhang (CMB/CELS).

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

BACHELOR OF ARTS

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences as a B.A. computer science major (or to be coded as such in the College of Arts and Sciences), a student must have completed CSC 110 and CSC 211 and must have at least a 2.00 cumulative GPA in all CSC and MTH courses required in the B.A. program that have been completed at the time of the application for transfer.

Students in the B.A. curriculum must complete a minimum of 36 credits (maximum 51) as follows: CSC 106 (4), 110 (4), 211 (4), 212 (4), 301 (4), 305 (4); one of 411 or 412 (4); one programming course from the following: CSC 310, 372, 402, 406, 411, 412, 415, 436, 450, 461, 462, 481, 493; one additional CSC or CSF course at the 300-level or above, except that CSC 392 and 491 may be used only with prior departmental approval. CSC 477, 494, and 499 may not be used. Also required are MTH 180 (3) and one more course from the following list: MTH 131, 141, 142, 215, CSC 340, STA 307, 308, 409 (3 or 4); one course from among WRT 104, 106, and HPR 112 (3); and WRT 201 or WRT 332 (3).

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

A possible course of studies follows.

Freshman Year First semester: 14 credits

CSC 106 (4) B3; WRT 104 (3) B1, B4; URI 101 (1); MTH 180(3) A1, B3; Gen Ed (3)

Second semester: 16 credits

CSC 110 (4); Elective (6); Gen Ed (6)

Sophomore Year First semester: 16 credits

CSC 211 (4); MTH Req (3); Gen Ed (6); Electives (3)

Second semester: 14 credits

CSC 212 (4); WRT 332 (3) B1, B2; Gen Ed (4); Elective (3)

Junior Year First semester: 15 credits

CSC 301 (4), 305 (4); Gen Ed (4); Electives (3)

Second semester: 16 credits

CSC 412 (4); Electives (6); Electives 300-level+ (6)

Senior Year First semester: 16 credits

CSC/CSF elective (4); Gen Ed (4); Elective (4); Electives 300-level+ (4)

Second semester: 14 credits

CSC Programming Elective (4); Elective (3); Electives 300-level+ (7)

BACHELOR OF SCIENCE

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

In order to transfer from University College to Arts and Sciences as a B.S. computer science major (or to be coded as such in the College of Arts and Sciences), a student must have completed CSC 110 and CSC 211 and must have at least a 2.00 cumulative GPA in all CSC and MTH courses required in the B.S. program that have been completed at the time of the application for transfer.

Students in the B.S. curriculum must complete a minimum of 56 credits as follows: CSC 106 (4), 110 (4), 211 (4), 212 (4), 301 (4), 305 (4), 340 (4), 411 (4), 412 (4), 440 (4), and one course from CSC 477 or 499 (4); one course from CSC 310, 372, 402, 406, 415, 436, 450, 461, 462, 481, and 493 (4); any two additional CSC or CSF courses at the 300-level or above, only one of the two courses may be a CSF course, CSC 392 and 491 may be used only with prior departmental approval. CSC 477, 494, and 499 may not be used.

Students must also complete MTH 180 (3), 141 (4), 142 (4), and one course from MTH 215, 243, 244, 322, 362, 382, ISE 432, STA 307, 308, 409, 411, 412 (3 or 4); two science courses from PHY 203/273, 204/274, CHM 101/102, 112/114, BIO 101/103, 102/104, GEO 103, OCG 123 (8); and one course from WRT 104, 106, and HPR 112 (3); and WRT 201 or WRT 332 (3).

A total of 120 credits is required for graduation. A possible course of studies follows.

Freshman Year First semester: 14 credits

CSC 106 (4) B3; URI 101 (1); WRT 104 (3); MTH 180 (3); Gen Ed (3).

Second semester: 15 credits

CSC 110 (4); MTH 141 (4); Elective (3); Gen Ed (4).

Sophomore Year First semester: 15 credits

CSC 211 (4); MTH 142 (4); Science Requirement (4); Gen Ed (3).

Second semester: 16 credits

CSC 212 (4); MTH Req (3); WRT 332(3); Elective(6).

Junior Year First semester: 15 credits

CSC 301 (4), 305 (4); Gen Ed (3); Science Req (4).

Second semester: 15 credits

CSC 340 (4), 412 (4), CSC programming elective (4), Elective (3).

Senior Year First semester: 15 credits

CSC 411 (4), 440 (4), CSC 477 or 499(4); Gen Ed (3).

Second semester: 15credits

CSC elective (4), CSC/CSF elective (4); Gen Ed (4); Elective (3).

Accelerated Bachelor's to Master's Degree/PSM

Students in the Computer Science B.A. and the Computer

Science B.S. programs are eligible to apply for an Accelerated Bachelor's to Master's Degree program to earn a Professional Science Master's Degree in Cyber Security.

All courses required by the Computer Science B.A. or B.S. and the Professional Science Master's in Cyber Security are required. Additional requirements under the program are listed below.

Prerequisites:

Prior to application, students must receive a B or better in CSC 211, CSF 202, CSF 432, or equivalent courses at the discretion of the department.

Applying for the Computer Science and Cyber Security ABM/PSM:

To apply for the program, students must have earned a minimum of 75 credits and have a 3.00 GPA. Students will be enrolled in the program only after they have met the Graduate School admission requirements and have completed 90 undergraduate credits.

Admitted to Computer Science and Cyber Security ABM/PSM – Prior to receiving B.A. or B.S.

Once accepted to the program, prior to receiving their B.A. or B.S. in Computer Science, students must receive a B or better in two additional PSM required courses. Twelve credits may be double counted for both the Bachelor's and Master's Degrees. Only 500-level courses and 400-level courses designated for graduate credit are eligible to be double counted.

Admitted to Computer Science and Cyber Security ABM/PSM – After receiving B.A. or B.S.

After the B.A. or B.S. has been completed, the remaining PSM courses must be completed within two years of being encoded as a CSABM student.

Minor in Computer Science

Students declaring a minor in computer science must earn 24 credits including CSC 106 (4), 211 (4), 212 (4), 301 (4), and two other CSC courses at the 300-level or above (8). Please note: MTH 180 is a prerequisite to CSC 212 and to completing the minor.

Minor in Digital Forensics

Students declaring a minor in digital forensics must earn 19 credits by completing the following courses: CSC 201 (4) (non-Computer Science majors), CSF 202 (4), CSF 410 (4), 412 (4); Computer Science majors choose two more courses from the following, non-Computer Science majors choose one more course from the following: HPR 108 (3), CHM 392 (3), PSC 274/SOC 274 (3), PSC 388 (3), CSC 491 (1-3), CSC 477 (1-3), CSC 499 (1-3), other faculty-approved courses.

Students intending to pursue a minor in Digital Forensics in addition to the minor in Cyber Security may take at most one course that will count towards both minors.

Minor in Cyber Security

Students declaring a minor in cyber security must complete 19-20 credits by completing the following courses: CSC 201 (4) (non-Computer Science majors), CSF 202 (4), CSF 430 (4), CSF 432 (4), CSF 434 (4). Computer Science majors choose one or more courses from: CSF 410 (4), 462 (4), CSC 417 (4), 418 (4), 477 (4), 499 (4) or other faculty approved courses.

Students intending to pursue a minor in Digital Forensics in addition to the minor in Cyber Security may take at most one course that will count towards both minors.

Minor in Web Programming

Students declaring a minor in Web Programming must earn 20 credits by completing the following courses: CSC 101(4), CSC 201 (4), CSC 271 (4), CSC 372 (4), CSC 399 (4).

International Computer Science Program

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

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

CRIMINOLOGY AND CRIMINAL JUSTICE

The interdisciplinary program in Criminology and Criminal Justice combines courses from six participating departments: sociology and anthropology, political science, psychology, gender and women's studies, economics, and chemistry, to provide students with a wide range of course options. Departments will contribute courses in sociology, law and the legal system, behavioral psychology, human trafficking, forensics/criminalistics and more to help students tailor their coursework based on their areas of interest, as well as educational and professional goals.

Faculty: Associate Professor Zozula, Director. Professor Costell; Associate Professor Doerner; Assistant Professors Farrell, Parry, and Pifer.

The program leads to a Bachelor of Arts (B.A.) degree in Criminology and Criminal Justice.

The program requires 30-49 credits in the major including CCJ/SOC 230(H) (with a grade of C or better), CCJ/PSC 274(H) (with a grade of C or better), and one of three capstone classes: CCJ 403, CCJ 410, or CCJ/PSC 476. Students must select one research methods course from the following: ECN 306, PSC 310, PSY 200, or SOC 440. If students are double majors with ECN, PSC, PSY, or SOC, this research methods course will be accepted for the CCJ major, but the credits will need to be made up with an additional elective. Students are required to take six elective courses selected from the following two areas: criminology electives – CCJ 200 (approved topics), 370, 400 (approved topics), 403, 410, 450, 476; GWS 365, 370, 401; PSY 254, 466; SOC 420; criminal justice electives – CCJ 200 (approved topics), 280, 330, 331, 332, 333, 400 (approved topics), 403, 410, 476, 480; CHM 391 (must be repeated for a total of 3 credits); PSC 334, 371, 388, 472; PSY 465; SOC 303. At least two courses must be taken from each elective area and

no more than four courses can be taken in either area. All electives must be a minimum of 3 credits. While CCJ 403, 410, and CCJ/PSC 476 are both capstone classes and electives, students may not use the same course to count as both a capstone and an elective class.

When appropriate, and by permission of the program director, students may substitute internship credit (SOC 477, PSC 375/376, PSY 305, or GWS 300) or independent study credit (CCJ 485, SOC 498/499, PSC 455/456, PSY 489, or GWS 450) for one of their elective courses listed above. No more than 3 credits may be used toward the major from internship or independent study.

Internal transfers into the CCJ major from a different major, or students wishing to add the CCJ major to their current major, must have a minimum 2.50 GPA.

A total of 120 credits is required for graduation. At least 42 of these credits must be in courses at the 300-level or above. In order to transfer into the criminology and criminal justice B.A. program from University College for Academic Success, a student must have completed at least 24 credits and have earned a minimum of a 2.0 GPA.

DATA SCIENCE

The Bachelor of Arts (B.A.) and the Bachelor of Science (B.S.) degrees in data science and a minor in data science are managed through the College of Arts and Sciences with partners from the College of Business, the College of Environment and Life Sciences, the College of Health Sciences, the College of Pharmacy, the Graduate School of Oceanography, and University Libraries.

This interdisciplinary major prepares students for exciting career opportunities in a variety of sectors, including finance and insurance, government, healthcare and social services, retail, marketing, and manufacturing.

The curriculum provides the foundation for success, through coursework in mathematics, computer science, statistics, and ethics, designed specifically for data science majors. Key technical skills in statistics, linear algebra, machine learning, data mining, and optimization are developed through a problem-solver approach to challenges and practical applications. A variety of popular software packages are used to develop expertise in both theory and practice. As data scientists often work on teams in business environments, students will learn professional communication skills and how to effectively present results both orally and visually.

In addition to building general data analytic skills, students choose from several domain-specific courses in biology, business, oceanography, pharmaceutical and health sciences, psychology, or communication in which to apply their skills. Experience working on real-world applications is encouraged through internships and research. Internships with a variety of companies in industry, non-profits, government, and other institutions allow students to develop all aspects of the workplace and explore options for future careers.

Faculty:

Professor Eaton, Director.

College of Arts and Sciences Departments of Communication Studies (Professor Ye); Computer Science and Statistics (Associate Professors Hamel, Katenka, and Puggioni, Assistant Professors Alvarez, Brown, Daniels, Hendawi, and Wu, and Emeritus Professor Peckham); Mathematics and Applied Mathematical Sciences (Professors Baglama, Eaton, Associate Professor Thoma, Assistant Professors Chavez-Casillas and Perovic); and Political Science (Assistant Professor Parker). College of Business Department of Business Analytics (Professor Shin and Teaching Professor Wu). College of the Environment and Life Sciences Departments of Biological Sciences (Assistant Professors Puritz, and Schwartz) and Cell and Molecular Biology (Assistant Professor Zhang). College of Health Sciences Department of Psychology (Professor Harlow and Assistant Professor Yang). University Libraries Departments of Digital Initiatives (Associate Professor Lovett) and Technical Services (Assistant Professor Dekker). Graduate School of Oceanography (Professors Shen and Kincaid). College of Pharmacy Departments of Biomedical and Pharmaceutical Sciences (Assistant Professor of Research Hemme) and Pharmacy Practice (Assistant Professor Buchanan).

BACHELOR OF ARTS

The B.A. curriculum is designed to provide a solid foundation in the fundamentals of data science and will prepare students to procure, archive, clean, visualize, and analyze data.

In order to transfer from University College for Academic Success to the College of Arts and Sciences as a B.A. data science major (or to be coded as such in the College of Arts and Sciences), a student must have completed MTH 180 or 141 (or 131), MTH 215, and STA 409 and must have maintained at least a 2.00 cumulative GPA overall, and at least a 2.00 GPA in all core data science courses required in the data science B.A. program that have been completed at the time of the application for transfer.

Students in the B.A. curriculum must complete a minimum of 37 credits (maximum 51) as follows: CSC 201 or 211 (4), CSC 320 or BIO/DSP 181G (4), STA 409 (3), MTH 215 (3), CSC/DSP 310 or STA 305 (4), STA/DSP 441 or CSC/DSP 461 (4), BAI 456 (3), one course from an approved list of data science related specialization or domain area courses (3 or 4), and one additional integrative or capstone class, CSC 399, 499 or STA/DSP 490 (4). Also required are MTH 131 or MTH 141 (3 or 4), WRT 201, 227 or HPR 142(3).

A total of 120 credits is required for graduation; at least 42 of these credits must be at the 300 level or above. Major and general education courses may fulfill this requirement.

BACHELOR OF SCIENCE

The B.S. curriculum is designed to provide a broad introduction to the fundamentals of data science including ethics, computing, statistics, and mathematics. The required mathematics preparation provides a basis for advanced work. Students will be well prepared for careers or graduate study in data science.

In order to transfer from University College for Academic Success to Arts and Sciences as a B.S. data science major (or to be coded as such in the College of Arts and Sciences), a student must have completed MTH 141 (or 131), MTH 215, and STA 409 and must have maintained at least a 2.0 cumulative GPA overall, and at least a 2.0 GPA in all core data science courses required in the data science B.S. program that have been completed at the time of the application for transfer.

Students in the B.S. curriculum must complete a minimum of 56 credits as follows: CSC 201 or 211 (4), CSC 320 or BIO/DSP 181G(4), STA 409 (3), MTH 142 (4), MTH 215 (3) CSC/DSP 310 (4), STA 305 (4), STA/DSP 441 (4), CSC/DSP 461 (4), BAI 456 (3), three courses from an approved list of data science related specialization or domain area classes, one integrative or capstone class, CSC 399, 499 or STA/DSP 490 (4).

Students must also complete MTH 141 (4) and WRT 201, 227, or HPR 142(3).

A total of 120 credits is required for graduation.

Data Science related specialization or domain courses

Biological Sciences: CMB 320, BPS/CSC/STA 522

Computer Science: CSC 212, 412, 415, 436, 450

Data Science Program: DSP 393G

Geographic Information Systems: LAR 302 or NRS 409 and 410

Mathematics: MTH 243, 418, 447, 451, 471

Oceanography: OCG 350, OCG 351

Social Science and Humanities: HIS 116, PHL 212

Statistics: STA 411 or 412, STA 445, 460

Minor in Data Science

This minor is intended to provide students with preliminary data collection, manipulation, access, and/or analysis skills as are appropriate to data needs in their majors.

Students declaring a minor in data science must earn 22-23 credits including CSC 201 or 211 (4), STA 308, 409, 411, or 412 (3 or 4), MTH 215 (3), CSC 310 or STA 305 (4), CSC 461 or STA/DSP 441 (4), and CSC 320 (4). Optional: In addition each student is encouraged to take one class that is integrative and that is focused on applying data science principles/skills to a data intensive domain area. For example, CSC 399, 499 or STA 490.

Graduate Certificate in Data Science

The Online Graduate Certificate in Data Science is designed to allow students with an undergraduate degree in almost any discipline to break into the field of data science. As one of the first online graduate certificate programs in data science offered by an accredited university, this five course, 15-credit, asynchronous fully online certificate program is designed for career advancement with maximum flexibility– finish in just over two semesters and leverage your enhanced skill set. See Mathematics for more information.

ECONOMICS

The Department of Economics offers a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) degree in economics. The Bachelor of Arts degree provides a deep knowledge of the world's economy in the best traditions of the liberal arts. The B.S. (Applied) is designed for students who are interested in a somewhat more quantitative approach to the field with, perhaps, the goal of gaining a position that requires a working knowledge of economic analysis. A basic knowledge of calculus is required for the B.S. in Applied Economics. The B.S. (Theory and Methods) includes in-depth coursework in the Department of Mathematics and Applied Mathematical Sciences and is designed for students planning on graduate work in economics.

Faculty: Associate Professor Malloy, chairperson. Professors Lardaro, McIntyre, and Mead; Associate Professors Ramnarain and Van Horn; Assistant Professors Dinardi, Eichacker, Ramnarain, and Vechsuruck; Teaching Professors Devine and Jain; Senior Lecturers Briggs and Dupuis; Professors Emeriti Barnett, Burkett, Miller, Ramsay, Starkey, and Suzawa.

BACHELOR OF ARTS

Students selecting this field must complete a minimum of 30 credits (maximum 48) in economics, including ECN 201 and 202 (6), 305 and 306 (6), 327 or 324 (3), 328 or 323 (3), and 445 (323 and 324 have calculus as a pre-requisite). At least 9 credits must be completed from economics courses numbered 300 or above in addition to the core requirements.

Students must achieve a grade of C or better in both ECN 201 and ECN 202 or attain permission of the chair before majoring in economics. In addition students must complete: MTH 103, MTH 111, MTH 131, MTH 141, or BUS 111 with a C or higher, and STA 308 or BUS 210.

Students may substitute up to three credits from related courses taught by other departments. These substitutions must be approved by the economics department chairperson and filed with the Office of the Dean before enrolling in the course. If you are planning to do graduate work in economics, you are strongly encouraged to pursue a B.S. degree in economics.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. In addition students must have a GPA of at least 2.00 overall and 2.00 in their major in order to graduate.

BACHELOR OF SCIENCE

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

Applied Economics. A minimum of 31 credits in economics including ECN 201, 202, 305, 306, 327 or 324, 328 or 323, 376, 445, and at least two ECN courses numbered 300 or above.

In addition, students must complete BUS 210, MTH 451, STA 308 or STA 409, and MTH 131 or MTH 141 with a grade of C or higher before taking ECN 323, ECN 324, and ECN 375.

Students must achieve a grade of C or better in both ECN 201 and ECN 202 or attain permission of the department chair before majoring in economics.

Economic Theory and Methods. A minimum of 31 credits in economics including ECN 201, 202, 305, 342 or 327, 323 or 328, 376, and 445. In addition, students must complete MTH 141, 142, 215, 243, 307, and 244 or 442 or 435. This option is recommended for students preparing for graduate study in economics.

Students must achieve a grade of C or better in both ECN 201 and ECN 202 or attain permission of the department chair before majoring in economics.

A total of 120 credits is required for graduation. In addition students must have a GPA of at least 2.00 overall and 2.00 in their major to graduate.

ENGLISH

The Department of English offers a Bachelor of Arts (B.A.) degree. The department also offers the Accelerated Bachelor of Arts and Master of Arts (ABM), Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) in English.

Faculty: Associate Professor Williams, chairperson. Professors Betensky, Cappello, Faflik, Riley, Trimm, and Walton; Associate Professors Barber, Covino, Eron, Jones, Karno, Kusz, Nikitas, and Rojas; Assistant Professor Mok; Professors Emeriti Arakelian, Burke, Cuddy, Davis, Gititi, Leo, Stein, and Swan.

The Major. Students majoring in this field must complete a minimum of 36 credits (maximum 52), 20 of which must be at the 300-level or above. Students may select from two tracks: Literature and Creative Writing. No course may be used to fulfill more than one requirement. No more than two 100-level courses may be used to fulfill major requirements.

Literature Track requirements:

1. Big Questions, Big Ideas: One course chosen from ENG 105, 110, 120, 121, 122, 160

2. Pleasures of Reading: One course chosen from ENG 205A, 205B, 205C, 205D, 210, 211, 243, 263, 264, 265

3. Ways of Thinking: One course chosen from ENG 333, 350, 446, 447, 469

4. Representation Matters: One course chosen from ENG 242, 247, 248, 252, 260, 338, 345, 362, 363, 364, 385, 388, 450G, 482

5. Earlier Literary Histories: One course chosen from ENG 241, 251, 280, 345, 347, 367, 368, 374, 377, 381, 382, 472, 478, 479, 480, 482

6. Later Literary Histories: One course chosen from ENG 242, 248, 252, 305A, 305B, 305C, 305D, 348, 376, 377, 378, 379, 383, 485, 486, 489

7. English Capstone: One course chosen from ENG 405, 410, 450G

8. ENG 477 Internship in English (a maximum of 4 credits of ENG 477

may be counted for the English major), or an elective from ENG

courses not used elsewhere in the major

9. Elective: One ENG course not used elsewhere in the major

Creative Writing Track requirements:

1. Big Questions, Big Ideas: One course chosen from ENG 105, 110, 120, 121, 122, 160

2. Pleasures of Reading: ENG 205 Creative Writing, one course chosen from ENG 205A, 205B, 205C, 205D

3. Ways of Thinking: One course chosen from ENG 333, 350, 446, 447, 469

4. Representation Matters: One course chosen from ENG 242, 247, 248, 252, 260, 338, 345, 362, 363, 364, 385, 388, 450G, 482

5. Earlier Literary Histories: One course chosen from ENG 241, 251, 280, 345, 347, 367, 368, 374, 377, 381, 382, 472, 478, 479, 480, 482

6. Later Literary Histories: ENG 305 Advanced Creative Writing, one course chosen from ENG 305A, 305B, 305C, 305D

7. English Capstone: ENG 405 Creative Writing Capstone

8. ENG 477 Internship in English (a maximum of 4 credits of ENG 477 may be counted for the English major), or an elective from ENG courses not used elsewhere in the major

9. Elective: One ENG course not used elsewhere in the major

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

Accelerated Bachelor's to Master's Degree

Students may choose to join the Accelerated Bachelor's to Master's (ABM) program and receive both degrees in 5 years. Up to one-third of the required graduate-level credits may be used toward both the undergraduate and graduate degree. Students interested in this option must apply to the program in their junior year and after earning no fewer than 75 credits. Students will be enrolled in the ABM upon successful completion of 90 credits, completion of Graduate School admission requirements, and acceptance into the Graduate School. All undergraduate program requirements must be met prior to receiving a Bachelor's degree and beginning the Master's program. For a list of Master's degree requirements, please see English in the graduate portion of the catalog.

The Minor in English. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students minoring in English are required to take 20 total English credits, which can be accomplished by taking five 4-credit classes, four of which must be at the 200 level or above.

The Minor in Creative Writing. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students minoring in Creative Writing are required to take 20 total English credits, including ENG 105, ENG 205 A, B, C, or D), ENG 305 (A, B, C, or D), and 8 credits of ENG courses from the 200 level or above.

FILM/MEDIA

Part of the Harrington School of Communication and Media (uri.edu/harrington), the Film/Media Program offers a Bachelor of Arts (B.A.) degree and a minor.

Faculty: Rebecca Romanow, Director. Professors Healey-Jamiel, Mandel, Moore, Sama, Swift, Trimm, and Walton; Associate Professors Chadha, Echevarría, Kealhofer-Kemp, Reyes, and Wyatt; Assistant Professor Jaacks; Adjunct Assistant Professors Bergstrom, and Zorabedian; Teaching Professors Brown and Romanow; Lecturer Corsano.

The Major. Film/Media is an interdisciplinary program offering hands-on experience in documentary, experimental, narrative, and new media production, balanced with an emphasis on international cinemas, film/media history, criticism, and theory. Our curriculum reflects the dynamic and diverse nature of this field, approached from a perspective of film history and media theory. Students learn to work with the evolving and overlapping technologies involved in the production of moving images (including film, digital video, 3D animation, game design, and new media), with an understanding of the broadening and globalization of their cultural and aesthetic

contexts. A wide range of courses is available to the film/media student—courses that examine the historical, theoretical, and global approaches to the analysis and creation of moving images. The film/media program prepares students for careers in such areas as independent filmmaking; animation and media design; film and television industries; advertising, marketing, and public relations; and media criticism. Graduates of this program are also prepared to continue with graduate studies, either in film and media production for an M.F.A., or in a master's or doctoral program in film and media studies.

Students majoring in film/media must complete a minimum of 31 credits (maximum 46) in approved courses toward the major. FLM 101 or FLM 101H is a required prerequisite. All students must complete the core courses: FLM 110, FLM 203 (or ENG 302), FLM 204 (or FLM 205 or 206), including the senior-level seminar FLM 495 (or FLM 496); a minimum of 6 credits from the production and technique category and 6 credits from the critical studies category; a minimum of 3 elective credits in courses that count toward the film major from the Production and Technique and Critical Studies categories (see below). This wide range of choices in film/media courses permits students to design a major that will meet both personal and professional goals. Students must have a plan of study approved by an academic advisor in the film media program before beginning their coursework in the major.

Production and Technique: These courses focus on the different approaches to and practices of film/video production—how moving images are created, designed, and used to serve a variety of functions: ART 105, 204, 213, 214, 215, 304, 306, 314, 315, 316; COM 306, 307, 316B, 341, 342, 406, 410, 445; FLM 110, 220, 306, 351, 406, 445, 477, 491, 496; JOR 221, 331; SCM 201.

Critical Studies: These courses emphasize the important traditions of genre and the literary and aesthetic approaches toward understanding and valuing film/media, and integrates them into their broad historical, cultural, and ideological contexts: AAF 352; ART 374, 376, 377; CLS 451; COM 346, 414; ENG 205 D, 245, 302, 303, 304, 305D, 352, 451; FLM 203, 204, 205, 206, 214, 352, 444, 451, 491, 495; FRN 320; GWS 350; HIS 358; HPR 344, 411; ITL 315; JOR 311; SPA 320; THE 182. FRN 320, ITL 315, and SPA 320 are taught in English. Other courses may be used for this category with prior approval of the program director. The following topics courses have been pre-approved: HPR 344 Images of Masculinity in Films, HPR 344 Politics and Protest in Film, HPR 344 Rebel Images in Films, HPR 411 Film and Video Practicum, and GWS 350 Women and Film. Other film-based courses may count toward the major or the minor with the permission of the film/media program director.

The Harrington School of Communication and Media requires students in each of the six undergraduate majors to also complete the Harrington core requirements.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

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

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

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

FRENCH

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

Faculty: Associate Professor Kealhofer-Kemp, section head. Professor Erickson; Associate Professor De Bruin; Lecturer Romaniuc-Boularand.

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

Additionally, students with proven competence in French language and literature, with permission of the advisor, section head, department chairperson, and dean of the college, may take courses toward their concentration in related fields such as history, linguistics, art, or philosophy. Approval must be filed with the Office of the Dean.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

GENDER AND WOMEN'S STUDIES

This interdisciplinary program is for students interested in studying how gender, race, class, sexualities, and other categories intersect and shape how power works in local, national, and global communities. Students study how gendered norms, discourses, and policies emerge from cultural, political, and economic structures to determine privilege for some, and disadvantages for others. Students examine the impact of policies and cultural norms on human rights, workplace inequalities, national and global politics, health care, and environmental sustainability, with a focus on learning through practice how to connect ideas to action. The major offers

course work in feminists theories and methodologies, queer and masculinity studies, human and sex trafficking, sex and gender in Latin America and Latinx communities, Black feminisms, leadership and activism for social change, and literary and autobiographical studies, among other areas.

Faculty: Teaching Professor Pisa, director. Professors Hughes, Riley, and Walton; Associate Professors Derbyshire, Ferguson, Kusz, Lisberger, and Ramnarain; Assistant Professors Frazier, and McIntyre; Teaching Professors Bibeau and Phelps; Part-time Professors Carlson, Farnsworth, Hagen, Herron, Labelle, Lalama, Lindkvist, Murphy, Ravello, Rose, Ryder, Trachtenberg, Vaccaro Gray, and Yusufov; Professor Emerita Stein; Associate Professor Emerita Pegueros.

The Major. This program leads to a Bachelor of Arts (B.A.) degree in Gender and Women's Studies.

The program requires 30 credits for a major. Five required courses are GWS 150, 300 or 320 or ITR 301/302, 310 or 325, 315, and 400. Five courses needed to complete the concentration, of which one must be a GWS listing, may be selected from: AAF 290, 355; APG 310, 328; ART 385; BUS 346; COM 221, 322, 326, 441; CPL 202; ECN 386; ENG 260, 317, 385, 388; GEG 202; GWS 220, 301, 305, 306, 317, 325, 350, 351, 360, 361, 365, 370, 385, 386, 388, 401, 402, 490, 500, 501, 502; HDF 205, 230, 291, 298, 430, 432, 433, 434, 437, 505, 559; HIS 118, 145, 146, 308, 350, 351, 352, 355, 361, 376, 387, 391; KIN 475, 555; NUR 150, 343, 459; NVP 200; PHL 210; PSC 441; PSY 430, 466, 480; SOC 212, 242, 350, 403, 413, 420, 430, 437; TMD 224; and WRT 645. In addition to this list, there are special courses offered by various departments each year that may be selected with prior approval of the director of Gender and Women's Studies, and some additional preapproved topics courses not offered on a regular basis. Students must file a program of study with the dean's office. GWS also strongly recommends that majors take an additional 18 credits in a specialized area as a minor or complete a double major. Students often double major in a complementary discipline in the social sciences, humanities,

environmental and life sciences, and health studies, among others.

In order to transfer into the College of Arts and Sciences from University College for Academic Success, students must complete a minimum of 24 credits with a 2.00 or higher GPA.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. A GPA of at least 2.00 in the major and overall is required to graduate.

The Minor. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in gender and women's studies are required to complete 18 credits including GWS 150 and GWS 315, and three credits from any other GWS course. The remaining nine credits may be selected from any GWS course or from the following: AAF 290, 355; APG 310, 328; ARH 385; BUS 346; COM 221, 322, 326, 441; CPL 202; ECN 386; ENG 260, 317, 385, 388; GEG 202; HDF 205, 230, 291, 298, 430, 432, 433, 434, 437, 505, 559; HIS 118, 145, 146, 308, 350, 351, 352, 355, 361, 376, 387, 391; KIN 475, 555; NUR 150, 343, 459; NVP 200; PHL 210; PSC 441; PSY 430, 466, 480; SOC 212, 242, 350, 403, 413, 420, 430, 437; TMD 224; and WRT 645. There may be additional courses offered by various departments each year that may be selected with prior approval of the Gender and Women's Studies Advisory Committee. A GPA of at least 2.00 is required.

Post-Baccalaureate Certificate. Please see Gender and Women's Studies in Graduate Programs.

GERMAN

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

Faculty: Associate Professor Rarick, section head. Professors Berka and Hedderich; Assistant Professor Tracksdorf; Senior Lecturer Iula; DAAD Visiting Professor Lammert, Professors Emeritus Grandin, Kirchner, and von Reinhart.

Students selecting this major complete at least 30 credits (maximum 45) in German, not including GER 101, 102, and 111. Students must complete six credits in literature, at least three of which must be taken at the 400 level, and must complete one additional 400-level German course. Students in the International Engineering Program must complete GER 411.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

GLOBAL LANGUAGE AND AREA STUDIES

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in Global Language and Area Studies (GLAS). Students studying in the GLAS major choose one of three tracks: Arabic Studies, Classical Studies, or Japanese Studies. All tracks share an introductory course (LAN 220) and a capstone course (LAN 420). All tracks require 4 semesters of language study, 1 semester of area studies, and sufficient additional relevant courses to reach 33 credits, with 9 credits at or above the 300 level.

In order to transfer into the College of Arts and Sciences from University College for Academic Success, student must have 24 earned credits and a GPA of 2.00 or higher.

In all tracks, a total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

Faculty:

Section head: Associate Professor Alexander Magidow

Arabic Studies: Associate Professor Alexander Magidow, Lecturer Eric Young

Classical Studies: Teaching Professor Daniel Carpenter

Japanese Studies: Senior Lecturer Masako Hoye

Arabic Studies Track. Students choosing the Arabic Studies Track must complete a minimum of 33 credits, of which at least 9 must be at or above the 300 level. Students must take the introductory course LAN 220. Students must complete 4 semesters of Arabic language courses (usually ARB 111, 112, 211, 212). Students must take one area-studies course (One of ARB 251G, ARB 325 for at least 3 credits, PSC 221, 322, 421, HIS 176, 178). Students must take either an additional area studies course from the previous list, or an additional Arabic language course. Students must take the capstone course LAN 420. Students must take additional elective courses relevant to Arabic Studies to reach a total of 33 credits. Suggested courses for fulfilling the remaining credits are: ARB 311, 312, 325, 315,

415, 497, APG 465, ART 465, COM 354, 361, 462, ECN 338, HIS 176, 178, 379, 388, PHL 328, PSC 221, PSC 322, PSC 421G, RLS 111, RLS 221.

Courses may be substituted with permission of the section head.

Classical Studies Track. Students choosing the Classical Studies Track must complete a minimum of 33 credits, of which at least 9 must be at or above the 300 level. Students must take the introductory course LAN 220. Students must complete 4 semesters of either Latin or Ancient Greek language courses (usually LAT 101, 102, 301, 302 or GRK 101, 102, 301, 302). Students must take one area-studies course (One of ART 251, 354, CLA 391, 395, 396, 397, HIS 301, 302, PHI 321). Students must take either an addition area studies course from the previous list, or an additional Latin or Ancient Greek language course. Students must take the capstone course LAN 420. Students must take additional elective courses relevant to Classical Studies to reach a total of 33 credits. Suggested courses for fulfilling the remaining credits are: APG 417, 465, 490, ART 251, 354, 356, 465, CLA 301, 302, 391, 395, 396, 397, 497, COM 334, 335, 361, 383, ENG 367, 368, 489, GRK 101, 102, 301, 302, 497, HIS 301, 302, 490, LAT 101, 102, 301, 302, 497, 498, PHL 321, 322, 328, PSC 341, RLS 111, THE 381.

Courses may be substituted with permission of the section head.

Japanese Studies Track. Students choosing the Japanese Studies Track must complete a minimum of 33 credits, of which at least 9 must be at or above the 300 level. Students must take the introductory course LAN 220. Students must complete 4 semesters of Japanese language courses (usually JPN 101, 102, 201, 202). Students must take one area-studies course (One of HIS 171, 375, JPN 310, 497, PHL 331, PSC 377, RLS 131). Students must take either an addition area studies course from the previous list, or an additional Japanese language course. Students must take the capstone course LAN 420. Students must take additional elective courses relevant to Japanese Studies to reach a total of 33 credits. Suggested courses for fulfilling the remaining credits are: APG 465, ART 465, COM 354, 361, 462, ECN 338, HIS 171, 172, 375, 481, JPN 301, 302, 310, 401, 402, 497, PHL 328, 331, RLS 131

Courses may be substituted with permission of the section head.

HISTORY

The Department of History offers a Bachelor of Arts (B.A.) degree. The department also offers the Master of Arts (M.A.) degree in history. In addition, the department offers an Accelerated Bachelor of Arts to Master of Arts (ABM) degree.

Faculty: Associate Professor Widell, chairperson. Professors Honhart, Mather, Rollo-Koster, and Rusnock; Associate Professors Buxton, Ferguson, Frazier, Loomis, Nevius, Sterne, and Verskin; Assistant Professors DeCesare, Gonzales, and Sevilla; Teaching Professors Reumann and Ward; Professors Emeriti Cohen, Findlay, George, Gutchen, Kim, Klein, Schwartz, Strom, and Weisbord.

Students selecting this field must complete a minimum of 30 credits (maximum 45) in history, including a minimum of six and a maximum of 12 credits in courses numbered 100 to 299. The balance of required credits is in courses numbered 300 or above, including (1) HIS 401 or 441 or 481 and (2) HIS 495. The two 400-level courses should be taken in consecutive semesters with the same instructor. Under unusual circumstances, with permission of the department chairperson, a student may substitute, in place of the seminar, HIS 391 leading to a substantial research paper. Capstone courses in this major are HIS 401, 441, 481, and 495.

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences as a History major, students must complete 24 credits with a cumulative GPA of 2.00 or higher.

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

Accelerated Bachelor's to Master's Degree

Students may choose to join the Accelerated Bachelor's to Master's (ABM) program and receive both degrees in 5 years. Up to one-third of the required graduate-level credits may be used toward both the undergraduate and graduate degree. Students interested in this option must apply to the program in their junior year and after earning no fewer than 75 credits. Students will be enrolled in the ABM upon successful completion of 90 credits, completion of Graduate School admission requirements, and acceptance into the Graduate School. All undergraduate program requirements must be met prior to receiving a Bachelor's degree and beginning the Master's program. See History ABM in the ABM section of this catalog and History in the graduate portion of the catalog for more information.

INTERNATIONAL STUDIES AND DIPLOMACY PROGRAM

The International Studies and Diplomacy (ISD) program is a dual, interdependent major program with courses across several disciplines. Three Arts and Sciences departments –Languages, Political Science, and Economics – deliver the program, with its administrative home in the Department of Political Science. Students in the program must complete two majors: one in International Studies (33 credits) and another in an approved language (30 credits). As outlined below in detail, to complete the ISD program, students must also study abroad at an approved setting for at least one semester, pass language proficiency benchmarks, and meet GPA requirements. By the end of this program, students will gain essential knowledge and skills in international politics, economics, cultures and language. Upon graduation, students will be ready for careers in Foreign Service, diplomacy, multilateral and non-governmental organizations, and other international careers.

International Studies (B.A.)

Faculty: Associate Professor Johnson, program director; Professor McIntyre, ISD coordinator for Economics

Political Science: Professors Hutchison and Petro; Associate Professsor Xu; Assistant Professors Mark, Jomaa, and Rundlett; Economics: Professor McCray; Assistant Professors Eichacker, Ramnarain, and Vechsuruck; Anthropology Associate Professor Garcia-Quijano

International Studies is a cross-disciplinary major that requires 33-48 credits. To become an international studies major students must first become one of the approved ISD language majors. No student may have International Studies as a single major. No more than 50% of international studies required credits can come from any one course code. To graduate with an international studies major, students must remain in the ISD program, which requires students to successfully concurrently complete a major in an approved language, meet the ISD language proficiency benchmark, meet minimum GPA requirements and study abroad at an ISD approved setting for at least one semester.

International Studies has three Core areas with the following requirements:

1) In the International Relations Core, students must take PSC 116G and PSC 211 and at least one of the following: PSC 300, 320, 321, 322, 350, 377, 415, 421, 408, 416, 417, 422, 431, 434, 435.

2) In the International Economics Core, students must take ECN 201, 202, 358 (online study abroad course) and at least one of the following ECN 338, 344, 363.

3) In the History, Culture, and Society Core, students must take APG 203.

In addition to the above Core options, any of the following courses may be taken as major electives that count towards the 33 credits: AAF 410; APG 200, 315, 329, 415, 465; COM 361; ECN 305, 306, 381, 390, 445, FLM 451; GWS 401, 430; HIS 333, 374, 375, 376, 377, 379, 382, 384, 385, 388; RLS 221.

Students must take at least one 400-level course from any of the Core or major elective courses.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, ISD students must have completed a minimum of 30 credits with a cumulative GPA of 2.50 or higher. Once they have met these requirements and been transferred to the College of Arts and Sciences, students will be advised by three faculty coordinators (one from political Science- who also serves as M.A .director, one from economics, and one from languages).

A total of 120 credits and a cumulative GPA of 2.5 or higher is required for graduation. At least 42 of these credits must be in courses numbered 300 or above.

Accelerated Bachelor's to Master's Degree

Students may choose to join the Accelerated Bachelor's to Master's (ABM) program and receive both a B.A. in International Studies and an M.A. in International Relations in 5 years. Students interested in this option must apply to the program in their junior year and after earning no fewer than 75 credits. Students will be enrolled in the ABM upon successful completion of 90 credits, completion of Graduate School admission requirements, and acceptance into the Graduate School. All undergraduate program requirements must be met prior to receiving a Bachelor's degree and beginning the Master's program. See International Relations ABM in the ABM section of this catalog for more details. For a list of Master's degree requirements, please see International Relations in the graduate portion of the catalog.

Language (B.A.)

Students in the ISD program must major in an approved language from the following existing majors: French, Chinese, Spanish, German, Italian, and Global Language Area Studies. Each of the approved languages attached to the ISD program requires 30 credit hours. ISD students must achieve B2-level (CEFR) or Advanced-Low (ACTFL) language proficiency in their target language to graduate from the ISD program. These are the minimum required language proficiency levels for graduate or professional work in that language. It is recommended that students take LAN 220 during their first or second year.

Study Abroad Required

Study abroad at an approved international institutional setting is a key requirement for the ISD program. ISD students are required to study abroad for at least one semester but a full academic year abroad is recommended. Students must meet the intermediate mid (B1.1) language proficiency level or above prior to study abroad. Upon return from study abroad students must meet the intermediate high (B1.2) language proficiency level or above to remain in the ISD Program.

Admission, Retention and Graduation Requirements

To obtain admission into the ISD Program from high school, students should have a cumulative GPA of 3.2 or above. For existing URI students to obtain entry into the standard ISD program, they must apply by the end of the first semester of their second year, have an overall GPA 3.0 or above and have earned a C+ or above in PSC 116G. Students must also obtain formal consultation and approval from the section head of the target language or department chair of Languages to ensure that the student is at the appropriate proficiency benchmark in order to achieve advanced low (B2) language proficiency upon completion of the program.

Existing ISD students may apply for the accelerated B.A. and M.A. program in their second semester of their third year. To apply, students must have an overall GPA 3.0 or above and an International Studies Major GPA 3.3 or above.

To remain in the program ISD students must maintain an overall GPA 2.5 or above.

To graduate from the ISD program, the Languages Department will certify that students have met the advanced low (B2) language proficiency level or above [or Advanced-Low (ACTFL)]. A copy of the proficiency paperwork must be signed by the chair of the Department of Modern and Classical Languages or the appropriate section head and presented to the Dean's Office prior to graduation.

Accelerated B.A. and M.A. Program

Graduate degrees are often a requirement for many Foreign Service jobs. ISD students may apply for the Accelerated M.A. Program in their junior year. Students in this Program will receive the B.A. in their language and International Studies as well as an M.A. in International Relations. M.A. concentrations include: diplomacy, international development, and global peace studies.

ITALIAN

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

Faculty: Professor Sama, section head. Professor La Luna.

Students selecting this major must complete at least 30 credits (maximum 45), including at least two 400-level courses. ITL 100, 101, and 102 may not be used toward the 30 credits required for the major. Students may use up to three credits from ITL 390 or 395 toward the 30 credits required for the major.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

JOURNALISM

Part of the Harrington School of Communication and Media (harrington.uri.edu), the Department of Journalism offers the Bachelor of Arts (B.A.) degree.

Faculty: Associate Professor Pantalone, chairperson. Professors Kothari and Moore; Assistant Professor Jaacks; Instructors Burns-Fusaro, Corey, Cotter, Coyne, Cyr, Herzog, Phipps, Ruhren, and Schaefer.

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

Students majoring in journalism must complete a minimum of 31 credits (maximum 45) in journalism. All journalism majors must complete JOR 115, 220, 221, 310, 410, and 411. In addition, students must select nine credits from skills courses: JOR 320, 321, 330, 331, 340, 341, 420, 430, 441 and three credits from conceptual courses: JOR 210, 211, 215, 311, 313, 415. Any journalism courses may be chosen for the remaining three credits. Students are encouraged to consult with their advisors about the mix of journalism courses that best meets their goals.

The only journalism courses open to freshmen are JOR 110 (for non-majors), 115 (for majors), and 220.

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

The Harrington School of Communication and Media requires students in each of the six undergraduate majors to also complete the Harrington core requirements.

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

In order to transfer from University College for Academic Success to the College of Arts and Sciences Journalism program, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher. They must also complete JOR 115, and they must complete JOR 220 with a grade of C or better to be transferred.

MATHEMATICS

The Department of Mathematics and Applied Mathematical Sciences offers a Bachelor of Arts (B.A.) degree and a Bachelor of Science (B.S.) degree with an option in Applied Mathematics, an Accelerated Five Year B.S. – M.S. in Applied Mathematics, and a minor. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Baglama, chairperson. Professors Eaton, Kaskosz, Kulenovic, Medina-Bonifant, and Wu; Associate Professors Barrus, Bella, Comerford, Kinnersley, and Thoma; Assistant Professors Chavez-Casillas, Perovic, and T. Sharland; Senior Lecturers Barnes, Denette, Lee, Schipritt, and A. Sharland; Lecturers Boyajian and Sharma; Joint Appointment Senior Lecturer Hersey (School of Education); Professors Emeriti Beauregard, Clark, Driver, Finizio, Fraleigh, Ladas, Lewis, Merino, and Verma.

BACHELOR OF ARTS

Students in the B.A. curriculum may tailor a program to suit their individual needs and interests. They should meet with their advisor no later than the end of the first semester of the sophomore year to plan a complete program. This program, and any subsequent changes in it, must be approved by the advisor and the department chairperson. It must contain at least 32 credits (maximum 45) in mathematics, and include MTH 141, 142, 215, 243, 307 and 316, plus 12 or more additional credits in mathematics, at least three credits of which must be at the 400 level.

Credits earned in MTH 101, 103, 104 105, 106, 107, 108, 109, 110, 111, 208, 209, or 362 cannot be applied toward this degree.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

BACHELOR OF SCIENCE

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

General Program. A minimum of 43 credits is required. This program stresses basic theories and techniques, and includes an introduction to the principal areas of mathematics. It is recommended for students considering graduate study in mathematics. Students in this program must complete MTH 141, 142, 215, and 243. These courses should normally be taken in the freshman and sophomore years. Students must complete an additional 29 credits in mathematics, including MTH 307, 316, 435/436, and 462.

Applied Mathematics Option. A minimum of 44 credits is required. This program is intended for the student who anticipates a career as an applied mathematician or mathematical consultant with an organization such as an industrial or engineering firm or with a research laboratory. The student learns the mathematical ideas and techniques most often encountered in such work. Although a theoretical foundation is developed, the applications are emphasized. The student must take MTH 141, 142, 215, and 243, preferably by the end of the sophomore year. The student must complete an additional 18 credits in mathematics including one of the sequences MTH 435/436 or 437/438, and of the 12 remaining credits in mathematics, at least three credits should be at the 400-level. Also, the student must complete an additional four courses, one of which must be chosen from CSC 106, 200, 201, 211, 212, PHY 410, or CHE 272, and three other courses chosen from Group I (Applications).

Group I: BME 207; BUS 321, 335, 337, 420; CHE 213, 272, 314; CHM 431, 432: CSC 340, 406, 418, 440, 445, 450; ECN 323, 324, 327, 328, 375; ELE 313, 314, 322, 438, 457; ISE 311, 312, 332, 333; MCE 341, 354, 366, 372, 411, 466; NRS 409, 410; OCE 301; PHY 306, 322, 331, 410, 420, 451, 452, 455; STA 307, 308, 409, 411, 412. Other courses may be used for this group with prior permission of the chairperson.

Credits earned in MTH 101, 103, 104, 105, 106, 107, 108, 109, 110, 111, 208, 209, 362, or 420 cannot be applied toward this degree (general program and applied mathematics option).

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

Each of these B.S. programs require a total of 120 credits for graduation.

Accelerated Five Year B. S. – M. S. Program in Applied Mathematics. For detailed information about this program see Mathematics in the Graduate School section of this catalog.

Minor in Mathematics

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a math minor must earn credit for MTH 141, 142, 215, and 243, and two three-credit math courses chosen from MTH 244, 307, 316, 322, or any 400-level course. At least one of these two courses must be at the 400 level. Substitutions may be made with permission of the chairperson.

Math Placement

All math placement issues, including appropriateness are the responsibility of the Department of Mathematics and Applied Mathematical Sciences. The course MTH 141 includes among the prerequisites passing the math placement test at an appropriate level before enrolling. See the catalog listing of courses for additional courses that may require a math placement test. Additional information on the math placement test can be found on the department website, http://www.math.uri.edu.

MUSIC

The Department of Music offers a Bachelor of Arts (B.A.) degree with options in music, music history and literature, and jazz studies, and Bachelor of Music (B.M.) degrees with options in composition, music education, performance, and music therapy. The department also offers Master of Music (M.M.) degrees in music education or performance (including conducting and composition).

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

Faculty: Professor Conley, chairperson. Professors Aberdam, Danis, Pollart, and Takasawa; Associate Professor A. Cardany; Assistant Professors Aaslid and Goods; Clinical Assistant Professor O'Malley; Senior Lecturers de la Garza and Frazier; Lecturer Gilliland; Director of Athletic Bands and Lecturer B. Cardany; Guest Artists/Teachers Allen, Amon, Azzolina, Bentley, Berney, Crowe, Crowley, Cummings, Forsthoff, Garay, Jacobson, Kilcline, Lai, Langone, Levin, Longo, Mattfeld, Mayfield, McKenna, Mitak, Monllos, Murray, Nelson, Neves, O'Dwyer, Phillips, Vallee, and Zinno; Professors Emeriti Fuchs, Gibbs, Kent, Ladewig, Lee, Livingston, Parillo, and Rankin; Music Resources and Facilities Coordinator Heroux; Accompanists Baker and Chung; Piano Technician Amaral; Fiscal Clerk Peabody.

BACHELOR OF ARTS

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

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

Jazz Studies. Students selecting this option must complete 41 credits in musicianship and music performance as follows: Musicianship: MUS 119 (1) (fulfills URI 101 requirement), 115, 116, 117, 118 (8), 424 (3), 106 (3), 220 (3), 222 or 322 (3), 367 (3). Music Performance: A: Six semesters of applied music study in the student's principal area of jazz instrumental performance, (MUS 210W) at 2 credits per semester (12). A successful audition is required prior to study in the principal applied area of jazz instrumental performance. Applied study for the B.A. in music with a jazz option is limited to the following instruments: saxophone, trumpet, trombone, piano, string bass, guitar, and drum set. B: For saxophone, trumpet, and trombone, two semesters of major ensembles MUS 291, 292, 293, 394, 395, and 397. For piano, string bass, guitar, and drum set, two semesters of MUS 396 and 398J in addition to the requirements in section C below (2). C: Two semesters of MUS 391 (2) and three semesters of MUS 396 or 398J (3). At least two of these semesters should be in MUS 396. A successful audition is required prior to participation in jazz ensembles. D: MUS 350 with emphasis on jazz styles (0). E: Seven semesters of MUS 300 (0). Electives: 38 credits, of which a minimum of 30 must be in non-music courses. The department recommends that eight credits of electives be taken in music. At least six of these should be in upper-division music courses. Students who are deficient in keyboard skills must take MUS 171 (1) and 172 (1). MUS 171 and 172 may count as two of the recommended music electives.

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

above.

Music. Students selecting this option must complete 38 credits in musicianship and performance as follows: Musicianship: MUS 119 (1); 115, 116, 117, 118, 215, 216, 217, 218 (16); 220, 222 (6); 322 or upper-division music history course (3); 367 [capstone] (3). Students who are deficient in keyboard skills must take MUS 171 (1). Performance: four semesters of the principal applied music area, at two credits per semester (8); three semesters of ensembles appropriate to the principal applied music area, MUS 291, 292, 293, 394, 395, 396, 397, or 398G (3); seven semesters of MUS 300 (0). A successful audition is required prior to study in the principal applied music area. Electives: 43 credits, of which a minimum of 30 credits must be in non-music courses. The department strongly recommends that 13 credits of electives be taken in music. At least six of these credits should be in upper-division music courses.

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

Music History and Literature. Students choosing this option must complete 45 credits in musicianship and performance, as follows: Musicianship: MUS 119 (1); 115, 116, 117, 118, 215, 216, 217, 218 (16); 220, 222, 322 (9); three upper-division music history courses (9); 367 [capstone] (3). Students who are deficient in keyboard skills must take MUS 171 (1). Performance: four semesters of the principal applied music area (MUS 210), at two credits for two semesters and one credit for two semesters (6); three semesters of major ensembles appropriate to the principal applied music area MUS 291, 292, 293, 394, 395, 396, 397, or 398G (3); seven semesters of MUS 300 (0). A successful audition is required prior to study in the principal applied music area. Electives: 36 credits, of which a minimum of 30 must be in non-music courses. The department strongly recommends that six credits of electives be taken in upper-division music courses. Other: nine credits of foreign language and proficiency through 103.

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

BACHELOR OF MUSIC

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

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

All Bachelor of Music students must successfully demonstrate piano proficiency through passing a series of seven examinations or completing MUS 272 with a C or better. Students complete a diagnostic examination during their audition for placement in piano courses, MUS 171, MUS 172, MUS 271 or MUS 272. The highest level of placement is MUS 272. Students who earn the highest placement level or who are accepted as piano majors may elect to pass all seven piano proficiencies by fall semester of their junior year before a faculty examination committee in lieu of completion of MUS 272; passing the piano proficiency exam by the end of the fall semester of their junior year results in exemption from enrolling and completing MUS 272. Piano proficiency exams are offered each semester.Students will need to demonstrate the following seven piano proficiencies by the fall semester of their junior year: 1) Five-finger patterns, playing a vocal warm-up sequence, hands together; 2) scales, playing two-octave major scales up to three sharps and flats, and one-octave minor scales in all three forms up to three sharps and flats, hands together, by memory at a tempo of M.M.=144 per note; 3) transposition, transposing at sight two melodies selected by the examination committee, students will be asked to transpose the melodies up or down by either a half step or whole step; 4) harmonization, reading two melodies taken from any major or minor key chosen by the examination committee, improvising suitable accompaniments for the melodies by using diatonic triads and secondary dominants, and reading from chord symbols; 5) patriotic songs, playing America and The Star-Spangled Banner in a manner suitable for accompanying community or school singing; these accompaniments are to be prepared in advance; 6) sight-reading, playing at sight selections chosen from a simple accompaniment part and/or beginning-level solo scores; and 7) repertoire, playing two prepared piano pieces by contrasting composers; each piece must be approved in advance by a member of the piano faculty or an instructor of class piano (piano majors are exempt from #7).

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

In addition, students select one of the following options:

Music Composition. Students selecting the music composition option must complete eight semesters of applied composition (MUS 210V, 410V), two credits per semester (16); four semesters of Advanced Performance Studies (MUS 411) (4); eight semesters of MUS 300 (0); MUS 171, 172, 271, and 272, or if placed at 272 level may elect to pass all seven piano proficiencies by fall semester of their junior year before faculty examination committee in lieu of completion of MUS 272 (0-4). Also required are six semesters of major ensembles MUS 292, 293, 394, 395, 396, 397, or 398J appropriate to the ability of the student (6). For the studio composition specialization, credits in MUS 396 may be included. Also required are MUS 119 (1); MUS 115, 116, 117, 118, 215, 216, 217, 218 (16), 220, 222, 322 (9); 235 (2), 239 (1), and 311 or 312 (1), 416 (3), 417, and 420 (9) (for students wishing to specialize in studio composition, three credits of MUS 424 may be substituted for MUS 420); an upper-division music history course (3); MUS 450 Senior Composition Recital [capstone] (0); MUS 367 [capstone] (3); and five credits of electives, three of which should be in upper-division music courses(5). MUS 106, History of Jazz, is recommended for students in the Studio Composition specialization.

A minimum of 120 credits is required for graduation.

Music Education. Visit the Office of Teacher Education and refer to the School of Education section of this catalog for admission requirements for teacher education programs. Completing all requirements in the music education option leads to an initial teaching certificate for music in grades PK-12. Students selecting this option must complete 89 credits in Studies in Music and Professional Education, as follows:

Studies in Music (60-64 credits): seven semesters of the principal applied music area (instrument or voice must be selected

from MUS 210 and 410 A-U, W only; two credits per semester (14). Seven semesters of MUS 300 (0); senior recital MUS 450 [capstone] (0). Students must pass an Advancement Jury after four semesters to

progress to the 410 level. Piano proficiency MUS 171, 172, 271, and 272 or, if placed at 272 level, pass all seven piano proficiencies by fall semester of their junior year before faculty examination committee (0-4); Seven semesters of major ensembles appropriate to the principal applied music area, at 0-1 credit per semester (6). Major ensembles include MUS 291, 292, 293, 394, 395, 396, and 397; no more than two semesters of MUS 291 and/or 396 can count toward the major ensemble requirement. MUS 119 (1); 115, 116, 117, 118, 215, 216, 217, 218 (16); 416 or 417 (3); 220, 222, 322 (9). MUS 169, 170, 173, 175, 177, 179 (6); 235 (2); 239, 311, 312 (3).

Professional Education (30 credits): Students pursuing the music education option must apply for admission to the Office of Teacher Education in the School of Education; see Education for admission requirements. MUS 338, 340, 441 (9); 376, 476 (2); EDC 250 (1), 484 (12), 485 (3); and three credits of professional electives from EDC 102, 103G, 312, 402, PSY 113, 232, HDF 200, 201, MUS 136, 256, 311 or 312 (3). The piano proficiency examinations or MUS 171, 172, 271, and 272, the Unit Plan Assessment, Praxis II: Principles of Learning and Teaching, and Praxis II: Music Content Knowledge, and all courses required for the music education option must be successfully completed before Practical Teaching Residency (EDC 484) and student teaching seminar (EDC 485). Students may wish to enroll in EDC 312 (3) in order to prepare for the Praxis II: Principles of Learning and Teaching.

A minimum of 120 credits is required for graduation. [Nine credits from MUS and three credits from EDC may count toward general education requirements. A maximum number of 131 credits may be required for graduation.]

Music Performance. All students in the music performance option must take the following music courses: eight semesters of MUS 300 (0); MUS 350 (0) and 450 [capstone] (0); MUS 119 (1); 115, 116, 117, 118, 215, 216, 217, 218 (16), 416 (3); 220, 222, 322 (9). MUS 235 (2) and 442 (2); 239 and 311 or 312 (2); 367 [capstone] (3). Students in the jazz option must take MUS 424 in place of MUS 416. Jazz option students must also take MUS 106 (3).

A minimum of 120-124 credits is required for graduation. In addition, students must select one of the following five sub-options:

Classical Guitar: Eight semesters of the principal applied music area; MUS 210 and 410 only at two credits per semester (16). Students must pass an Advancement Jury after four semesters to progress to the 410 level. Four semesters of major ensembles MUS 292, 293, 394, 395, 396, or 397 (4). Courses for piano proficiency MUS 171, 172, 271 & 272, or if placed at 272 level must pass all seven piano proficiencies by the fall semester of their junior year before a faculty examination committee.Four semesters of guitar ensemble (MUS 398G) and three semesters of playing guitar in chamber music ensembles (MUS 398) (7). An upper-division music history course (3); an upper-division music theory course (3). Four credits of electives, at least three of which should be in upper-division music courses.

Jazz (limited to saxophone, trumpet, trombone, piano, guitar, string bass, and drum set): Eight semesters of applied music of the principal applied jazz music area; MUS 210 and 410 at 2 credits each semester (16). Students must pass an Advancement Jury after four semesters to progress to the 410 level. Courses for piano proficiency MUS 171, 172, 271, and 272, or if placed at 272 level must pass all seven piano proficiencies by the fall semester of their junior year before a faculty examination committee.Two semesters of major ensembles MUS 291, 292, 293, 394, 395, or 397 (4). Two semesters of jazz studio ensemble (MUS 396), two semesters of jazz studio lab (MUS 391), and four semesters of chamber music ensembles/jazz (MUS 398J) (8). An upper-division music history course or an upper-division music theory course (3). Three credits of electives which should be in upper-division music courses.

Orchestral Instrument: Eight semesters of the principal applied music area. MUS 210 and MUS 410 at 2 credits each semester (16). Students must pass an Advancement Jury after four semesters to progress to the 410 level. Courses for piano proficiency MUS 171, 172, 271, and 272, or if placed at 272 level must pass all seven piano proficiencies by the fall semester of their junior year before a faculty examination committee. Eight semesters of major ensembles MUS 292, 394, or 397 (8). Three semesters of secondary or chamber music ensembles (3). An upper-division music history course (3); an upper-division music theory course (3). Four credits of electives, at least three of which should be in upper-division music courses.

Piano or Organ: eight semesters of the principal applied music area; MUS 210 and 410 at two credits per semester (16). Students must pass an Advancement Jury after four semesters to progress to the 410 level. MUS 272 with C or better or passing proficiency exam by the end of the fall semester of the junior year (0-1). Four semesters of major ensembles MUS 292, 293, 394, 395, or 397 (4). Six semesters of piano accompanying (MUS 371) or playing piano in chamber music ensembles (MUS 398) (6). MUS 420 (3). An upper-division music history course (3). Six credits of electives, at least three of which should be in upper-division music courses.

Voice: eight semesters of the principal applied music area; MUS 210 and 410 at two

credits per semester (16) and two semesters of Contemporary Commercial Music (CCM), MUS 110A (2). Students must pass an Advancement Jury after four semesters to progress to the 410 level. Courses for piano proficiency MUS 171, 172, 271, and 272, or if placed at 272 level must pass all seven piano proficiencies by the fall semester of their junior year before a faculty examination committee. Eight semesters of major ensembles MUS 293 or 395 at zero or one credit per semester (7). Five semesters of chamber or other music ensembles (3). Four semesters of MUS 411 (4), MUS 173 (1), 183(1), MUS 184 (2), 283 (2), 367 (3), 445 (2), THE 111 (3), ITL 101 (3), GER 101 (3), FRN 101 (3). Three credits of music electives and three credits in an upper-division music history course.

Music Therapy. The Music Therapy degree is a five-year program; the fifth year consists of a national internship and its accompanying seminar. Clinical experience is required to be eligible for board certification in the field. At the end of the fifth year, students sit for the CBMT Board Certification examination to earn the Music Therapist-Board Certified (MT-BC) credential at the completion of their fifth year.

In order to meet American Music Therapy Association (AMTA) standards, music therapy students are expected to obtain a grade of C or better in all core music therapy courses.

Students selecting this option must complete 111 credits in Musical Foundations,

Clinical Foundations and Music Therapy, as follows:

Musical Foundations (62 credits): seven semesters of the principal applied music area (instrument or voice must be selected from MUS 210 and 410 A-U, W only), two credits per semester (14). Seven semesters of MUS 300 (0); senior recital MUS 450 [capstone] (0). Students must pass an Advancement Jury after four semesters to progress to the 410 level. Piano proficiency MUS 171, 172, 271, and 272 or, if placed at 272 level, pass all seven piano proficiencies by fall semester of their junior year before faculty examination committee (0-4); Two semesters of Vocal Major Ensembles MUS 293 or 395, taken during the first two semesters of attendance (2). Eight semesters of major ensembles appropriate to the principal applied music area, at 0-1 credit per semester (6). MUS 119 (1); MUS 239 (1); MUS 115, 116, 117, 118, 215, 216, 217 and 218 (16); MUS 220 and two musicology electives chosen from the following courses: 105, 106, 222, 301, 322[ST2] (9); MUS 170, 180 (2); MUS 173, 183 (2); MUS 334 (2); MUS 438 (3).

Clinical Foundations (18 credits): PSY 113, 254 (6); KIN 122 (3); MUS 243, 244, 343, 344, 443, 444 (6); MUS 493 (3).

Music Therapy (31 credits): MUS 136, 137, 236, 237, 336, 337, 436, 437 (9); MUS 232, 233, 332, 335, 331, 435, 439, 486 (16); MUS 491 (6).

A minimum of 135 credits (including the fifth year) is required for graduation.

Minors in Music

Jazz Studies.

Students who wish to declare a minor in music using the jazz studies option must

complete 20 credits in musicianship, performance, and electives as follows: Musicianship: MUS 106 (3) or 220 (3), 115, 116, 117, 118 (8) , 171 (1), and MUS 300 for a minimum of two semesters (0). Music Performance: a minimum of four credits in the principal applied music area (210W at one or two credits per semester) (4), and two semesters of MUS 391, 396, or 398J (2). Applied study in MUS 210W for the minor in jazz option is limited to the following instruments: saxophone, trumpet, trombone, piano, bass, guitar, and drum set. Participation in other major ensembles is also encouraged. Major ensembles include MUS 291, 292, 293, 394, 395, 397, and 398G, pending audition. Students can be admitted to the Minor degree program only after a successful audition in the principal applied music area and should contact the Department of Music for specific requirements. Transfer credits in music theory, music history, and performance must be validated by placement examination.

Music. This option gives students a background in music. Course work in this option is similar to that taken by students starting work toward a B.A. or B.M. degree in music. Students who wish to declare a minor in music using the music minor option must earn credit for MUS 115 (1), 116 (3), 117 (1), 118 (3), 220 (3), and an additional 3 credits from the following: 101, 301, 311, 322, 407 or 408 (3). MUS 300 for a minimum of two semesters (0); a minimum of two semesters in their principal applied music area (MUS 210 A-U, at one credit per semester) and a minimum of two credits in major ensembles appropriate to the principal applied music area (4). An additional 3 credits in music studies electives are required selected from the following: additional applied music (MUS 210), additional major ensembles (MUS 291, 292, 293, 394, 395, 397), MUS 398 or MUS 235. A minimum of 12 credits must be at the 200-level; students may select from the approved music electives to reach this requirement. The minimum number of credits required for this option is 21. Students can be admitted to the Minor degree program only after a successful audition in the principal applied music area and should contact the Department of Music for specific requirements. Transfer credits in music theory, music history, and performance must be validated by placement examination.

Music Performance. This option gives students the opportunity for a more concentrated study in voice or on an instrument. Students who wish to declare a minor in music using the music performance minor option must earn credit for MUS 220 (3), and MUS 111 (3) or MUS 115 and 116 (4), MUS 300 for a minimum of two semesters (0). Additionally, students must earn a minimum of eight credits in their principal applied music area (MUS 210 A-U at one or two credits per semester) and six credits in major ensembles appropriate to the principal applied music area Major ensembles include: 292, 293, 394, 395, 397; MUS 398 for up to two semesters; and MUS 291 for up to two semesters. Those with an applied area in guitar can count MUS 398G as a major ensemble. Those with an applied area in piano can count additional applied music credits (MUS 210) and/or accompanying (MUS 371) in lieu of the major ensemble requirements. (14). The minimum number of credits required for this option is 20-21. A minimum of 12 credits must be at the 200-level. Students can be admitted to the Minor degree program only after a successful audition in the principal applied music area and should contact the Department of Music for specific requirements. Transfer credits in music theory, music history, and performance must be validated by placement examination.

Music Voice Performance for Theatre Majors. The purpose of this option is to give students who are theatre majors the opportunity for more concentrated and focused study in voice and other areas of music. Theatre students who wish to declare this minor must earn credit for MUS 220 (3), and MUS 111 (3) or 115 and 116 (4); and MUS 108, 117, or MUS 300 for one semester (1). Additionally, students must earn a minimum of eight credits in voice over four semesters (MUS 210A (8)), and three semesters of an ensemble selected from: MUS 293, MUS 395, MUS 485, MUS 398V, and MUS 398Z (3); Up to two semesters of MUS 485 and MUS 398Z can count toward the ensemble requirement. Students can be admitted to the Minor degree program only after a successful audition in the principal applied music area and should contact the Department of Music for specific requirements. Transfer credits in music theory, music history, and performance must be validated by placement examination. The minimum number of credits required for this option is 18, of which 12 credits must be at the 200-level.

Individual Music. This option gives students more flexibility. These students design and develop their music minor program under the advisement and sponsorship of a full-time music faculty member. Petitions outlining and justifying the desired music minor program must be presented by the faculty sponsor to the music faculty for approval. A minimum of 18 credits is required, of which 12 credits must be at the 200-level. Petitions should be submitted as early as possible in a student's undergraduate program.

PHILOSOPHY

The Department of Philosophy offers a Bachelor of Arts (B.A.) degree. Students may elect either the general option or the option with the religious studies emphasis.

Faculty: Associate Professor Krieger, department chair; Professors Foster, Meghani, and Møllgaard; Associate Professor Haile; Assistant Professor Reed; Teaching Professor Nichols; Senior Lecturer Millsop; Professors Emeriti Johnson, Kim, Peterson, Schwarz, Young, and Zeyl.

Students selecting the general option must complete no fewer than 33 credits (maximum 48) in philosophy. Students are required to take PHL 205; at least one from PHL 101 or PHL/CSC 451 (logic); at least one from PHL 212, 314 (ethics); at least one from PHL 341, 342, 452G, PHL/CSC 451; both PHL 321 and 323; at least one from PHL 318, 324, 346, 366; and PHL 490 [capstone]. NOTE: PHL/CSC 451 may be used to satisfy either the logic (101, 451) requirement or the analytic requirement (341, 342, 452G, PHL/CSC 451) but NOT both. The remaining nine credits may be chosen freely from the list of PHL courses offered by the department. At least 18 credits in course work must be at the 300 level or above. For this degree, courses taken in RLS will be classified as electives or to fulfill a general education requirement.

Students selecting the option with the Religious Studies emphasis must complete no fewer than 37 credits (maximum 49). From the philosophy courses, they must take: PHL 101 or 205; PHL 212; PHL 321; PHL 323; PHL 328; PHL 341 or 346; and PHL 490. From the religious studies courses, they must take: RLS 111; RLS 131; RLS 226; PSC 221/RLS 221; and PHL 331 or PHL 421/PSC 421. At least 18 credits in course work must be at the 300 level or above.

To transfer into one of the Philosophy B.A. programs from University College for Academic Success, a student must have completed at least 24 credits and have earned a minimum GPA of 2.00.

For both options, a total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

PHYSICS

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

Faculty: Professor Kahn, chairperson. Professors Andreev, Heskett, Kahn, Kaufman, Khanna, Meyerovich, Muller, Nightingale, and Reshetnyak; Associate Professor Ganikhanov; Assistant Professor Antosh and Srinivasa; Teaching Professors Dorca, Tammaro, and Van Tonder; Lecturers Coyne and Gobeille; Professors Emeriti Letcher, Malik, Nunes, Steyerl, and Willis.

BACHELOR OF SCIENCE

This curriculum provides a general background in both theoretical and experimental physics. It forms a foundation for further study at the graduate level toward an advanced degree, and also prepares the student for a career as a professional physicist in industry, education, or government. Initiative, independent solution of laboratory problems, and research are encouraged in the advanced laboratory courses.

The following courses are required for the B.S., but exceptions and/or substitutions are possible and can be arranged by consulting the department chairperson.

In order to transfer to the College of Arts and Sciences from University College for Academic Success, students must have 24 earned credits and a 2.00 or higher GPA.

A total of 120 credits is required for graduation. PHY 483 and 484 are the capstone courses in this program.

Freshman Year First semester: 14 credits

MTH 141 (4); PHY 203/273 (4), General Education requirements and electives (6).

Second semester: 16 credits

MTH 142 (4); PHY 204/274 (4), General Education requirements and electives (8).

Sophomore Year First semester: 17 credits

CSC 201 or 211 (4); MTH 243 (3); PHY 205/275 (4), General Education requirements and electives (6).

Second semester: 14 credits

MTH 244 (3); PHY 306 (3), 410 (3), General Education requirements and electives (5).

Junior Year First semester: 14 credits

PHY 322 (3), 381 (3); MTH 215 (3), General Education requirements and electives (5).

Second semester: 17 credits

Mathematics elective at the 300 or 400 level (3), PHY 331 (3), 382 (3), General Education requirements and electives (8).

Senior Year First semester: 13 credits

PHY 401 (1), 420 (3), 451 (3), 483 (3), General Education requirements and electives (3).

Second semester: 15 credits

PHY 452 or 570 (3), 455 (3), 484 (3), MTH 400-level (3), General Education requirements and electives (3).

BACHELOR OF SCIENCE- Interdisciplinary Track

This modified bachelor of science degree is intended primarily for physics education majors and physics majors who do not intend to pursue graduate studies in physics. The following courses are required, but exceptions and/or substitutions are possible and can by arranged by consulting the department chairperson.

A total of 120 credits is required for graduation. PHY 492 (or PHY 491) is the capstone course in this track.

Freshman Year First semester: 14 credits

MTH 141 (4); PHY 203/273 (4); General Education requirements and electives (6).

Second semester: 16 credits

MTH 142 (4); PHY 204/274; General Education requirements and electives (8).

Sophomore Year First semester: 17 credits

CSC 201 or 211 (4); MTH 243 (3); PHY 205/275 (4); General Education requirements and electives (6).

Second semester: 14 credits

MTH 244 (3); PHY 306 (3), PHY 410 (3); General Education requirements and electives (5).

Junior Year First semester: 14 credits

MTH 215 (3); PHY 322 (3), PHY 381 (3); General Education requirements and electives (5).

Second semester: 17 credits

PHY 331 (3), PHY 382 (3); General Education requirements and electives (11)

Senior Year First semester: 13 credits

PHY 401 (1), PHY 451 (3); General Education requirements and electives (9).

Second semester: 15 credits

PHY 492 (3); General Education requirements and electives (12).

Medical Physics Track: Five-Year Program leading to a B.S. in Physics and an M.S. in Medical Physics.

The field of medicine is facing a significant shortage of well-trained and qualified clinical medical physicists, due to the increasing use of complex technology in the field of radiation oncology and medical imaging. Consequently there is a growing demand for the training of professionals in medical physics. Only specially created programs can accomplish this mission, since among other things medical physics requires a multidisciplinary effort.

This degree program provides students with rigorous training in essential undergraduate and graduate physics courses, as well as in medical physics courses. Students are introduced to both research and clinical aspects of modern medical physics through the Rhode Island Hospital state-of-the-art medical imaging and therapy facilities. The program is based on the B.S. and M.S. programs in physics with the introduction of additional courses in photo medicine, nanotechnology, radiation physics and dosimetry, radiation oncology, radio-biology, and a clinical practicum. These courses are taught by the URI Physics Department, the Rhode Island Hospital-Brown University Medical School Faculty, and the staff at the RI Nuclear Science Center at the Bay Campus.

Matriculation in this program requires that the student apply and be accepted; it is not automatic. It is possible that a student will enter the program having taken some of the courses but not all. It is mandatory that the student take all of the courses (or show credit in them) in order to graduate. The schedule outlined below demonstrates that it is possible to get both degrees in five years. Where we have written two courses separated by an "or" (e.g., PHY 322 or 420) the student is to take whichever course is offered that semester. The student must have credit in both courses, however, at the end of the curriculum.

Criminal Background Checks and Trainings. All students must undergo a criminal background check annually during the professional years of the program using the College's approved vendor. The criminal background check must be completed prior to the spring semester of each year. Rhode Island Hospital participates in the program and requires certification that students have a clear criminal record (or a criminal record which, due to the timing or nature of the criminal behavior, or the relevant circumstances, does not, in the judgment of the site preclude the student's participation in the practicum/learning experience at their site). Students with criminal records, therefore, should be aware that their criminal record may preclude their participation in clinical experiences at the hospital, and as a result, their progression to meet the degree requirements may be impeded.

All students will be required to complete OSHA, HIPPAA and Basic Life Support Training programs. The training programs must be completed prior to the spring semester of each professional year. Rhode Island Hospital participates in the program and requires training certifications.

Freshman Year First semester:

BIO 220, 221; MTH 141; PHY 203H, 273H; URI 101; two 3-credit General Education courses.

Second semester:

BIO 222, 223; CHM 101, 102; MTH 142; PHY 204H, 274H; one 3-credit General Education course.

Sophomore Year First semester:

CSC 211; MTH 243; PHY 205H, 275H, 210; 6 credits of General Education courses.

Second semester:

MTH 244; PHY 306, 402, 410; 9 credits of General Education courses.

Junior Year First semester:

MTH 215; PHY 381, 451, 322 or 420; SOC 224; 3 credits of General Education courses.

(In the beginning of the sixth semester, the student can begin the application process to be admitted to graduate school. This is necessary only if the student is planning on getting both the master's and bachelor's degrees after five years. The application will be evaluated by a committee of faculty formed for that purpose, and it will be the sole determiner of who goes on in that year. At that time it will still be possible to get a simple B.S. in physics in the standard four years.)

Second semester:

PHY 331, 382, 455, 570; 6 credits of General Education courses.

Senior Year First semester:

PHY 322 or 420, 540, 550; ELE 564, 565; STA 411.

Second semester:

PHY 545 or 560, 552, 565 or 585, 591

Fifth Year First semester:

PHY 401, 483 555; PHY 510 or CSC 593.

Fifth Year Second semester:

PHY 484, 545 or 560, 565 or 585

PHYSICS AND PHYSICAL OCEANOGRAPHY

The Department of Physics and the Graduate School of Oceanography offer a Bachelor of Science (B.S.) degree in physics and physical oceanography.

Coordinators: Professors Heskett and Muller (Physics). The faculty consists of the members of the Department of Physics

and the GSO's physical oceanography faculty.

This program includes a comprehensive background in physics and a solid introduction to physical oceanography. The curriculum includes a full set of physics and mathematics courses required for a B.S. in physics, with extra emphasis on classical physics, plus additional upper-division or graduate-level courses in fluid dynamics and physical oceanography.

The senior physics research project (PHY 483 and 484) will be undertaken in the Graduate School of Oceanography under the supervision of a GSO faculty member. In addition, students may find summer employment or participate in oceanographic research cruises after their junior year.

Students graduating in this course of study are well prepared to pursue careers in conventional physics or physical oceanography. Technical positions in private or government oceanographic research laboratories are available for physical oceanographers at the B.S. level. Students who continue on to graduate studies should expect to find high demand for physical oceanographers with advanced degrees. It is recommended that students planning to attend an oceanography graduate school take PHY 520 (Classical Dynamics); students wishing to keep open the option of physics at the graduate level should take PHY 452 (Quantum Mechanics). Students entering the URI Graduate School of Oceanography from this program will have a significant head start compared to those entering from most other undergraduate institutions.

In order to transfer into the College of Arts and Sciences from University College for Academic Success, students must have 24 earned credits and a 2.00 or higher GPA.

A total of 129 credits is required for graduation.

Freshman Year First semester: 17 credits

MTH 141 (4); OCG 110 (3); PHY 203, 273 (4), General Education requirements and electives (6).

Second semester: 16 credits

CHM 101, 102 (4); MTH 142 (4); OCG 123 (4); PHY 204, 274 (4).

Sophomore Year First semester: 17 credits

CSC 201 or 211 (4); MTH 243 (3); PHY 205, 275 (4), General Education requirements and electives (6).

Second semester: 17 credits

MTH 244 (3); PHY 306 (3); 410 (3), General Education requirements and electives (8).

Junior Year First semester: 17 credits

PHY 322 (3), 381 (3); MTH 215 (3), General Education requirements and electives (8).

Second semester: 17 credits

MCE 354 (3); PHY 331 (3), 382 (3), General Education requirements and electives (8).

Senior Year First semester: 16 credits

OCG 501 (3); PHY 401 (1), 420 (3), 451 (3), 483 (3), General Education requirements and electives (3).

Second semester: 12 credits

OCG 510 (3); PHY 452 (3) and 484 (3); MTH 400-level (3).

POLITICAL SCIENCE

The Department of Political Science offers the Bachelor of Arts (B.A.) degree. The department also offers the Master of Arts (M.A.) in political science and the Master of Public Administration (M.P.A.).

Faculty: Professor Hutchison, chairperson. Professors Johnson, Krueger, Pearson-Merkowitz, and Petro; Associate Professors Leedahl, Ley, and Xu; Assistant Professors Mark, Parker, Rundlett, and Sweeting; Lecturers Leviss and Lynch; Professors Emeriti Hamilton, Killilea, Leduc, Moakley, Rothstein, Stein, and Tyler.

The Major. Students selecting this field must complete a minimum of 32 credits (maximum 48) in political science, including PSC 113 (4 cr.), 116 (4 cr.), 310 (4 cr.), and either 210 or 211 (4 cr.). Student must select one 300-level experiential course (4 cr.) and two 400-level research seminars (4 cr. each). Please note that 400-level PSC classes that are not 4 credits do not count for the 400-level (4 cr.) research seminar requirement.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

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

Accelerated Bachelor's to Master's Degree

Students may choose to join the Accelerated Bachelor's to Master's (ABM) program and receive both a B.A. in Political Science and an M.A. in International Relations in 5 years. Students interested in this option must apply to the program in their junior year and after earning no fewer than 75 credits. Students will be enrolled in the ABM upon successful completion of 90 credits, completion of Graduate School admission requirements, and acceptance into the Graduate School. All undergraduate program requirements must be met prior to receiving a Bachelor's degree and beginning the Master's program. See International Relations ABM in the ABM section of this catalog for more details. For a list of Master's degree requirements, please see International Relations in the graduate portion of the catalog.

The Minor. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in political science must earn 20 credits including PSC 113 (4 cr.), 116 (4 cr.), either 210 or 211 (4 cr.), and any two other political science courses at the 300 level (4 cr.). Please note that 400-level PSC classes do not count toward the minor.

Minor in International Relations. See international relations in the Interdepartmental Minors section of this catalog.

Political Science and Engineering Program. The College of Engineering and the Department of Political Science have established a curriculum that allows for the completion of the two degrees and a public-sector internship in five years.

John Hazen White Sr. Center for Ethics and Public Service. An important part of URI's Political Science Department, this center was established in 1994 through a grant from John Hazen White Sr., a local businessman and philanthropist. The center offers ethics and public service programs for undergraduate and graduate students, elected and appointed officials, public managers, and citizen groups. In addition to research oppor-

tunities, workshops, and special programs, the center also sponsors the Mentor/Tutor Internship (MTI), which provides URI students internships, for credit, in local public schools to encourage and mentor students at risk of dropping out. Contact the department office for more information.

PUBLIC RELATIONS

Part of the Harrington School of Communication and Media (harrington.uri.edu), the Department of Communication Studies offers the Bachelor of Arts (B.A.) degree in public relations.

Contact: Regina A. Bell, M.A., Public Relations, (401) 874-2857.

This interdisciplinary major combines a liberal arts education with the skills important to a career in public relations. Working with the public relations advisor, students will develop a specific program of studies.

Students must complete the following courses before being accepted into the major: PRS 100: Intro to Public Relations and COM 100: Fundamentals of Communication. The major requires an overall GPA of 2.50 and a 2.50 in the pre-major courses.

The major requires two pre-major courses (PRS 100, COM 100) and 30 credits. Students enroll in the following courses once accepted to the major: PRS 320, 340, 441, 491; COM 381; WRT/PRS 331 (pre-requisite of a 200-level WRT course), and JOR / PRS 341 (21 credits). Students must complete three courses (9 credits) in one of the following focus areas.

Entrepreneurial: BUS 140, 341, 365, 449, 468; COM 202, 302, 351, 402; WRT 227

Event Management: ART 204, 213; COM 202, 221, 251, 302, 351, 445; PRS 200; WRT 201

Social Media: ART 204; COM 202, 246, 346, 446; PRS 300; PRS/COM 442; WRT 201, 235

The Harrington School of Communication and Media requires students in each of the six undergraduate majors to also complete the Harrington core requirements.

In order to transfer from University College for Academic Success to the College of Arts and Sciences, students must complete a minimum of 24 credits and have a GPA of 2.00 or higher.

A student must maintain a cumulative GPA of 2.00 to meet graduation requirements. A total of 120 credits is required for graduation. At least 42 of these must be at the 300-level or above.

A minor is also available. See public relations in the Interdepartmental Minors section of this catalog.

SOCIOLOGY

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

Faculty: Professor Bovy, chairperson. Professor Costello; Associate Professors Brasher, Doerner, Keller, Van Wyk, and Zozula; Teaching Professors Bibeau and Pisa; Professors Emeriti Carroll, Mederer, Peters, and Travisano.

BACHELOR OF ARTS

Students selecting this curriculum must complete a minimum of 30 credits (maximum 45) in sociology, including SOC 100, 395, 440, 460, and 495 [capstone]. SOC 460 may be substituted with another approved statistics course (STA 220, STA 308, STA 409, PSY 200 [psychology double majors only], or PSC 310 [political science double majors only]). The remaining 15 credits (5 courses) of elective SOC courses need to include a minimum of 6 credits (2 courses) of upper division (300+) courses. Note that if a non-sociology course is used to fulfill the quantitative methods requirement, students will need an additional sociology elective to reach 30 credits. No more than six credits in independent study (SOC 498, 499) and/or field experience courses (SOC 497) may be used toward the 30 credits required for the major. SOC 495 (capstone) is to be taken during the senior year. Of the minimum 30 credits needed in the major, a minimum of 18 credits need to be at the 300 level or above.

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

SPANISH

The Department of Modern and Classical Languages and Literatures offers the Bachelor of Arts (B.A.) degree with a major in Spanish.Faculty: Professor de los Heros (section head); Professor Echevarria; Assistant Professors Perez-Ibanez and Spino-Seijas; Professors Emeriti Trubiano and White; Senior Lecturer Castro; Lecturer Pisabarro Sarrio.

For the Spanish major, students will complete a minimum of 30 credits (maximum 45), including SPA 325 and three 400-level courses. Note: SPA 101 and 102 cannot be counted toward the Spanish major. Students must maintain a minimum grade point average of 2.50 in Spanish major coursework. These requirements are the same for the secondary education major.

In addition to fulfilling the aforementioned requirements for the Spanish major, students in the International Engineering Program (IEP) or the International Business Program (IBP) must also take SPA 316 and 317.

In order to transfer to the College of Arts and Sciences from University College for Academic Success, students must complete 24 credits with a minimum of a 2.00 GPA.

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

SPORTS MEDIA AND COMMUNICATION

Faculty: Professor McClure, Academic Advisor. Professor Healey-Jamiel; Associate Professor Pantalone; Assistant Professor Hodler; Senior Lecturers Jalette, Proulx; Lecturer Sahm.

In URI's B.A. program in sports media and communication students gain critical and theoretical knowledge and practical experience in sports media, including, but not limited to, sports journalism, broadcasting, public relations, writing, communication, and sports data and analytics. Courses range from critical-cultural analysis to quantitative and critical-analytical studies of sports media and communication. Course

work is coupled with practical and professional experience in various aspects of the sports media and communication industry via a required internship.

The program allows students to tailor specializations for careers in the sports media and communication industry by providing recommended elective courses across three suggested sequences from a variety of programs in the Harrington School of Communication and Media. While students play an important role in curriculum planning, his or her program is closely supervised by an academic advisor. Courses outside the program that relate to the student's needs and goals are encouraged. Students selecting this major may pursue sequences in sports culture, media and society, sports media production, or strategic sports communication and information.

Students must achieve a "C" or better in COM 100, have a 2.0 GPA, and 24 earned credits in order to transfer to the College of Arts and Sciences with a major in sports media and communication.

The program requires a minimum of 30 credits (maximum 45) in the major, including COM 203, 204, 385, PRS 360, SMC 220, 303 and an approved 3 credit internship experience in COM, JOR, FLM, PRS, SMC 477 or ITR 302 (ITR internships require advisor approval). The remaining 9 credits can be selected from any of the approved electives, however students are encouraged to select courses from the following recommended sequences of electives in the following areas. Sports culture, media and society: COM 246, 346, 414, 441; sports media production: COM 307, 341, 342, 344, JOR 221, 325, 415, 430, FLM 110, 220, 351, 444; and strategic sports communication and information: COM 340, 445, 447, PRS 300, 320, 370.

The Harrington School of Communication and Media requires students in each of the six undergraduate majors to also complete the Harrington core requirements.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. A student must maintain a 2.00 grade point average in her or his major to meet graduation requirements.

A minor in Sports Media and Communication is also offered and described in the interdepartmental minors section of the catalog.

THEATRE

The Department of Theatre offers a Bachelor of Fine Arts (B.F.A.) degree.

Faculty: Professor Howard, chairperson. Professors McGlasson and Swift; Assistant Professors Horban and Walshe; Faculty Emeritus Wittwer, Wortman.

Productions at URI cover the range of theatre forms, ancient to modern, with an emphasis on contemporary and experimental work. All members of the University community may participate in productions.

The criteria used to transfer students out of University College for Academic Success into the Department of Theatre are 24 credits and a 2.00 GPA.

BACHELOR OF ARTS

Enrollment in this program is currently suspended with the exception of students enrolled in the elementary education program. Elementary education students who do not complete the elementary education program must switch to the B.F.A. program in order to earn a degree in theatre.

Students must fulfill the elementary education requirements as well as a total of 33 credits (maximum 48) as follows: THE 111 (3), 161 (3), 181 (3), 221 (3), 250 (3), 261 (3), 307 (3), 321 (3), 381 and 382 (6), 383 or 384 or 481 (3). Potential B.A. candidates are urged to complete THE 111, 112, 161, and 181 by the end of their freshman year. B.A. candidates may elect up to 15 more credits in theatre with the approval of their department advisor.

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

BACHELOR OF FINE ARTS

The B.F.A. program is intended for highly motivated students who wish their education to emphasize a major theatrical field of interest. The program offers concentrated study in acting, design and theatre technology, directing, and stage management. Specific requirements of these areas are flexible to suit students' individual needs.

All B.F.A. students are required to complete 37 credits in core courses distributed as follows: THE 111 (3), 161 (3), 181 (3), 221 (3), 250 (3), 261 (3), 291 (2), 321 (3), 351 or 352 (3); three courses from 381 (3), 382 (3), 383 or 384 or 481 (3) to total nine credits; and 391 (2). All B.F.A. candidates are urged to select a course from ENG 362, 366, 446, or 472, and to complete THE 111, 161, and 181 by the end of their freshman year.

In addition to the core requirements, each student selects one of the following specializations. Students must notify the office of the dean of the area of specialization they have selected. B.F.A. students selected for an internship program may substitute up to 12 credits for theatre courses in their area of specialization, subject to departmental approval. Transfer students, late entries into the theatre major, and others wishing to modify this schedule of B.F.A. requirements may do so in consultation with their faculty advisor and with permission of the department chairperson.

Acting. These students must complete an additional 40 credits: THE 112 (3), 211 and 212 (6), 213 and 214 (2), 300 or 301 (3), 311 and 312 (6), 313 and 314 (2), 350 (1), 400 or 401 (3), 411 and 412 (6), 417 and 418 (2). Select six credits from THE 217, 227, 237, and 413. Recommended electives include courses in related fields such as anthropology, art, communication studies, history, literature, music, psychology, and sociology.

A total of 120 credits is required for this specialization.

Design and Theatre Technology. Students selecting design and theatre technology must complete an additional 31 credits: THE 300 (3), 301 (3), 351 or 352 (3) to complete the sequence begun in the core curriculum; 350 (1), 355 (3), 365 (3), 371 (3); and 12 credits selected from 362 (3), 400 (3), 401 (3), 477 (12), 451 (3), 455 (3), 463 (3), 465 (3), 475 (3). Recommended electives include ART 207, 251, 252, and courses in related fields.

A total of 120 credits is required for this specialization.

Directing. Students selecting directing must complete an additional 35 credits: THE 300 or 301 or 307 (3), 322 (3), 331 (3), 341 (3), 355 or 365 or 371 (3), 400 or 401 (3), 420 (3), and

484 (3). They must also complete a three-semester sequence in acting: 112 (3), 211 (3), 213 (1), 212 (3), and 214 (1), to total eleven (11).

Recommended electives include courses in anthropology, art history, history, literature, music, psychology, and sociology.

A total of 120 credits is required for this specialization.

Stage Management. Students selecting stage management must complete an additional 30 credits: COM 351 (3); management course (to be approved by chair) (3); THE 300 (3), 301 (3), 341 (3), 355 or 365 (3), 371 (3), 400 (3), 401 (3), 441 (3).

A total of 120 credits is required for this specialization.

Minor in Music Voice Performance. See Music.

WRITING AND RHETORIC

Part of the Harrington School of Communication and Media (harrington.uri.edu), the Writing and Rhetoric Department offers the Bachelor of Arts (B.A.) degree.

Faculty: Senior Lecturer Shepley, chairperson; Professors Hobbs, Reynolds, and Schwegler; Associate Professor Dyehouse and Ledbetter; Assistant Professors Heilig, Jones, and West-Puckett; Teaching Professor Johnson; Senior Lecturers Dunkle and Roth; Professor Emerita Shamoon.

The Major. This major is designed for undergraduate students who seek to expand their repertoire of writing for various public and private audiences. Graduates will have a strong foundation in rhetorical theory balanced with a wide range of situational practices common to professional writers. Coursework is balanced between in-class learning and experiential fieldwork in real-world settings. All graduates design their own digital electronic portfolios prior to graduation, demonstrating their ability to work with a range of technologies in producing and distributing their polished writing.

Writing and rhetoric majors must complete 30 credits (maximum 51) including the core courses of WRT 201, 235, 360, 404, and 495. At least 15 credits for the major must be completed from writing courses numbered 300 or above. Writing and rhetoric majors are strongly encouraged to complete a practicum experience, such as an internship (WRT 477) or a field experience course (WRT 383 or 385). A maximum of three credits for each of these experiential courses can count towards the major, unless the project substantially changes. Undergraduates wishing to take a 500- or 600-level course must secure the instructor's permission.

The Harrington School of Communication and Media requires students in each of the six undergraduate majors to also complete the Harrington core requirements.

In order to transfer from University College for Academic Success to the College of Arts and Sciences as a Writing major, students must complete 24 credits and have a 2.00 GPA.

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

The Minor. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in writing and rhetoric must complete 18 credits from WRT courses at or above the 200-level. Students must take at least one 200-level course. Students can apply toward the minor a maximum of three credits earned through WRT 383 and WRT 477 each. 100-level courses and WRT 391 and 392 will not be counted as part of the minor.

Business

INTRODUCTION

Maling Ebrahimpour, *Dean*

Shaw K. Chen, *Associate Dean*

Christy Ashley, *Associate Dean*

Carmen Rogers, *Assistant Dean*

Business: Professors Beauvais, Beckman, Blanthorne, Bodah, S. Chen, Cooper, Creed, Dash, Hales, Hazera, Lin, Mazze, Rogers, Sheinin, Westin. Associate Professors Ashley, Atlas, Yuwen Chen, Dugal, Dunn, Djurdjevic, Goto, Leonard, Ozpolat, Schniederjans, Shin, Triki, Warr and Xu.

Assistant Professors Ying Chen, Ergene, Flowers, Forster-Holt, Hossain, Kale, Kouhizadeh, C. Lee, J. Lee, Liu, Marquez Illescas, Samples, Tsafack Kemassong, Xia, Yalcin. Teaching Professors D'Aloisio, Phelps, and Kayakachoian; and Senior Lecturers Beausoleil, Gamache-Griffiths, Gilmore, Hasbora, Ice, Mitchell, Newell, Sacco, Trandafir, Walsh, and Wu; and Lecturers Asadorian, Beliveau, Boyd, Jones and Riley.

Textiles, Fashion Merchandising and Design: Associate Professors Aspelund,

Chairperson, Hannel and Strubel. Professor Welters; Assistant Professors Ciesielska-Wrobel, Goswami and Kang. Lecturer: Grullon.

The eleven undergraduate majors in the College of Business allow students to develop competence in special fields of interest and prepare them to meet the changing complexities of life and leadership in the business community. For the Bachelor of Science in Business the majors are Accounting, Finance, Global Business Management, Innovation and Entrepreneurship, Management Tracks (Management, General Business and People), Marketing, and Supply Chain Management. We also offer a Bachelor of Science degree in Textile Marketing, and Textiles, Fashion Merchandising, and Design.

In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

BUSINESS

The College of Business business curriculum develops the student's professional capabilities through a broad group of business courses with specialization in one area of study. Business programs provide a strong foundation in Accounting, Finance, Global Business, Innovation and Entrepreneurship, Marketing, Management tracks (General Business, Management and People), Supply Chain Management, Business Analytics, and Textile Fashion and Merchandising. The college emphasizes behavioral studies and computer technology to meet the needs of the business community and society as a whole. Emphasis is placed on the total business environment as a part of the national and world economic structure. Theory, analysis, and decision-making are stressed in all areas of learning.

The College of Business is a professional school with courses in lower and upper divisions. The lower-division courses constitute those taught in the freshmen and sophomore years; the upper-division courses constitute those taught in the junior and senior years. Courses taken by transfer students at the lower-division level may be applied to satisfying upper-division requirements only after successful completion of a validating examination.

A student enrolled in this college must complete the curriculum in one of the majors and must obtain an overall cumulative grade point average of 2.00 and a 2.00 or better average for all required courses in the major to qualify for graduation. Undergraduate students wishing permission to substitute required courses or waive other requirements may petition the college's Undergraduate Curriculum Committee. Petition forms are available online at the College of Business’ webpage.

The undergraduate program (BSBA) offered by the College of Business, was the first accredited business school in Rhode Island and has been continuously accredited by the Association to Advance Collegiate Schools of Business-International (AACSB) since 1969. The Master of Business Administration has been continuously accredited since 1972, and Accounting programs have been continuously accredited since 1994.

For more information, visit uri.edu/business or call 401.874.2337

ADMISSION REQUIREMENTS. All admitted business students are initially enrolled as College of Business majors in University College for Academic Success (UCAS), where they complete general education and lower-business core courses. Core requirements include accounting, economics, business analytics, decision-making, mathematics, and statistics. First-semester sophomores who complete a minimum of 42 credits with an overall grade point average of 2.50 or higher and who have a 3.00 or higher average in BAI 111, ACC 201, BAI 210, and ECN 201 will be transferred to the College of Business. Students not qualifying after the first semester of their sophomore year must still meet the requirements of an overall grade point average of 2.50 and a 2.70 or higher average in BAI 111, ACC 201 and 202, BAI 210, and ECN 201 and 202.

Students who have not satisfied entrance requirements may petition the Undergraduate Curriculum Committee of the college for a waiver of those requirements during their fourth or succeeding semesters. Students in the University College for Academic Success (UCAS) business programs who have not met entrance requirements to the College of Business are permitted to enroll only in 100- and 200-level business courses and in non-business courses.

To ensure that business majors have access to required courses, a strict registration policy will be followed with regard to business courses. Highest priority will be given to business students for whom a course is a program requirement, as stated in this catalog, followed by any other student in the College of Business, and then students outside the College of Business who specifically need the course as a requirement for their degree.

CURRICULUM REQUIREMENTS. The first two years are common to all business majors except Textile Marketing, and Textiles, Fashion Merchandising and Design. Students majoring in Textile Marketing or Textiles, Fashion Merchandising and Design follow the curriculum requirements as outlined for those majors.

Freshman Year: 16 credits in the first semester and 15 credits in the second semester. All students take URI 101 fall semester. BAI 113, and BAI 111 are taken in alternate semesters, with the balance of credits in general education. Students majoring in global business management are required to complete PSC 116G. Students majoring in accounting are required to complete PHL 212.

Sophomore Year: 15 credits in each semester. The ACC 201, 202, ECN 201, 202, and BAI 210, 211 (Management, Finance, Marketing, or Supply Chain Management majors only) sequences are begun in the first semester and completed in the second. WRT 227 may be taken in either semester. The balance of credits is made up of general education requirements and free electives.

Cultural Competency: College of Business students, except those majoring in Textile Marketing, and Textiles, Fashion Merchandising and Design, can fulfill the language requirement in five ways.

Option 1. Complete J-term or Summer business faculty-led travel courses. This must be approved in advance if the program is not led by a business faculty.Option 2. Completing a Study Abroad program that has at least 6 credits hours of course(s) taken in an approved foreign university.Option 3. A two course sequence in a language previously studied for two or more years in high school through at least the 103 level in a living language or 301 in a classical language appropriate to a student's level of competence.Option 4. A two course sequence in a language not previously studied (or studied for less than two years in high school) through the beginning level (e.g. 101 and 102). As the above indicates, a minimum of 102 in a foreign language must be completed.Option 5. A student who has lived and studied at least three years or more in a foreign country including grades 1 – 12, or equivalent education.

General Education. General education consists of 40 credits.

For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Upper Level Core Courses: All business majors except Textile Marketing, and Textiles, Fashion Merchandising and Design are required to take the following courses in their sophomore, junior and senior years:

FIN 220 (320) (3), SCA 255 (355) (3), MKT 265 (365) (3), INE 315 (3), MGT 341 (3), MGT 345 (3), and MGT 445 (3).

Professional Electives for General Business Majors Only:

Any 300 or 400 level course, from any department in the University. No more than 6 credits can be from any one discipline in business or economics (e.g., marketing, finance). A maximum of 3 credits from an internship can count as a professional elective.

Business Track in the Honors Program.

In cooperation with the University Honors Program, academically talented business students are able to enhance their intellectual development and strengthen their preparation by participating in the Business Track in the Honors Program.

Minors.

College of Business majors are encouraged to develop a non-business minor. See Minor Fields of Study for requirements and options relating to minors, along with a list of approved interdepartmental minors. Students in the College of Business choosing the third option—"related studies from more than one department under the sponsorship of a qualified faculty member"—need the approval of the Undergraduate Curriculum Committee.

The College of Business offers six minors: Business Analytics and Intelligence; Business of Digital Media; General Business

(General Business is only for non-business students); Innovation Management and Entrepreneurship (Innovation Management and Entrepreneurship Minors are only for non-INE majors);

Justice, Law and Society; Work, Labor and Social Justice; Textiles, Fashion Merchandising, and Design.

Each minor consists of six courses. A certificate in Innovation and Entrepreneurship is offered for 12 credits for non-INE majors or non-INE minors.

Admission is on a space-available basis only, and therefore not guaranteed.

Interested students should complete an application form, available online from the College of Business Minors webpage.

International Business Program. In cooperation with URI's Department of Modern and Classical Languages and Literatures, the College of Business offers an opportunity for students to earn two degrees and receive a B.S. in Business Administration and a B.A. in foreign language. The business requirements include a major in Accounting, Finance, Global Business Management, Innovation and Entrepreneurship, Management tracks (Management, General Business and People), Marketing, Supply Chain Management, Textile Marketing, and Textile Fashion Merchandising

and Design. The student also develops a language component, choosing to major in Chinese, French, German, Italian, or Spanish. In addition, studies in international politics, European history, and courses in history and literature, of the target region, are included. Following the junior year, or in the senior year, students **must** complete a study abroad experience as a full-time student. An optional professional internship experience, outside the United States, for a maximum of 6 business credits, can count toward the study abroad experience. **Note:** Study abroad students **must** be full-time and the student is responsible for finding a pre-approved (by the College and the URI International Education Office), qualified internship, if this option is selected.

Green Business. The College of Business and the Department of Environmental and Natural Resource Economics offer a double degree in General Business and Environmental and Natural Resource Economics. This program is designed for those interested in corporate sustainability, energy efficiency, non-profit management, green marketing, renewable energy, global environmental challenges, environmental policy, and energy finance. Students earn a B.S. in Business Administration from the College of Business and a B.S. in Environmental and Natural Resource Economics from the College of the Environment and Life Sciences. More details on this program can be found at uri.edu/business/green-business/.

Business Programs

ACCOUNTING

The College of Business offers a curriculum leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in accounting. This curriculum provides the education requirements recommended by the American Institute of Certified Public Accountants for certification as a public accountant (CPA). The college also offers a Master of Science (M.S.) degree in accounting.

The increased scope of governmental and business activities has greatly extended the field of accounting and has created an unprecedented demand for accountants in both government and industry. This curriculum has been designed to meet that demand.

In addition to providing a general liberal arts and business background, the curriculum offers specialized training in the fields of general accounting, cost accounting, and public accounting. It offers specific, basic training to students who wish to become industrial accountants, cost analysts, auditors, credit analysts, controllers, income tax consultants, teachers of specialized business subjects, certified public accountants, government cost inspectors, or government auditors.

The broad scope of the courses offers fundamental training in the accounting field of the student's choice, whether this training is to be used as an aid to living or as a basis for graduate study.

Students will take the following courses for the major:

ACC 301 (3), ACC 302(3), ACC 303 (3), ACC 401 (3), ACC 402 (3), ACC 403 (3), ACC 404(3) and ACC 428 (3)

Note: All accounting majors are required to complete a minimum of three credit hours in each of the following areas. Ethical Foundations: fulfilled by taking PHL 212. Political Foundations: fulfilled by taking PSC 113, 116G, or GEG 104. A total of 120 credits, with a GPA of 2.0 is required for graduation.

FINANCE

The College of Business offers a curriculum leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in finance. The college also offers the Master of Business Administration (M.B.A.) degree with an opportunity for specialization in finance, and the Doctor of Philosophy (Ph.D.) degree.

A finance curriculum is designed to prepare the student to be eligible to pass the Chartered Financial Analyst (CFA) Level 1 exam. This background prepares the student for managerial positions in the private, public, and nonprofit sectors. The curriculum emphasizes both financial decision-making and implementation.

Careers in finance are found in financial institutions; security analysis, portfolio, and related investment management; corporate financial management leading to positions as treasurer, controller, and other financial administrative positions; and financial administration tasks in federal and state agencies as well as in the nonprofit sector in hospitals, nursing homes, and educational institutions.

Students will take the following courses for the major:

ACC 301 (3), ACC 302 (3), FIN 321 (3), FIN 322 (3), FIN 420 (3), FIN 421 (3), FIN 424 (3) and FIN 428 (3)

A total of 120 credits, with a 2.0 GPA is required for graduation.

GENERAL BUSINESS ADMINISTRATION

The College of Business offers a curriculum leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in management and a track for general business. The college also offers the Master of Business Administration (M.B.A.) degree, the Doctor of Philosophy (Ph.D.) degree, and the Doctor of Business Administration (D.B.A.) degree.

This curriculum offers the student an opportunity to study all phases of business operation. It is particularly suitable for: 1) those students who are seeking a broad business background; 2) those who are preparing for positions in large organizations with training programs; and 3) those who desire a general business background at the undergraduate level prior to taking more specialized graduate work.

A general business administration student now takes a path under Managment that includes a broad spectrum of courses and does not concentrate in one special field of study. The student cannot enroll in more than nine (9) credits of professional electives in any area of business. All general business administration majors are strongly encouraged to include in their program of study an internship, or a study abroad experience, or a minor in a field outside of the College of Business.

Students will take the following courses for the General Business track within the Management major:

MGT 295(1), MGT 342 (3), MGT 495 (2), an Analytics course (either MGT 461, BAI 310, or another approved Analytics course) (3), and 5 classes (15 credits) from 300 and 400 level professional electives, no more than three from one area.

A total of 120 credits, with a 2.0 GPA is required for graduation.

Minor

The minor in general business for non-business majors requires the completion of 18 credits. Required classes include ECN 201 or EEC 105, ACC 201. Students choose one (1) class from the following: INE 140G, ACC 202*, ECN 202*. The final three (3) courses to complete the minor can be chosen from: INE 149, INE 247, INE 249, FIN 220* (FIN 320), SCA 255*(SCA 355), MKT 265 (MKT 365) or any 300-400 level business course. Classes marked with * have pre-requisites which must be met.

GLOBAL BUSINESS MANAGEMENT

The College of Business offers a curriculum leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in Global Business Management. The curriculum is designed to prepare students to meet the challenges of an international career by achieving a high degree of proficiency in the language of another country as well as a background in its history, economy, politics, culture, and arts. Students are required to take a minimum of 18 credits of any one language. In addition to the common body of knowledge

required of all business students, Global Business Management majors will study business principles taught from a global perspective. A study abroad experience is required as part of the Global Business major. The college also offers the Master of Business Administration (M.B.A.) degree, and the Doctor of Philosophy (Ph.D.) degree.

Students will take the following courses for the major classes:

MGT 342 (3), FIN 428 (3), SCA 460 (3), MKT 468 (3), ECN 338 (3), and MGT 448 (3).

Students will need 18 credits of foreign language (in the same language) and participate in a study abroad experience for either academic and/or internship credit (as pre-approved by the College of Business).

A total of 120 credits with a 2.0 GPA is required for graduation.

INNOVATION AND ENTREPRENEURSHIP

The College of Business offers a curriculum leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in Innovation and Entrepreneurship. The major in innovation and entrepreneurship is designed for students who will one day own their own business, innovate within a large firm or provide advice and goods or services to a small firm. The major provides students with the tools to identify and evaluate business opportunities, develop and execute a business concept and determine what resources are required to effectively manage a new venture.

In fulfilling all of the basic requirements for a innovation and entrepreneurship major students must complete 24 credits. The required courses are INE 149, INE 247, INE 249, MKT 367, and select INE 449 or MGT 450. The remaining 9 credits must be selected from INE 304G, INE 348, INE 349, MGT 443, MKT 467; EGR 325, 326. All pre-requisites for these courses must be met.

A total of 120 credits, with a GPA of 2.0 is required for graduation.

Minor

The minor for this program is called innovation management and entrepreneurship and is offered to students who major in another area or discipline (except INE) at URI but plan to work in their own business, or involved in innovation within a company, can be earned for 18 credits. The three required courses for the minor are INE 149, INE 247, and INE 249. The remaining 9 credits can be selected from INE 348, INE 449, MGT 450; EGR 325, 326. All pre-requisites for these courses must be met.

Undergraduate Certificate

A certificate in innovation and entrepreneurship is offered to students who major in another discipline (except INE) at URI but plan to work in their own business, or involved in innovation within a company, can be earned for 12 credits. Students who minor in innovation management and entrepreneurship are not eligible for the INE Certificate as it would be redundant. The four required courses for the certificate are INE 149, INE 247, 249, and INE 349.

There are no substitutions or electives allowed in the certificate program. The College of Business administers this program; interested students should contact a business adviser for further information.

MANAGEMENT

The College of Business Administration offers a curriculum leading to the Bachelor of Science (B.S.) degree with a major in Management. The curriculum is intended to provide the student with the necessary skills to take a management position in a variety of disciplines across multiple industries. Students may generalize (General Business Track) or choose to specialize their program of study to focus on human capital/ human resources (People Track) using their electives under the guidance of an academic advisor. Qualified students can prepare for graduate studies.

Students will take the following courses for the Management major:

MGT 342 and an Analytics course (either MGT 461, BAI 310, or another approved Analytics course).

General Business Track

Cross-disciplinary, intentional, supported, community. The General Business track in Management provides students with the skills to analyze tough business problems and develop practical applied solutions. Students will design their own couse of study to combine perspective and experience by tailoring their course of study around their academic and professional goals. An interdisciplinary approach (both within and outside business disciplines) develops managers who can solve emerging business problems holistically. Graduates are adaptable leaders with strong roots in data analysis and communication with a deep dive into organizational challenges.

Students following the General Business option within the Management major, will take the following courses: MGT 295, 495, and 5 classes (15 credits) from 300 and 400 level business electives, no more than three from one area.

This track prepares students to:

- start their careers in management rotational programs and other entry-level management roles (sales, project management, etc.)
- to pursue specialized career paths not supported by other existing URI or Business majors (such as arts management, green business, sports management, or diversity management) or for graduate study

People Track

The People track prepares students for graduate programs or careers in human resources. This track exposes students to skills related to designing and supporting human capital management systems. Students may be able to pursue a graduate certificate in HR through the Schmidt Labor Research Center's graduate programs while completing their undergraduate degree or enroll in he Accelerated Bachelors to Masters in Labor Relations and Human Resources.

Students following the People Track option, within the Management major, will take the following courses:

MGT 346, MGT 441, MGT 443, and three additional 300 and 400 level business electives.

A total of 120 credits, with a 2.0 GPA is required for graduation.

MANAGEMENT INFORMATION SYSTEMS *

As of fall 2007, admission to this program has been suspended. A new program in Business Analytics and Artificial Intelligence (BAI) is in development. In the meantime, please view the Business Analytics and Artificial Intelligence minor, which can be added to any major.

MARKETING

The College of Business offers a curriculum leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in marketing. Elective courses in the department expose students to career opportunities in a variety of fields in marketing. The college also offers the Master of Business Administration (M.B.A.) degree with an opportunity for specialization in marketing and the Doctor of Philosophy (Ph.D) degree.

A major focus of marketing is determining product and service needs of consumers and industries as well as understanding how an organization deals with these marketing issues. The courses required of a marketing major give the student a well-rounded view of consumer and organizational needs.

Students will take the following courses for the major classes:

MKT 366 (3), MKT 367 (3) and MKT 470 (3).

Students must take four of the following courses:

MKT 465 (3), MKT 467 (3), MKT 468 (3), MKT 469 (3), MKT 475 (3) or BAI 476 (3).

A total of 120 credits, with a 2.0 GPA is required for graduation.

SUPPLY CHAIN MANAGEMENT

The College of Business currently offers a Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in supply chain management, a Master of Business Administration (M.B.A.) degree with an opportunity for specialization in supply chain management, and a fully online Professional Masters of Science in Supply Chain Management and Applied Analytics (PM) as a STEM designated program. The college also offers the Master of Business Administration (M.B.A.) degree, and a Doctor of Philosophy (Ph.D.) degree with a specialization in operations and supply chain management.

Ranked in the top 10 in the nation, the supply chain management major is a comprehensive program incorporating analytics and technology in both basic and advanced topics necessary for designing, implementing, operating, and improving global supply chain networks.

Boasting a nearly 100% placement rate, careers for the College of Business supply chain management major span every industry. Career options include a diverse list of positions including inventory management, customer relationship management, scheduling, purchasing, and facilities management. The supply chain management graduates are among leaders of tomorrow making strategic choices that impact the future of business.

Students will take the following courses for the major classes:

BAI 310 Applications of Microcomputer Software in Business

SCA 359 Management Systems Analysis

SCA 360 Introduction to Logistics

SCA 361 International Transportation

SCA 460 Global Supply Chain Management

SCA 462 Supply Chain Network Modeling

SCA 463 Distribution & Warehousing Management

SCA 464 Supplier Relationship Management

MKT 467 Customer Relationship Management

A total of 120 credits and a 2.0 GPA is required for graduation

TEXTILE MARKETING

The Textile Marketing curriculum leads to a Bachelor of Science degree. It combines the professional requirements of a major in textiles with the marketing curriculum within the College of Business and is designed to prepare students for wholesale and retail marketing and merchandising positions in the global soft goods industries (textiles, apparel, and related retailing).

Textile marketing and merchandising managers are responsible for planning and directing the flow of textile products from manufacturers to consumers. The major, which provides a strong background in both the global soft goods industry and marketing, is designed to give students the opportunity to explore the areas of market research, consumer behavior, sourcing, supply chain management, branding, advertising, promotion, fashion, and sales.

Freshmen who complete a minimum of 27 credits with an overall grade point average of 3.00 or higher and who complete CSC 101 and MTH 131 (or their equivalents BAI 113 and BAI 111) with a B or higher will be admitted to the College of Business at the end of the freshman year. Students who have a minimum of 42 credits, a grade point average of 2.50 or higher, and who have successfully (with an average of 2.50 or higher) completed CSC 101, MTH 131, STA 308 (or their equivalents BAI 110, BAI 111, BAI 210), ACC 201, and ECN 201 after the first semester of the sophomore year will be admitted to the College of Business. Students not meeting these requirements may be eligible to transfer to the textiles, fashion merchandising, and design program.

Students in this curriculum must take the following courses: TMD 103G, 224, 3031, 313, 402, 403, 4332; one of the following: TMD 240, 426, 440, or 441; six credits of TMD electives; ACC 201, ACC 202, INE 315, MGT 341, MKT 265, MKT 366, MKT 367; CSC 101; and nine credits from SCA 360, MGT 448, INE 449, MGT 450, MKT 465, MKT 467 or MKT 468; MTH 131; and STA 308. Students must also take the following courses: CHM 101/102 or 103*/105*; one of the following natural sciences: MIC 190; NFS 207 or 210; PHY 111/185 or PHY 112/186; ECN 201, 202, and CSC 101.

A total of 120 credits and a 2.0 GPA is required for graduation.

*recommended courses

1 Admission to the degree-granting college in the major is a prerequisite for TMD 303.

2 ECN 201 and ECN 202 are prerequisites for TMD 433.

TEXTILES, FASHION MERCHANDISING AND DESIGN

This curriculum leads to a Bachelor of Science degree. The Master of Science (M.S.) and the Accelerated Bachelors to Masters (ABM) programs are described below and in the Graduate Programs section.

The Textile, Fashion Merchandising and Design major is open to prospective students who have a professional interest in the artistic and technical aspects of the subject. Specialized programs of study prepare students for careers in the design, development, manufacture, and merchandising of textiles, apparel, and interior furnishings. Qualified students can prepare for graduate studies.

The following core courses are required: TMD 103G, 126, 224, 232, 3031, 313, 402, 4332; one of the following: TMD 240, 426, 440, or 441; ART 101, 207, ART 120, 251, or 252; CHM 101/102 or 103*/105*; ECN 201 and 202; one of the following natural sciences: MIC 190, NFS 207 or 210, PHY 111/185 or PHY 112/186 and CSC 101. Fifteen credits of TMD electives (nine credits must be upper-level courses and no more than three credits from TMD 361, 362, or 461, 462) and 18 credits of professional electives (nine credits from any one area) are required. Students should choose TMD electives and professional electives in consultation with an academic advisor. Students must complete 24 credits to transfer from University College to the College of Business. (The same requirements apply to students wishing to transfer into TMD from other majors.) TMD 402 is the capstone experience in this major. To complement classroom and laboratory/studio instruction, internships and study abroad are encouraged.

A total of 120 credits and a 2.0 GPA is required for graduation.

Apparel Design Studies. Students choosing this area of emphasis should select 12 credits of electives from TMD 222, 225, 226, 326G, 327, 335, 345, 346, 355, 358, 427 and an additional 18 credits of professional electives from art, business, or theatre.

Fashion Merchandising. Students choosing this area of emphasis should select 12 credits of electives from TMD 222, 226, 332, 333, 365, 424, 432, 434, 442, 452, and an additional 18 credits of professional electives from art, business, public relations, journalism, or communications.

Historic Textiles. Students interested in this area should take TMD 240, 426, 440, and 441, with a GPA of 3.0 or higher, appropriate graduate-level courses in TMD, together with additional courses in art history and history.

Interior Furnishings and Design. Students choosing this area of emphasis should select TMD 113, 226, 426, 440, and an additional 18 credits of professional electives3 from art and/or business.

Textile Science. Students selecting this area of concentration should take TMD 113, 403, and 413 as well as additional chemistry, chemical engineering, and/or statistics courses. An internship in textile manufacturing is recommended. Participation in an exchange program may offer additional opportunities for special areas of interest. The 18 credits of professional electives3 should be selected from MTH 111, 131; PHY 111 and 112 or 213 and 214; STA 308 or 412 or CSC 201; CHM 112, 114, 212, 226, 227, or 228.

General TMD Program. Students may structure their own programs by combining merchandising or design or concentrating course work in areas such as consumer studies, public relations, journalism, or gerontology. Selection of the 15 required TMD elective credits and the 18 professional elective credits3 plus free electives should strengthen career goals and interests.

Minors. Minors in other areas generally consist of 18 credits. TMD requires 18 credits of professional electives. Students can thus readily achieve a minor by concentrating their professional electives in a single area. The overall URI requirements for a minor apply (see Minor Fields of Study). Courses particularly appropriate to TMD can be determined in consultation with TMD faculty and faculty in the relevant department.

Students with an interest in apparel design or interior design should consider a minor in art. The requirements for this minor are determined by the Art & Art History Department and consist of 18 credits of any art or art history courses, 12 credits of which must be at the 200 level or above.

Minors in other areas that complement areas of the TMD curriculum, such as business, journalism and public relations, may also be earned.

Dual Degree with a "Fashion" Language. France and Italy lead the luxury fashion market. Students enrolled in the Bachelor of Science program in Textiles, Fashion Merchandising and Design may also earn a Bachelor of Arts in either French or Italian. Students must complete the requirements for both degrees. With careful planning, no extra semesters are required. TMD students who earn a second degree in a "fashion" language are strongly encouraged to participate in a study abroad experience and/or a professional internship in France or Italy. The Office of International Education and the respective departments help students arrange semester-long programs with affiliated universities. Students who graduate with majors in TMD and either French or Italian are well prepared to compete in the global fashion industry.

Accelerated Bachelors' to Master of Science in Textiles, Fashion Merchandising and Design (ABMTMD)

The Textiles, Fashion Merchandising and Design Department offers an Accelerated Bachelor of Science to Master of Science Degree in Textiles, Fashion Merchandising and Design (ABMTMD) to allow undergraduates to complete a BS/BA and an MS degree in 5 years. The program would allow students currently receiving a Bachelor's of Science in Textiles, Fashion Merchandising and Design; or a Bachelor's of Science in Textile Marketing; or Bachelor's degree in any other major combined with a TMD minor to also complete an MS as part-time or full-time students.

Under certain circumstances, students enrolled in programs leading to degrees in related areas may be considered for admission into the TMD program, for example Business, Chemistry, History, Art History, or Psychology. In such cases, half of the total credits must be in TMD.

To apply for the ABMTMD program, students must have earned a minimum of 75 credits and have a 3.0 GPA. Students still need to meet the admission requirements for the TMD graduate program; they are allowed to double count up to 11 credits from their B.S. program. Students will be enrolled in the ABMTMD only after they have met the Graduate School admission requirements and have completed 90 undergraduate credits.

Currently, the MS program has two options: thesis option of 30 credits with six credits of thesis research, and non-thesis option of 33 credits. The total number of credits required for a BS is 120 credits. Only the non-thesis option requiring 33 credits will be open to ABMTMD students. The proposed program will allow up to 11 credits of 400/500 level courses to count for both undergraduate and graduate credit. These courses include those 400-level courses in other disciplines that count for graduate credit.

Post-baccalaureate Certificate in Fashion Merchandising

Please see Textiles, Fashion Merchandising and Design in Graduate Programs.

*preferred courses

1 Admission to the degree-granting college in the major is a prerequisite for TMD 303.

2 Economics is a prerequisite for TMD 433.

3 Courses related to the student's career goals, subject to approval by an advisor.

Education and Professional Studies

Danielle Dennis, *Interim Dean*

Christopher Hunter, *Associate Dean*

Adam Brown, *Assistant Dean*

The Alan Shawn Feinstein College of Education and Professional Studies provides a variety of educational opportunities for education with an emphasis on equity and social justice, academic excellence, active lifelong learning, flexibility, and financial sustainability. The focused and synergistic efforts across our Kingston and Providence campuses are aimed directly at preparing teachers, adult learners, and professionals to be leaders in their careers and communities. The dual campus structure coordinates existing components and areas of expertise already in place across the two campuses and enables us to create a thriving college that provides greater benefits to our students, faculty, local community, and state. This collaborative college offers our learners access to innovative, customized, developmentally appropriate, and flexible opportunities through which they gain both interdisciplinary knowledge and practical experience in real community settings.

The College offers degrees in two schools:

The School of Education and The School of Professional and Continuing Studies.

Minors: Students can declare a minor which will appear on their transcripts as a category separate from their major. See Minor Fields of Study.

Graduation. It is the responsibility of each student to file an Intent to Graduate form and curriculum work sheet approved by his or her advisor in the Assistant Dean's Office.

The deadline is October 15th for May graduation, November 15th for August graduation, and April 15th for December graduation.

In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

SCHOOL OF EDUCATION

Faculty. Professor Kern, Interim Director. Professors Byrd, Ciccomascolo, de Groot, Deeney, Kern, Peno, Trostle Brand, Vaccaro and Xu; Associate Professors Adamy, Clapham, Coiro, Fogleman, Hicks, Hos, Kim, Sweetman, and Shim; Assistant Professors Lund, Murray-Johnson, and Tutwiler; Senior Lecturers Correia, Hersey and Semnoski.

The curriculums in Teacher Education offer a balanced program of academic preparation and professional training. The required professional courses contribute directly to the student's understanding the teacher's role in society and developing teaching skills.

The curriculum in early childhood education leads to the Bachelor of Science (B.S.) degree and preK-2 certification. Curriculums in secondary education lead to the Bachelor of Science (B.S.) or Bachelor of Arts degrees (B.A.) and grades 7-12 certification, the curriculum in elementary education to

the Bachelor of Arts (B.A.) degree and grades 1-6 certification, and the curriculum in health and physical education to the Bachelor of Science (B.S.) degree and a K-12 certification.

Undergraduates in the elementary program have the opportunity to add a certification in Special Education, and undergraduates in early childhood, elementary and secondary education have the opportunity to add extended certifications in Teaching English to Speakers of Other Languages/Bilingual and Dual Language Immersion or middle level education. Certification programs are also available through our M.A. programs. See Graduate Programs for information on our M.A. and Ph.D. programs.

Transfer Students. Transfer students can be admitted directly into the college and their major if they have met the admission requirements for basic competency, which are outlined below. Teacher education programs in the School of Education (early childhood, elementary, secondary, and health and physical education): and music education and world languages, in the College of Arts and Sciences; have specific admission criteria. Transfer students may be admitted to the University, but may not be admitted directly into these programs. For more information on requirements for transfer students go to URI transfer admissions.

Admission Requirements.

Students accepted to URI are placed in the University College for Academic Success (UCAS). Once students have completed 24 credits with a minimum 2.75 GPA, and have met the basic competencies for admission they will be moved to their degree granting college, the Alan Shawn Feinstein College of Education and Professional Studies. Students pursuing music education and world languages are admitted to the College of Arts and Sciences. Basic competency requirements are met by earning a B or above in EDC 280 (math) 281 (reading), or 282 (writing). In lieu of these courses, students may submit passing scores in reading, writing, and math on admissions tests (SAT, ACT, or PRAXIS I) based on Rhode Island Department of Education (RIDE) Academic Requirements for Entry into Educator Preparation Programs, subject to change by RIDE. For more information on admission requirements go to uri.edu/education.

General Education.

General education consists of 40 credits.

For more details regarding General Education, please go to the Academic Requirements and Policies

section of this catalog.

Continuation in the program. To be eligible for the practical teaching residency, students must maintain a grade point average of 2.50 overall, 2.50 in the major; Secondary Education students must maintain a grade point average of 2.50 or better in the secondary education content major or specialization. In addition to GPA, students must successfully complete program specific competencies and pass the State mandated certification examinations for their certification area to move into the practical teaching residency. Failure to meet program requirements will result in program probation, a two-semester period during which students have the opportunity to earn acceptable grades or meet required competencies but may not continue on in their course sequence or their practical teaching residency. Failure to meet the requirements after two semesters may lead to dismissal from the program.

Students should consult with the education advisor at University College for Academic Success, the Office of Teacher Education, or their professional advisor for more information on program requirements.

Majors

Early Childhood Education (Birth to grade 2). This major leads to an initial teaching certificate for the pre-school and primary grades (PK-2) in R.I. Required courses in the HDF and EDC programs meet the curricular requirements for the Early Childhood Education Teacher Certificate (Preschool through Grade 2) for beginning teachers set by Rhode Island's Department of Education. Completion of the approved certification program fulfills the requirements for teacher certification in Rhode Island and the majority of other states. Students interested in undergraduate teacher education programs must apply for admission to URI's Office of Teacher Education.

The courses required include the following: Human Development Setting Contents:

HDF 200, 201, 202, 205, and 230; Professional Contents: EDC 102, 250, 312; HDF 203, 208, and 305; Early Childhood Education Core Courses: HDF 420; EDC 301, 303, 402, 424, 426/350, and 461; practical teaching residency: EDC 484 and 485.

To be eligible for the practical teaching residency, students must maintain a grade point average of 2.50 overall; 2.50 in the major; and attain a grade of at least C in HDF 203, 305, and 420; EDC 102, 250, 301, 303, 312, 402, 424, 426/350, 461, 484, and 485. In addition, students must pass the state mandated Praxis II exam for Early Childhood Teacher Certification prior to the practical teaching residency (EDC 484 and 485).

120 credits required for graduation.

Post-Baccalaureate Certificate in Early Childhood Education

Elementary Education (grades 1-6). The professional sequence courses required prior to program admission include: EDC 102, 250, 312; prior to practical teaching residency EDC 402, 423, 424, 452, 453, 454, 455, 456, 457, 458, 459, and 460. To be eligible for the practical teaching residency (EDC 484 and 485) students must maintain a grade point average of 2.50 overall; 2.50 in the major; and a C or above in the professional sequence courses. A natural science with a lab, PSY 232 or HDF 200, and MTH 208 and 209 are also required before junior year, some of which may be taken as part of general education requirements. In addition, students must pass the state mandated Praxis II and PLT exams for Elementary Education Teacher Certification prior to the practical teaching residency (EDC, 484 and 485). Completion of the approved certification program fulfills the requirements for teacher certification in Rhode Island and the majority of other states. Students interested in undergraduate teacher education programs must apply for admission to URI's Office of Teacher Education.

120 credits required for graduation.

Health and Physical Education (Teacher Education) **(HPE).** This major is designed for students seeking teacher certification in physical education and/or health education and/or adapted physical education at the elementary and secondary levels. Completion of the approved certification program fulfills the requirements for teacher certification in Rhode Island and the majority of other states. Students interested in undergraduate teacher education programs must apply for admission to URI's Office of Teacher Education.

Students in the HPE program are required to have a cumulative grade point average of 2.50 or higher before the practical teaching residency (EDC 486/7). Students in the HPE certification and licensure program are required to take and pass the Praxis II: Principles of Learning and Teaching (PLT) Test and Health Education Content Knowledge Test, and the Physical Education Content Knowledge Test prior to the practical teaching residency. Students who do not achieve a passing score on the Praxis II exams may complete their degree in Youth Health and Physical Activity Studies.

124 credits required for graduation.

Secondary Education (grades 7-12). The professional sequence courses required prior to program admission include:

EDC 102, 250, and 312; prior to practical teaching residency 331, 332, 371, 400, 402, 415, 430, 431, and 448.

These courses are taken prior to the practical teaching residency.

EDC 484 and 485 make up the final practical teaching residency.

Students in secondary education are required to take a pedagogy as well as a content area exam in their area of certification.

Completion of the approved certification program fulfills the requirements for teacher certification in Rhode Island and the majority of other states.

Students interested in undergraduate teacher education programs must apply for admission to URI's Office of Teacher Education.

Students pursuing a program in secondary education also obtain a B.A. degree, double majoring in education and at least one content area specialization, although a B.S. degree is available in some content areas. Secondary education programs are offered in biology, chemistry, English, general science, history, mathematics, world languages (Chinese, French, German, Italian, Latin, Spanish), physics, and social studies. In addition, students must pass the state mandated Praxis II exam and PLT for Secondary Teacher Certification prior to final practical teaching residency (EDC 484 and 485).

All Secondary Education Concentrations require 120 credits for graduation.

Additional Opportunities

Middle Level. Eligibility to pursue extended certification in middle level education is available to students accepted into elementary or secondary education programs.

Students seeking to teach in a middle school (grades 5-8) must obtain a middle grades extended certification and be eligible for elementary or secondary certification. The professional sequence of courses required for middle grades extended certification is EDC 400 and EDC 331 concurrent, EDC 415 or an approved adolescent development course. These courses should be taken prior to the practical teaching residency. EDC 484 and 485 make up the final practical teaching residency.

Teacher candidates seeking a middle grades certification extension are required to teach in a middle school in addition to their elementary or secondary experience. In addition, 21-30 credits in one of the following content areas is required:

English/language arts, mathematics, science, social studies, or a world language.

Elementary Education majors that add Middle Level Extension will be required to complete 28 additional hours for graduation.

Students should speak to their advisor about the possibility of taking Middle Level coursework as electives.

Secondary Education majors that add Middle Level Extension will be required to complete a total of 123 credits for graduation.

TESOL/BDL. Eligibility to pursue the extended certification in Teaching English to Students of Other Languages (TESOL) or Bilingual and Dual Language Immersion programs is available to students in a primary content area (e.g. early childhood education, elementary education, secondary area: English, math, social studies, sciences, and modern languages). All students must pass PRAXIS: English to Speakers of Other Languages before enrolling in EDC 519. Bilingual/Dual Language students are required to take additional language assessments for certification. The TESOL/BDL certification is not a stand-alone certification, so a practicum cannot be completed before content area final practical teaching residency. Students must maintain a 3.0 GPA throughout their TESOL/BDL coursework. Additionally, students must meet standard in all critical performance tasks.

Early Childhood Elementary and Secondary Education majors that add the TESOL/BDL Extension will be required to complete a total of 141 credits for graduation.

Special Education. Eligibility to pursue special education certification is available to students accepted to the elementary education program. Students complete certification requirements in the area of mild to moderate disabilities in elementary special education (grades 1-6).

There is a track with the elementary education program for Elementary Special Education.

Elementary Education majors that add Middle Level Extension will be required to complete a total of 150 credits for graduation.

Minor in Education. The overall URI minimum requirements for a minor apply (see Minor Fields of Study). EDC 102 and EDC 312 are required as part of the 18 credits for the minor in Education.

The School of Education has designated EDC 485 as its capstone course. This course meets the requirement for D1 of the URI General Education Program.

SCHOOL OF PROFESSIONAL AND CONTINUING STUDIES

Faculty, Jonathan Kroll, acting director

The School of Professional and Continuing Studies at the Alan Shawn Feinstein Providence Campus offers two Bachelor of Interdisciplinary Studies (B.I.S.) degrees (Learner Designed and General Studies) and two Bachelor of Science degrees (B.S.) degrees Nonprofit Administration and Professional Leadership Studies all of which require 120 credits.

These degrees are particularly appealing to STAR students—working professionals who identify as Service-members, Transfer, Adult, and Returning students—who have never attended college and those who attended college in the past but did not complete a degree.

The B.I.S. and B.S. degrees makes it possible to apply previous educational experience, test credits, prior academic learning, and professional experience toward a degree program.

A comprehensive review of transferable college credits is included in the degree planning process.

Registration and Admission

Admissions Process. Transfer students should follow the University's transfer admissions application process (See transfer student information). Performance-based admission is a potential option for students who may not meet general admission requirements as either a first time or transfer student. Interested students should call the office of admissions (401) 874-7100 for details.

A student who wishes to apply to an undergraduate degree program at SPCS should begin by scheduling an interview with an academic advisor to explore the options available and to discuss the student's previous educational experiences.

Other Registration Information. Matriculating students must enroll in courses prior to the beginning of each semester. Being enrolled in a course (non-matriculating) is not the same as being admitted to the University. To apply for admission to an undergraduate degree program, a student must follow the application procedure (outlined above). Non-matriculating credits may eventually be applied toward a degree program if a student is accepted as a degree candidate.

Services for Students In addition to the resources offered on the Kingston campus, The School of Professional and Continuing Studies (SPCS) provides a number of services for students at the Feinstein Providence Campus, including but not limited to academic advising, career and experiential education, tutoring, writing assistance, services for student veterans' and services for students with disabilities. The Feinstein Providence campus also has computer labs, a student lounge, a bookstore, a library, and a snack bar.

REGISTRATION AND ADMISSION

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INTERDISCIPLINARY STUDIES

Faculty: Jonathan Kroll (Lecturer) and Expert Adjunct Faculty

Admission into this program requires successful completion of at least 24 credits with an earned grade point average of at least a 2.00.

Transfer Students may apply to this major by completing a transfer application. For more information on requirements for transfer students go to URI transfer admissions.

Continuation in the program is contingent upon students maintaining a minimum grade point average of 2.00.

Students should consult with their academic advisor and Interdisciplinary Studies faculty member for more information on program requirements.

INTERDISCIPLINARY STUDIES–LEARNER DESIGNED PROGRAM (THREE-MINOR MAJOR)

The Interdisciplinary Studies Learner Designed degree is a bachelor's program designed for STAR students–working professionals who identify as service-member, transfer, adult, and returning students. This innovative major is well-suited for students whose career goals call for training in more than one discipline or who want a breadth of knowledge in several fields rather than a depth of knowledge in a single discipline. This interdisciplinary "three-minor" major provides an opportunity for students to develop and pursue a course of study centered on a self-selected unifying theme, problem, or issue. Students earning this learner designed major will (a) possess an interdisciplinary perspective by focusing on three areas of study, (b) apply critical thinking skills integrating theory and practice to creatively solve problems across disciplines, and (c) communicate effectively across disciplinary boundaries.

The Bachelor of Interdisciplinary Studies Learner Designed Program consists of the following required sections: 1) Degree Requirements 2) General Education, 3) BIS Courses 4) Major Curriculum, and 5) General Electives.

Degree Requirements. The Bachelor of Interdisciplinary Studies Learner Designed major consists of (a) URI General Education Requirements (40 credits); (b) Minor Area of Study I (18 credits), Minor Area of Study II (18 credits) and Minor Area of Study III (18 credits); (c) BIS 199, 299, 399, ITR 302, 304; and, (d) elective courses totaling 120 credit hours. Students are required to meet with the Director of School of Professional & Continuing Studies (or designee) to plan a project proposal.

General Education Requirements. General education consists of 40 credits. For more details regarding General Education,

please go to the Academic Requirements and Policies section of this catalog.

BIS Courses (8 credits). Three BIS courses serve to launch the program, integrate learner, and synthesize learning with a capstone experience. These courses consist of BIS 199, BIS 299, and BIS 399.

Major Curriculum (60 credits). BIS Learner Designed students will select three distinct minor degrees (18 credits each) offered from throughout the University of Rhode Island. Additionally, students will participate in an internship and receive credits from ITR 302 and ITR 304.

Electives (12 credits). Electives permit students to complete the BIS degree in a number of creative ways through course work, internships, or previous but relevant educational experience.

INTERDISCIPLINARY STUDIES–GENERAL STUDIES MAJOR

Faculty: Jonathan Kroll (Lecturer) and Expert Adjunct Faculty

Admission into this program requires successful completion of at least 24 credits with an earned grade point average of at least a 2.00.

Transfer Students may apply to this major by completing a transfer application. For more information on requirements for transfer students go to URI transfer admissions.

Continuation in the program is contingent upon students maintaining a minimum grade point average of 2.00.

Students should consult with their academic advisor and Interdisciplinary Studies faculty member for more information on program requirements.

The Interdisciplinary Studies General Studies degree is a bachelor's program designed for STAR students–working professionals who identify as service-member, transfer, adult, and returning students. This major is well-suited for students who enter into the University of Rhode Island with a substantial amount of credits or for those students who want an academic degree that includes learning opportunities from a diverse array of academic programs. The General Studies BIS degree provides an interdisciplinary approach to degree completion, combining flexible course options, small class sizes, and the ability for students to craft a major that meets their needs for an efficient path towards graduation. Students will complete course work in three distinct subject areas of their choosing, while concurrently honing their critical thinking, communication, and research skills and synthesizing their learning in BIS core courses, including a capstone experience.

The Bachelor of Interdisciplinary Studies General Studies Program consists of the following required sections: 1) Degree Requirements, 2) General Education, 3) BIS Courses, 4) Major Curriculum, and 5) General Electives.

Degree Requirements. The Bachelor of Interdisciplinary Studies General Studies major consists of (a) URI General Education Requirements (40 credits); (b) BIS 199, 299, and 399; (c) a Major curriculum which includes three courses from three distinct subject areas (27 credits) and, (d) elective courses totaling 120 credit hours. Students are required to meet with the Director of School of Professional & Continuing Studies (or designee) to plan a project proposal.

General Education Requirements. General education consists of 40 credits. For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

BIS Courses (8 credits). Three BIS courses serve to launch the program, integrate learner, and synthesize learning with a capstone experience. These courses consist of BIS 199, BIS 299, and BIS 399.

Major Curriculum (27 credits). BIS General Studies students will select three courses from three distinct areas.

Electives (45 credits). Electives permit students to complete the BIS degree in a number of creative ways through course work, internships, or previous but relevant educational experience.

NONPROFIT ADMINISTRATION

Faculty: Jonathan Kroll (Lecturer) and Expert Adjunct Faculty

Admission into this program requires successful completion of 24 credits with an earned grade point average of at least a 2.00.

Transfer Students may apply to this major by completing a transfer application. For more information on requirements for transfer students go to URI transfer admissions.

Continuation in the program is contingent upon students maintaining a minimum grade point average of 2.00.

Students should consult with their Academic Advisor and Nonprofit Administration faculty members for more information on program requirements.

The Bachelor of Science degree in Nonprofit Administration combines historical and theoretical understanding of the role of the nonprofit organizations in society. Students develop the knowledge and professional competencies to address complex social problems, mobilize community support, and build satisfying careers in the nonprofit and public sectors. This experiential program engages students in case analysis, proposal writing, and project-based learning.

The B.S. in Nonprofit Administration requires 120 credits. It is designed for STAR students–working professionals who identify as Service-members, Transfer, Adult, and Returning students who want to learn how nonprofit organizations meet the needs of humanity.

The degree consists of the following sections: 1) General Education, 2) Major Requirements, 3) General Electives, and 4) Recommended/Suggested Minors.

General Education. Students accepted to URI are initially placed in University College for Academic Success (UCAS). Once students have completed a minimum of 24 credits and have met the basic competencies for internal transfer, they can request to be moved to their degree granting college, the Alan Shawn Feinstein College of Education and Professional Studies. General education consists of 40 credits. For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Major Requirements. Nonprofit Administration students need to earn 30-credits to graduate with the major. Nine (9) Credits

are required. This includes SPC 201, SPC 221, and SPC 499D. Twenty-one (21) credits can be taken from any of the following elective courses. SPC 319G, SPC 320, SPC 321, SPC 322, SPC 403, SPC 425, SPC 479, SPC 490, SPC 491, and SPC 495.

General Electives. Students will need to earn an additional (50) credits from any offering at the University of Rhode Island. These may be used to build valuable workplace skills and to develop educational and professional objectives.

Recommended/Suggested Minors. Students are encouraged to minor in one or more of the University's recognized minors. (18 credits) (see Minor Field of Study) for more information.

PROFESSIONAL LEADERSHIP STUDIES

Faculty: Jonathan Kroll (Lecturer) and Expert Adjunct Faculty

Admission into this program requires successful completion of at least 24 credits with an earned grade point average of at least a 2.00.

Transfer Students may apply to this major by completing a transfer application. For more information on requirements for transfer students go to URI transfer admissions.

Continuation in the program is contingent upon students maintaining a minimum grade point average of 2.00.

Students should consult with their Academic Advisor and Professional Leadership Studies faculty member for more information on program requirements.

The Bachelor of Science degree in Professional Leadership Studies is a bachelor's degree program designed for working professionals aspiring to transition into leadership positions or thrive within their current leadership roles. The courses that comprise this 30-credit major have been designed with current workplace needs in mind, focusing on the top gaps reported by employers which include data analysis and technology, critical thinking and problem solving, decision making and leadership skills, and communication and interpersonal skills. This major prepares students to lead effectively and efficiently in the workplace, regardless of sector or industry.

The B.S. in Professional Leadership Studies requires 120 credits. It is especially designed for STAR students–working professionals who identify as Service-members, Transfer, Adult, and Returning students.

The degree consists of the following sections: 1) General Education, 2) Major Requirements, 3) General Electives, and 4) Recommended/Suggested Minors.

General Education. New students with fewer than 24 credits that are accepted to URI are placed in University College for Academic Success (UCAS). Once students have completed 24 credits and have met the basic competencies for internal transfer within the University, they can request an internal transfer to their degree granting college, the Alan Shawn Feinstein College of Education and Professional Studies. General education consists of 40 credits. For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Major Requirements. Professional Leadership Studies students need to earn 30-credits to graduate with the major. Nine (9) Credits are required. This includes SPC 201, SPC 221, and SPC 499D. Twenty-one (21) credits can be taken from any of the following elective courses. SPC 315, SPC 325, SPC 335, SPC 401, SPC 420, SPC 450, SPC 480, SPC 490, and SPC 495.

General Electives. Students will need to earn an additional fifty (50) credits from any offering at the University of Rhode Island. These may be used to build valuable workplace skills and to develop educational and professional objectives.

Recommended/Suggested Minors. Students are encouraged to minor in one of the University's recognized minors. (18 credits) (see Minor Field of Study) for more information.

Engineering

Anthony J. Marchese, *Dean*

Peter F. Swaszek, Associate Dean for Academic Affairs

Vinka Oyanedel-Craver, *Interim Associate Dean for Research*

Samantha Neary, *Assistant Dean*

URI ENGINEERING'S MISSION

The College of Engineering (COE) is a diverse community of scholars, learners, and professional staff dedicated to the development and application of advanced technologies, and working together to enhance the quality of life for all. We are creative problem solvers, innovators, inventors, and entrepreneurs, applying our skills for the advancement of knowledge, service to our community, and the economic development of the state of Rhode Island and beyond. We prepare our graduates to be global leaders in a wide range of engineering disciplines and to create new knowledge, products, and services.

For more information, visit uri.edu/engineering

or call +1.401.874.5985.

In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

EXPECTED STUDENT OUTCOMES

The College of Engineering offers undergraduate majors in biomedical, chemical, civil, computer, electrical, industrial and systems, mechanical, and ocean engineering. Because the same fundamental concepts underlie all branches of engineering, freshman-year courses are similar for all curricula. All of the engineering curricula are based on an intense study of mathematics and the basic sciences supporting the fundamentals of each engineering discipline. These principles are applied to the understanding and solution of problems of current interest and importance in the field. Each curriculum is designed to provide the knowledge and ability necessary for practice as a professional engineer, or for successful graduate study, which may include law, business administration, or medicine, as well as engineering and science disciplines.

Engineers from all fields are heavily involved in the solution of technological and socio-technological problems; industry's needs are for balanced teams of both men and women from different engineering areas. Therefore, the college's goal is to stimulate our students to become creative, responsible engineers, aware of the social implications of their work, and flexible enough to adjust to the rapid changes taking place in the world and, consequently, in all branches of engineering.

Expected Student Outcomes for the Biomedical, Chemical, Civil, Computer, Electrical, Industrial and Systems, Mechanical, and Ocean Engineering programs:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

CURRICULUM REQUIREMENTS

Entering engineering students who have chosen a specific major should follow the particular program listed in this section. It is recommended that those students who have decided to major in engineering, but have not selected a specific major take the following courses: CHM 101/102; EGR 105; MTH 141; PHY 203/273; and a general education requirement during their first semester. Students who are still undecided about their choice of major after completing the first semester should review their second semester courses with their engineering advisor to be certain that they meet the prerequisites for the sophomore year.

Students who are undecided about engineering as a major, but wish to keep it open as an option, should note that CHM 101/102; EGR 105, 106;

MTH 141, 142; and PHY 203/273, 204/274 are required for graduation by the College of Engineering (COE), and are prerequisites for many engineering courses. These individuals need to meet with the

Wanting Engineering (WEGR) advisor, and review relevant information regarding WEGR below.

Admission to the College of Engineering:

To be admitted to the COE, students must complete at least 24 credits (including transfer credits) with a grade point average of 2.00 or better, and must also complete the following required courses with a grade point average of 2.00 or better **and** a grade of "C-" or better in each course: CHM 101/102; EGR 105, 106; MTH 141, 142; PHY 203/273; and either PHY 204/274 or CHM 112/114.

Enrollment in Engineering Courses:

Enrollment in **200-level**College of Engineering courses is restricted to engineering majors. Exceptions can be made by permission of the department chair.

Enrollment in **300-level and above** College of Engineering courses is restricted to students who have been admitted to a

degree granting college. At the discretion of the Dean's Office, students who do not demonstrate satisfactory progress may be required to discontinue pursuit of an engineering major.

Graduation Requirements: To meet graduation requirements, students enrolled in the COE must satisfactorily complete all courses of the degree program in which they are enrolled and obtain a grade point average of 2.00 or better in all required science, mathematics, and engineering courses (including professional electives), and complete at least 120 credits.

Students are also required to complete a degree audit and an exit interview with the Assistant

Dean at least one semester prior to their anticipated graduation date.

Student Advisement: Engineering students are advised by professional academic advisors from freshmen through senior year. While the student is in University College for Academic Success (UCAS), advising takes place through UCAS (Roosevelt Hall); once the student is internally admitted to the COE advising takes place with an assigned academic advisor, along with a faculty member supporting in a mentor capacity.

General Education Requirements: All COE undergraduates must satisfy the University general education requirements.

Students must refer to their specific engineering major for additional requirements, which vary by program.

General education consists of 40 credits.

For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Wanting Engineering: Based on background and interests, students are provided with the opportunity to explore engineering as a potential major by taking required fundamental core courses in engineering, mathematics, and science. These students are designated as "Wanting Engineering (WEGR)", *which is not an engineering major,* during this exploratory period. To become an engineering major, WEGR students must have an overall grade point average of 2.00 or better, and complete (including transfer credits) the following required courses with a grade point average of 2.00 or better **and** a grade of "C-" or better in each course: MTH 141, CHM 101, 102, PHY 203, 273, and EGR 105, within 3 (three) semesters, under the guidance of the WEGR advisor.

Note:

WEGR students are typically not ready to begin in the first required calculus course, MTH 141. As such, these WEGR students should expect a five-year plan for graduation based on the various engineering curricula requirements. The WEGR advisor will review this and the options with each WEGR student.

COMPUTATIONAL FACILITIES

The Engineering Computer Center (ECC), located in the Chester H. Kirk Center for Advanced Technology, supports the teaching and research activities of the College of Engineering. The ECC has two Dell PowerEdge servers providing centralized services for PC file and print sharing, license serving, email, and web applications. Both wireless and cabled network access are available. Students are assigned COE computer accounts and use these accounts until they graduate. Student accounts are accessible from all of the ECC computer classrooms.

There are 134 networked PCs available at the ECC for student use. These are incorporated into three classrooms with projection systems, a main student work area, and two side project/study rooms. Also provided are three scanners, three black and white laser printers, a color laser printer, and two large format inkjet plotters, for final presentation quality posters. Areas are available for students to set up their own laptops for access to software, printers, and the network. Available installed software includes Abaqus, Aspen, AutoCAD, Bentley, Comsol, EES, LabView, Mathematica, MatLab, Microsoft Visual Studio, Minitab, Multisim, SolidWorks, and Working Model. The ECBE Linux distribution is also available as a dual boot option on all machines.

In addition to providing the computer technologies that engineering students rely on for their course work, the ECC provides faculty members with the resources necessary for their teaching and research commitments, through the use of network services, interactive multimedia classrooms, and the expertise of the ECC staff in identifying and procuring hardware and software.

The Discovery Center is a state-of-the-art multimedia computer classroom with dual-monitor PCs for 32 students; an instructor podium with tablet monitors and the ability to interact with any of the student PCs; eight wide-screen, flat-panel TV monitors; and two large screen projectors. The Discovery Center is heavily used for our introductory freshman engineering classes, where students are introduced to the College of Engineering, engineering career paths, engineering problem solving, teamwork, hands-on projects, and software with applications used in other engineering classes. The Discovery Center is also used by other engineering classes and is available to all engineering students for general use during the evenings and in between classes.

A second 32-seat classroom located near the main ECC facility contains state-of-the-art equipment to handle the increased demand for engineering multimedia instructional capabilities. Managed by the ECC staff, this classroom is available for classes, seminars, lectures, and lab sessions.

In the new Fascitelli Center for Advanced Engineering there are two 20-seat computer labs for open use, as well as to support senior capstone design classes located nearby.

The COE also provides 40 workstation level laptops for use in engineering courses held in the active learning classrooms.

The Department of Chemical Engineering computing room include PCs with specialized software packages such as Aspen, a Chemical Engineering Design Process Simulator, MatLab, and Polymath, for undergraduate teaching and research.

The Department of Civil and Environmental Engineering

has three computational facilities. The CADD Laboratory contains 20 state-of-the-art PCs, one network printer; and a direct projection multimedia system. Available software includes the Autodesk Educational Master Suite, the Bentley Suite with over 50 engineering software packages (including Inroads, Leap, Microstation, RAM, SewerCAD, STAAD, WaterCAD, etc.); Abaqus, HCS, Maple, MatLab, Mathematica, MicroPAVER, MS Office, and others. The senior Capstone Design Project

Studio has six PCs, a reference library, and a direct projection multimedia system, used by the design teams during the integrated capstone design project. The Smart Lab includes 8 state-of-the-art laptops interfacing with sensors used by students to evaluate the condition of existing structures. The facility has a network printer, direct projection multimedia system and sophisticated instrumentation for structural behavior measurements.

The Department of Electrical, Computer, and Biomedical Engineering has numerous multiprocessor Linux servers. The primary servers feature hardware RAID and fiberoptic gigabit network connections. The main computing lab hosts 14 general use, dual-monitor Linux workstations, which are available 24 hours a day to all students in the department. In addition, there are approximately 50 Linux workstations and 40 Windows systems dispersed throughout laboratories and offices. Available software includes Matlab for signal processing, HSPICE for analog circuit simulation, Quartus for FPGA simulation and design, as well as thousands of open-source applications. Numerous laser printers are available, including duplex (two-sided) and color variants. Wireless network access is available throughout the department.

The Department of Mechanical and Industrial and Systems Engineering has one computer classroom which includes 36 workstations and two high-speed laser printers. The classroom is equipped with projection systems for classroom and seminar presentations. Application software includes SolidWorks, Working Model, MatLab, Abaqus, Excel, Gams, Lingo, Maple, Mathematica, Mintab, Engineering Equation Solver, Open Foam, TecPlot, and others. In addition, department laboratories are equipped with a variety of computers for computational modeling studies, high-speed data acquisition, and control of mechanical devices.

The Department of Ocean Engineering has its own computer room at the Narragansett Bay Campus that is open to all undergraduate and graduate students. It is equipped with a dozen desktop computers and two laser printers, with available software including: MatLab, LabView, ArcGIS, SolidWorks, Word, Excel, PowerPoint, and LaTeX among others. These computational facilities are networked and connected to the Engineering Computer Center (ECC); particularly demanding computations can be remotely run on URI's academic computer cluster.

MINORS AND DOUBLE MAJORS

Students wanting to obtain strengths in other areas of academic specialization are encouraged to do so by completing either a minor(s) (see "Minor Fields of Study") or second major. Some of the COE degree programs can also be completed as a minor. Your academic advisor can help you determine options, contacts, and course planning.

Nuclear Engineering Minor

uri.edu/engineering/academics/minors/nuclear

The undergraduate minor in nuclear engineering is satisfied by completing 18 credit hours from the required and supporting courses shown below, depending on the major discipline. A grade of "C" or better must be earned in these courses. At least one-half of the credits must be earned at the University of Rhode Island.

To declare you must have a cumulative GPA of at least 2.50, and you will need to complete the nuclear engineering minor form and have it signed by the nuclear engineering program Coordinator (NEPC), Dr. Nassersharif, and your department chair. You should also consult with Dr. Nassersharif when considering available courses regarding the specific options available based on your engineering major.

For updates, contact information, and the minor declaration form please visit web.uri.edu/engineering/academics/minors/nuclear/

The course requirements for the undergraduate nuclear engineering minor are as follows:

Required courses

MCE majors: MCE/CHE 471, MCE/CHE 472, MCE/CHE 473, MCE/CHE 474 or 476, MCE401, MCE 402

All other engineering majors: MCE/CHE 471, MCE/CHE 472, MCE/CHE 473, MCE/CHE 474/476, NUE 391, NUE 392

With prior approval from the NEPC, appropriate engineering courses may be substituted for the listed required courses. MCE majors, with prior approval from the NEPC, may substitute NUE 391 and 392 for MCE/CHE 473 and 474 (or 476).

Engineering Entrepreneurship Minor

uri.edu/engineering/academics/minors/entrepreneurship

The minor in engineering entrepreneurship blends technology and business to provide engineering undergraduates with the skills needed to become entrepreneurs, innovators, and leaders in both start-ups and established companies. Students learn best practices in new product development, the business of engineering, financing and planning projects, patents and more in this hands-on program.

Requirements of the minor are satisfied by completing 18 credit hours from the required, and supporting courses shown below, depending on the major discipline. A minimum GPA of 2.00 must be earned in these courses. At least one-half of the credits must be earned at the University of Rhode Island.

You will need to complete the Engineering Entrepreneurship Minor Form and have it signed by the engineering entrepreneurship minor coordinator, Associate Professor Kunal Mankodiya, and your department chair. You should also consult with Professor Mankodiya when considering available supporting courses regarding the specific options available based on your engineering major.

For updates, contact information, and the minor declaration form please visit web.uri.edu/engineering/academics/minors/entrepreneurship/

The course requirements for the undergraduate engineering entrepreneurship minor are as follows:

Core Required Courses (9 credits)

EGR 325 Engineering Entrepreneurship I

EGR 326 Engineering Entrepreneurship II

One of the Business Supporting Courses below

Supporting Courses (choose 9 credits not including a Business course as indicated above; most courses are 3 credits)

Business: FIN 220 (320); INE 247, 249, 315, 449; MGT 341, 441, 443, 450; MKT 265 (365) (**note:** all courses in this list were

coded "BUS" until Fall 2020, and are applicable if they were completed under that code as well)

Civil Engineering: CVE 323G, 334, 477

Communication Studies: COM 341, 402

Community Planning: CPL 434, 537

Economics: ECN 201, 202

Electrical Engineering: ELE 470

Engineering: EGR 316G

Environmental Economics: EEC 205, 310

Industrial and Systems Engineering*: ISE 304 (404), 451, 500, 552 (*ISE majors cannot use ISE 304/404 or 451 in satisfaction of minor requirements)

Marine Affairs: MAF 220, 312

Ocean Engineering: OCE 360, 467

Writing: WRT 332

With prior approval, **supporting courses** may be substituted with appropriate other courses including special projects. Students unable to take **EGR 326** can substitute that course with another course from one of the engineering-specific options on the approved list. Application for the "Minor in Engineering Entrepreneurship" must be filed in the Engineering Dean's Office as soon as courses are selected and approved by the required signatories.

Environmental Engineering Minor

uri.edu/engineering/academics/minors/environmental

The environmental engineering minor comprises a minimum of 18 credit hours, at least half of which must be earned at URI, including two "**Fundamental Science**" courses, two "**Environmental Engineering Fundamentals**" courses (for non CVE majors), and up to four "**Environmental Engineering Design**" courses from an approved list. Students may also select one course from a list of approved "**Supporting Courses**".

Only engineering students may pursue this minor. Students

declaring this minor must earn a minimum cumulative grade point average of 2.50 in courses

counted toward the minor. Students will need to complete the environmental engineering minor form and have it signed by the environmental engineering minor coordinator, Dr. Ali Akanda, and the civil and environmental engineering department chair. Students are responsible for meeting the prerequisite

requirements for individual courses, as applicable.

The course requirements for the undergraduate environmental engineering minor are as follows:

Fundamental Science: Select 2 courses

MCE 341,

CHE 212, CHM112, CHM 227

Environmental Engineering Fundamentals (Required for non-CVE students)

CVE 370 or CVE 470 (choose one) and CVE 374

Environmental Engineering Design: Select up to 4 courses

CVE323G, CVE 325G, CVE 470, CVE 471, CVE 474, CVE 475, CVE 477, CVE 482, CVE 484, CVE 491, 492

Supporting Courses: May select 1 course

CHE 364, CHE 574, CPL/LAR 434, CPL 485, EEC 430, GEO 305, GEO 462, GEO 483, ISE 460, NRS 409, NRS 410, NRS 412, NRS 415, NRS 461, OCG 480

Robotics Engineering Minor

uri.edu/engineering/academics/minors/robotics

Any engineering major may declare a "minor in robotics engineering" field of study, which will be listed on the student's academic record after graduation. Requirements may be satisfied by completing 18 credit hours. Students must complete one of the following options, as well as an additional two courses (6 credits) from the list of supporting courses. The choice of option is not restricted by major.

Application for the engineering minor must be filed in the Engineering Dean's Office at least one semester prior to expected graduation. Forms must be signed by the coordinator for the chosen option and the chair of the students department, and then brought to the College of Engineering Dean's Office for formal declaration and inclusion in the

student's file. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable.

Required Courses

The course requirements for **Option 1: Ocean Engineering Focus** are as follows:

OCE360, OCE 456, OCE467, MTH215

The course requirements for **Option 2: Mechanical Engineering Focus** are as follows:

MCE431, MCE433, MCE 456, MTH215

The course requirements for **Option 3: Electrical Engineering Focus** are as follows:

ELE458/459, ELE 456, ELE470, MTH215

In addition to the required courses from the selected focus, at least **6 additional credits** must be earned from the following **supporting courses**.

With prior approval, supporting courses may be substituted with appropriate other courses including special projects.

ELE205/206*, ELE458/459, ELE470, ELE583, MCE366**, MCE 431, MCE433, MCE530, MCE566, OCE360, OCE467, OCE516, OCE562, OCG555

*may not be counted toward minor requirements for ELE majors

**may not be counted toward minor requirements for MCE majors

Concentration in Naval Science and Technology

uri.edu/naval-science-technology

Any engineering major may declare a "Concentration in Naval Science and Technology". Requirements will be satisfied by completing nine (9) credit hours as follows:

EGR 201 "Seminar in Naval Science and Technology", 1 credit (taken up to three times)

Remaining credits:

Navy-related research (BME, CHE, CVE, ELE, ISE, MCE or OCE

491/492)*and/or***Navy-related capstone design** (BME 484/485, CHE 451/452, CVE 497/498, ELE 480/481, ISE 401/402, MCE 401/402 or OCE 495/496)

With prior approval, remaining credit courses may be substituted with appropriate other courses including special projects. A declaration form, including the agreed upon course plan, must be approved by one of the Program Coordinators, the student’s Department Chair, and filed in the Engineering Dean's Office before graduation.

International Engineering Program (IEP)

uri.edu/engineering/academics/iep

In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language. The foreign languages currently offered by the IEP are Chinese, German, French, Italian, and Spanish. Students can also study and declare Japanese via the Global Language and Area Studies – Japanese track major. The five-year program includes a year studying abroad. The first semester abroad is spent at the IEP's partner university taking engineering, language, and culture courses in the host language. The second six months abroad are spent in a paid professional internship working at an international engineering company or engaged in a research institute in Europe, Latin America, the Caribbean, or Asia. Upon graduation, students are well prepared to compete in the global marketplace and are highly sought after by employers both in the U.S. and abroad. Interested students should contact the IEP director at the Texas Instruments (TI) House on Upper College Road. The IEP has received several awards for excellence in international engineering education. uri.edu/iep

Accelerated Five-Year B.S./M.S. Degree Programs

The COE offers accelerated five-year B.S./M.S. degree programs in all majors except Ocean Engineering. These programs allow qualified students to complete both the B.S. and M.S. degrees within five years. Specific requirements vary by major. Please refer to program details in this catalog, including department requirements listed by individual major and links to department websites for further information.

Engineering and M.B.A. Program. This five-year program offers students the opportunity to earn a B.S. degree in engineering and a Master of Business Administration (M.B.A.). Students with a cumulative GPA of 3.00 or better may enroll during their senior year with successful completion of the Graduate Management Admissions Test (GMAT).

Engineering and M.O. Program. The fifth-year Master of Oceanography (M.O.) program is designed for URI students who want to enter GSO's M.O. program while still an undergraduate and complete the degree in the year following completion of the B.S. The program is open to qualified URI undergraduates in the natural sciences or engineering. Eligibility and program requirements can be found in the Graduate Programs section of this catalog.

Graduate Degrees. Graduate study is available in the COE at the Master of Science (M.S.) and Doctorate (Ph.D.) level. For a listing of advanced degrees, see the Graduate Programs section of this catalog.

ACCREDITATION

The College of Engineering's eight undergraduate B.S. degree programs in biomedical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, industrial and systems engineering, mechanical engineering, and ocean engineering are all accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (abet.org), the recognized leader in international engineering program accreditation.

We encourage you to visit ABET, Inc. (abet.org),to learn more about the importance of engineering program accreditation, and the valuable benefits for graduates of accredited engineering degree programs.

URI's College of Engineering is a member of the American Society for Engineering Education (ASEE).

Engineering Programs

BIOMEDICAL ENGINEERING

The Bachelor of Science (B.S.) degree in biomedical engineering is offered by the Department of Electrical, Computer, and Biomedical Engineering (ECBE), and is open to qualified students under the New England Regional Student Program. The biomedical engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). Specialization in biomedical engineering is also available within the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) programs in electrical engineering.

Faculty: Professor He, Chairperson; Professor Besio; Associate Professors Mankodiya and Vetter; Assistant Professors Abiri and Shahriari. Supporting Faculty: Professors Fischer, Swaszek, and Vaccaro; Lecturer Cai.

Program Educational Objectives.

Three to five years after graduation from the B.S. in biomedical engineering, graduates will:

- Successfully practice biomedical engineering to serve state and regional industries, hospitals, government agencies, or national and international industries.
- Work professionally in one or more of the following areas: biomedical electronics, medical instrumentation, medical imaging, biomedical signal processing, rehabilitation engineering, neuroengineering, and biomaterials.
- Achieve personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments.
- Maintain and improve their technical competence through lifelong learning, including entering and succeeding in an advanced degree program in a field such as engineering, science, business, or medicine.

Student Outcomes. Biomedical engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. Biomedical engineering is an interdisciplinary area in which engineering techniques are applied to

problem solving in the life sciences and medicine. Biomedical engineers design medical instruments and systems for diagnosis and the treatment of various diseases as well as for research in biomedical sciences. Examples of instruments for diagnosis include electrocardiographs, electroencephalographs, automatic blood analyzers, and medical imaging systems such as X-ray imaging, radio-nuclide imaging, ultrasound imaging, computer-assisted tomography, and magnetic resonance imaging. Examples of instruments for treatment include radiotherapy machines, pacemakers, cardiac-assist devices, intelligent drug delivery systems, dialysis machine, ventilator, and lasers for surgery. Biomedical engineers develop artificial organs for prosthesis and computer software and hardware systems to help provide high-quality, cost-effective health care.

Biomedical engineers are employed in the medical instrument industry, where they invent, design, manufacture, sell, and service medical equipment. They serve as clinical engineers in the hospitals, where they evaluate, select, maintain, and provide training for the use of complex medical equipment. They also participate in medical and biological research by applying their unique analytical ability and instrumentation skills to conduct advanced research.

URI's biomedical engineering program combines study in the biological sciences with the areas of engineering that are particularly important for the application of modern technology to medicine. This curriculum is designed to provide students with not only a general background in biomedical engineering but also a special focus on hands-on skills in electrical engineering necessary for developing medical devices. With a few minor elective changes, the program also satisfies the entrance requirements of most medical schools, but students who plan to go on to medical school should consult the premedical advisor and the coordinator of the biomedical engineering program.

The biomedical engineering major requires 120–121 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education outcome(s)1 (3).

Second semester: 14 credits

BME 181 (1); CHM 124 (3); EGR 106 (2); MTH 142 (4); and PHY 203 (3), 273 (1).

Sophomore Year First semester: 16 credits

BIO 220 (3), BIO 221 (1); BME 281 (1); ELE 201 (3), 202 (1); MTH 362 (3); and PHY 204 (3), 274 (1).

Second semester: 15 credits

BIO 222 (3), 223 (1); BME 207 (3); ELE 212 (4), 215 (1); and MTH 243 (3).

Junior Year First semester: 16 credits

BIO/CMB 341 (3); BME 307 (3), 360 (3), 361 (1); ELE 313 (3); and general education outcome(s)1 (3).

Second semester: 16 credits

BME 362 (3), 363 (1); ELE 314 (3); ISE 311 (3) or STA 409 (3); general education outcome(s)1 (6).

Senior Year First semester: 14–15 credits

BME 461 (3), 464 (3), 465 (1), 484 (3) [capstone]; ELE 400 (1); and approved professional elective2 (3-4).

Second semester: 14 credits

BME 466 (3), 468 (3), 485 (2) [capstone]; and general education outcome(s)1 (6).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to fill each remaining space in order to ensure you have earned at least 120 credits as required to earn a B.S. degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Professional Elective Requirement: One (1) course from the following: CHE 333, 347, 574; CSC 522; ELE 322, 338/339, 343/344, 435/436, 437, 438, 447/448, 458/459, 470, 501, 506; ISE 304, 312; MCE 341, 354, 372; MTH 442, 451, 462, 471; with prior approval of the Electrical, Computer, and Biomedical Engineering department chairperson, any other 300-, 400-, or 500-level College of Engineering course not required by the BME major.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Accelerated Five-Year B.S./M.S. Degree Program. To qualify for this program, students must earn a cumulative GPA of 3.30 or higher while pursuing their B.S. degree. To ease the course load at the graduate level, candidates are encouraged to earn some graduate credits (e.g. one or two courses not required for their B.S. degree) during their senior year. Additional information about this program can be obtained by contacting the department chairperson.

CHEMICAL ENGINEERING

The Department of Chemical Engineering (CHE) offers a curriculum leading to the Bachelor of Science (B.S.) degree in chemical engineering. The chemical engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). In addition to the major there are two available tracks: biology and pharmaceutical. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor Bothun, Chairperson. Professors Bose, Brown, Gregory, and Lucia; Associate Professors Greenfield and Meenach; Assistant Professors Poling-Stutvik, Roxbury, and Shen; Professors Emeriti Barnett, Crisman, Gray, Knickle, Rivero-Hudec, Rockett, and Rose.

The chemical engineer is concerned with the application and control of processes leading to changes in chemical composition. These processes are most frequently associated with the production of useful products (chemicals, fuels, metals, foods, pharmaceuticals, paper, plastics, and the like), but also include processes such as removal of toxic components from the blood by an artificial kidney, environmental cleanup, and semiconductor processing. The chemical engineer's domain includes more efficient production and use of energy, processing of wastes, and protection of the environment.

Chemical engineers have a strong foundation in chemistry, physics, mathematics, and basic engineering. Chemical engineering courses include thermodynamics, transport phenomena, mass transfer operations, materials engineering, process dynamics and control, kinetics, and plant design. The student has the opportunity to operate small-scale equipment and to visit local industry. Intensive work is undertaken in the solution of complex problems in which economics and optimization of engineering design are emphasized.

Department Mission Statement. We are a community in a common quest to create and distribute chemical engineering knowledge in order to prepare our graduates to be successful leaders and practitioners.

Program Educational Objectives.

Three to five years after graduation from the B.S. in chemical engineering, graduates will :

1. Practice or apply the principles of chemical engineering in a variety of employment areas.
2. Achieve professional success with an understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.
3. Be capable of pursuing continued life-long learning through professional practice, further graduate education or other training programs in engineering science or other professional fields.

Student Outcomes. Chemical engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. URI's chemical engineering program is more than just a collection of courses and credit hours whose content reflects the required criteria. The program has also been carefully designed to prepare students for the profession of chemical engineering through study, experience, and practice. Through eight specific program goals, the department of chemical engineering at URI seeks to:

1) provide the necessary background in science, particularly chemistry, physics, and advanced mathematics through the study of differential equations, so that students will be able to continue their education in the engineering sciences, with depth of understanding, and learn to apply these subjects to the formulation and solution of engineering problems;

2) provide a broad cross section of fundamental engineering science courses, including some from other engineering disciplines so that our students will acquire an understanding of the way in which chemistry, physics, and mathematics have been and continue to be used to solve important engineering problems relevant to the general chemical engineering and engineering design;

3) provide students with experience in conducting and planning experiments in the modern engineering laboratory, including interfacing experiments with computers as well as interpreting the significance of resulting data and properly reporting results in well-written technical reports;

4) provide experience in the process of original chemical engineering design in the areas of equipment design, process design, and plant design through the process of formulating a design solution to a perceived need and then executing the design and evaluating its performance, including economic considerations and societal impacts if any, along with other related constraints, culminating in both written and oral presentations of results;

5) provide experience with the multifaceted aspects of using computers to solve problems and present results with word processing, spreadsheet, presentation, and professional-level applications software used for design and analysis; and provide for obtaining and using information on the World Wide Web;

6) provide a familiarity with professional issues in chemical engineering, including ethics, issues related to the global economy and to emerging technologies, and fostering of important job-related skills such as improved oral and written communications and experience in working in teams at a number of levels;

7) encourage students to become actively engaged in the student chapter of the American Institute of Chemical Engineers and other student organizations, and to continue these associations after graduation with an emphasis on the importance of lifelong professional development including the desirability of attending graduate school or otherwise obtaining continuing or advanced education; and

8) make available continuous individual advising throughout the entire undergraduate educational experience to insure that each student makes the most of the educational opportunities provided by URI, particularly those related to general education electives that might enhance an engineering education, and special programs such as internships, cooperative experience and especially the International Engineering Programs in Chinese, German, French, Italian, Spanish, and Japanese (via GLAS) which are a unique opportunity available to globally motivated URI engineering students.

Traditional Chemical Engineering Major

The chemical engineering major requires 121 credits.

Freshman Year First semester: 13 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and PHY 203 (3), 273 (1).

Second semester: 17 credits

CHM 112 (3), 114 (1); ECN 201 (3); EGR 106 (2); MTH 142 (4); and PHY 204 (3), 274 (1).

Sophomore Year First semester: 12 credits

CHE 212 (3); CHM 227 (3); MTH 243 (3); and general education outcome(s)1 (3).

Second semester: 15 credits

CHE 213 (3), 232 (3), 272 (3); CHM 228 or CMB 311 (3); and MTH 244 (3).

Junior Year First semester: 17 credits

CHE 314 (3), 347 (3); CHM 335 (2), 431 (3); approved mathematics elective2 (3); and general education outcome(s)1 (3).

Second semester: 15 credits

CHE 348 (3), 364 (3); CHM 432 or science elective3 (3); and general education outcome(s)1 (6).

Senior Year First semester: 18 credits

CHE 425 (3), 428 (1), 445 (2) [capstone], 449 (3), 451 (3)

[capstone]; approved professional elective4 (3); and general education outcome(s)3 (3).

Second semester: 14 credits

CHE 446 (2) [capstone], 452 (3) [capstone]; and approved professional electives4 (9).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Mathematics Elective Requirement: MTH 215 or any 300-, 400-, or 500-level MTH course except MTH 381.

3. CHM 432 or Science Elective: BIO 341; CMB 311, 352, 421, 464; CHM 427, 521; PHY 530

4. Professional Elective Requirements: half of the professional electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 are applicable. The remaining courses are to be 300-level or higher in natural science, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. In addition EGR 325, EGR 326, NUE 391, and NUE 392 are approved options. All professional electives require prior approval by CHE advisor.

Biology Track in Chemical Engineering. The primary motivation is to respond to advances in our understanding of biological processes at the molecular and macroscopic levels, and the unique opportunity for chemical engineers to translate that understanding to useful processes. The application of the chemical engineering paradigm to biology enables graduates to develop new molecular biology tools; drug delivery systems; artificial skin, organs and tissues; sensors and alternative fuels; and to integrate new bio-products into existing materials. The curriculum is founded on the core principles of transport phenomena, unit operations, thermodynamics, and reaction kinetics. Students take a series of five courses in biochemistry and cell and molecular biology. Besides preparing students for the biotechnology industry, this combination of biology, chemical engineering, and chemistry courses is relevant to those considering medical school.

This track follows a program similar to the traditional chemical engineering curriculum, but with biology and biochemistry courses replacing some of the other technical and science courses.

The chemical engineering major with biology track requires 124-126 credits.

Freshman Year First semester: 13 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and PHY 203 (3), 273 (1).

Second semester: 17 credits

BIO 101 (3), BIO 103 (1); CHM 112 (3), 114 (1); ECN 201 (3); EGR 106 (2); and MTH 142 (4).

Sophomore Year First semester: 15 credits

CHE 212 (3), CHM 227 (3); MTH 243 (3); and general education outcome(s)1 (6).

Second semester: 15 credits

CMB 311 (3) or BIO/CMB 341 (3); CHE 213 (3) 232 (3), 272 (3); and MTH 244 (3).

Junior Year First semester: 16 credits

BIO/CMB 341 (3) or CMB 311 (3); CHE 314 (3), 347 (3); PHY 204 (3), 274 (1); and general education outcome(s)1 (3).

Second semester: 16-17 credits

CHE 348 (3), 364 (3); CMB 211 (4); approved track elective (3-4)2; and general education outcome(s)1 (3).

Senior Year First semester: 18 credits

CHE 425 (3), 428 (1), 445 (2) [capstone], 449 (3), 451 (3) [capstone]; approved professional elective3 (3); and general education outcome(s)1 (3).

Second semester: 14-15 credits

CHE 446 (2) [capstone], 452 (3) [capstone]; approved mathematics elective4 (3); approved professional elective3 (3); and approved track elective2 (3-4).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Track Electives: CHE 466, 548, 553, 574; BPS 503, 542; BIO 352, 437, PHY 545. All Track Electives require advisor approval.

3. Professional Elective Requirements: half of the professional electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 are applicable. The remaining courses are to be 300-level or higher in natural science, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. In addition EGR 325, EGR 326, NUE 391, and NUE 392 are approved options. All professional electives require prior approval by CHE advisor.

4. Mathematics Elective Requirement: MTH 215 or any 300-, 400-, or 500-level MTH course except MTH 381.

Pharmaceutical Track in Chemical Engineering. Biopharmaceuticals is one of the fastest growing industrial sectors both in the United States and worldwide, with a projected growth rate of ten percent per year for the foreseeable future. Driving this rapid growth are the worldwide increase in average life span, major developments in our understanding of key factors behind the development of disease, and important innovations in drug formulations and delivery. This growth has created a need for graduates who are well-versed in the basic sciences as well as all technological aspects related to the development process for therapeutic agents—production, scale-up and processing, formulation and delivery, and regulatory constraints. The chemical engineering pharmaceutical track serves to meet this need, combining the well-known strengths of the College of Pharmacy with those of the department of chemical engineering, for a curriculum that will produce leaders in the pharmaceutical industry.

This track follows the traditional chemical engineering curriculum, but with biology, biochemistry, and biomedical-and-pharmaceutical-science courses replacing some of the other technical and science courses.

The chemical engineering major with pharmaceutical track requires 127-128 credits.

Freshman Year First Semester: 13 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and PHY 203 (3), 273 (1).

Second Semester: 17 credits

BIO 101 (3), BIO 103 (1); CHM 112 (3), 114 (1); ECN 201 (3); EGR 106 (2); and MTH 142 (4).

Sophomore Year First Semester: 15 credits

CHE 212 (3); CHM 227 (3); MTH 243 (3); and general education outcome(s)1 (6).

Second Semester: 15 credits

CMB 311 (3) or BIO/CMB 341 (3); CHE 213 (3), 232 (3), 272 (3); and MTH 244 (3).

Junior Year First Semester: 15 credits

CMB 311 (3) or BIO/CMB 341 (3); BPS 301 (2), 315 (4); and CHE 314 (3), 347 (3).

Junior Year Second Semester: 17 credits

BPS 425 (3); CHE 348 (3), 364 (3); CMB 211 (4); and PHY 204 (3), 274 (1).

Senior Year First Semester: 18 credits

CHE 425 (3), 428 (1), 445 (2) [capstone], 449 (3), 451 (3) [capstone]; approved professional elective2 (3); and general education outcome(s)1 (3).

Senior Year Second Semester: 17-18 credits

CHE 446 (2) [capstone], 452 (3) [capstone]; approved professional elective2 (3); approved track elective3 (3-4); and general education outcome(s)1 (6).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Professional Elective Requirements: half of the professional electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 are applicable. The remaining courses are to be 300-level or higher in natural science, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. In addition EGR 325, EGR 326, NUE 391, and NUE 392 are approved options. All professional electives require prior approval by CHE advisor.

3. Track Elective: CHE 466, 548, 553, 574; BPS 503, 542; PHY 430, 545. Track Elective requires advisor approval.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Accelerated Five-Year B.S./M.S. Degree Program. To qualify for this program, students must earn a cumulative GPA of 3.00 or higher while pursuing their B.S. degree. To ease the course load at the graduate level, candidates are encouraged to earn some graduate credits (e.g. one or two courses not required for their B.S. degree) during their senior year. Additional information can be obtained by contacting the department chairperson.

CIVIL ENGINEERING

The Department of Civil and Environmental Engineering (CVE) offers a curriculum leading to the Bachelor of Science (B.S.) degree in civil engineering. The civil engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). The department also offers a minor in environmental engineering and the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in civil and environmental engineering.

Faculty: Associate Professor Thiem, Chairperson. Professors Baxter, Craver, Boving, Gindy, Lee, Tsiatas, Veyera; Associate Professors Bradshaw, Hunter, and Thomas; Assistant Professors Akanda, Das, and Goodwill; Lecturer Rahmani; Professors Emeriti Marcus, McEwen, Poon, R. Wright, Silva, and Urish.

Department Mission Statement. Consistent with the missions of the University of Rhode Island and the College of Engineering (COE), the department of civil and environmental engineering seeks to prepare students to practice professionally in the national and international marketplace in the field of civil and environmental engineering through the provision of high quality undergraduate and graduate educational programs and research opportunities; provide an environment that encourages and supports faculty career development and professional/community service; actively promotes diversity; and maintain a nationally recognized research program.

Program Mission Statement. Consistent with the mission of the department of civil and environmental engineering, the B.S. in civil engineering (BSCE) program will prepare graduates for successful careers, advanced studies at the graduate level, and lifelong learning based upon a solid foundation of technical ability, high standards of professional ethics, and strong communication skills.

Program Educational Objectives.

Three to five years after graduation from the B.S. in civil engineering, graduates will :

1. Practice and actively contribute to the civil engineering profession in one or more of the technical areas of environmental, geotechnical, structural, transportation, and water resources engineering.
2. Practice civil engineering with an awareness of and commitment to ethics and social responsibility, sustainability, and diversity both as individuals and in team environments.
3. Pursue life-long learning through graduate education, professional licensure, or advanced training in civil engineering or related fields.

Student Outcomes. Civil engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. Civil engineers are responsible for researching, developing, planning, designing, constructing, and managing many of the complex systems and facilities

essential to modern civilization. These include environmental engineering systems; water supply and pollution control systems; all types of transportation systems, from pipelines to city streets; structural systems from residential buildings to city skyscrapers, power plants, and offshore platforms; and all types of geotechnical systems from foundations to dams. Civil engineers play important roles in planning and administration with government agencies at all levels, especially those dealing with public works, transportation, environmental control, water supply, and renewable energy.

The curriculum provides students with an excellent background to pursue graduate study or to enter directly into professional practice in industry or government after graduation. The first year is devoted largely to courses in mathematics, chemistry, physics, and engineering science common to all engineering curriculums. During the sophomore year, students take three courses in civil engineering including mechanics of materials and two laboratories. In their last two years, students develop a proficiency in environmental engineering, geotechnical engineering, structural engineering, and transportation engineering. They can also meet their own professional goals through the selection of professional electives in these areas as well as construction management. Professional electives are selected in consultation with the student's advisor.

The civil engineering major requires 126 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education outcome(s)1 (3).

Second semester: 17 credits

EGR 106 (2); GEO 103 (4); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)1 (3).

Sophomore Year First semester: 17 credits

CVE 205 (1); MCE 262 (3); MTH 243 (3); and PHY 204 (3), 274 (1); STA 409 (3); and WRT 332 (3).

Second semester: 16 credits

CHM 112 (3); CVE 220 (3), 230 (1), 250 (3); MCE 263 (3); and MTH 244 (3).

Junior Year First semester: 17 credits

CVE 346 (3), 354 (3), 355 (1), 374 (3), 381 (3), 382 (1); and MCE 354 (3).

Second semester: 14 credits

CVE 347 (3), 348 (1), 370 (3), 375 (1); ISE 304 (3) ; and professional elective2 (3).

Senior Year First semester: 15 credits

CVE 400 (1), 465 (3), 483 (3), 497 (2) [capstone]; and professional electives2 (6).

Second semester: 15 credits

CVE 498 (3) [capstone]; professional electives2 (6); general education outcome(s)1 (6); and take the Fundamentals of Engineering (FE) Examination3.

1 General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2 Professional Elective Requirements: Three (3) of the fifteen (15) credits must be selected from the following courses: CVE 470, 471, 475, 477. The remaining twelve (12) credits can be any 300-level and above CVE courses and may include three (3) credits from the following courses: CHE 333, ELE 220, MCE 341, or MTH 215. A maximum of six (6) credits of Special Problems (CVE 491 or 492) may be taken. Strongly recommended courses include CVE 453, 460.

3 Fundamentals of Engineering (FE) Examination: All CVE majors are required to take the FE Examination offered by NCEES as a part of graduation requirements. Official NCEES proof of having taken the exam is required.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Minor in Environmental Engineering. Environmental engineering involves the study of clean water, clean air, waste management, and preservation of resources, in ways that minimize effects detrimental to the earth's environment. Qualified engineering students may pursue a minor in environmental engineering. Requirements for the minor can be found in the college's minors section of this catalog. Additional information can be found at https://web.uri.edu/engineering/academics/minors/environmental/

Accelerated Five-Year B.S./M.S. Degree Program (FastTRAC5). The FastTRAC5 program allows qualified students to complete both the B.S. and M.S. degrees within five years. Students gain professional experience by working at an engineering consulting firm or governmental agency. They also carry out research working closely with a faculty mentor. For admission into the program, students must have junior standing in civil and environmental engineering (minimum of 62 credits) and cumulative GPA of 3.00. Students must also maintain a cumulative GPA of 3.00 while in the program and pass the FE (Fundamentals of Engineering) examination. Additional information about this program can be obtained by contacting the department chairperson.

COMPUTER ENGINEERING

The Bachelor of Science (B.S.) degree in computer engineering is offered by the Department of Electrical, Computer, and Biomedical Engineering (ECBE). The computer engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). Specialization in computer engineering is also available within the Graduate Certificate in Embedded Systems, as well as the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) programs in electrical engineering.

Faculty: Professor He, Chairperson. Professor Lo, Program Coordinator. Professors, Sendag, Yan Sun, and Qing Yang; Assistant Professor H. Lin; Professor-in-Residence Uht.

Supporting Faculty: Professors Fischer, Sunak, Swaszek, and Vaccaro; Associate Professor Wei; Lecturer Cai.

Program Educational Objectives.

Three to five years after graduation from the B.S. in Computer Engineering, graduates will:

1. Successfully practice computer engineering to serve state and regional industries, government agencies, or national and international industries.
2. Work professionally in one or more of the following areas: computer hardware and software design, embedded systems, computer networks and security, system integration, and electronic design automation.
3. Achieve personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments.
4. Maintain and improve their technical competence through lifelong learning, including entering and succeeding in an advanced degree program in a field such as engineering, science, or business.

Student Outcomes. Computer engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. Digital computer and communication systems have transformed society in a profound way. The examples range from super powerful scientific computers, to embedded systems such as smart phones, internet of things (IoT), and smart cities. Traditionally, computer engineering has been a discipline that combines both electrical engineering and computer science. The URI computer engineering program is thus designed so the students will have a strong foundation in the relevant fields of electrical engineering and computer science, while establishing themselves with the latest computer engineering topics, such as advanced computer architecture, computer network and cyber-physical security, big data learning and processing, and field programmable gate array (FPGA).

The computer engineering core courses can be categorized as follows: (1) ELE 208/209, 305, and 408/409 are core courses for computer system architecture and hardware and software organization and interaction. (2) ELE 201/202, 301/302, and 405/406 are the core courses for digital design with electronic design automation and rapid prototyping, and for computer system integration. (3) ELE 313 and 437 are core courses for computer communication and networks. The computer engineering program has three professional electives in the senior year so students can further expand into areas such as signals and systems, digital control, electronics, and computer software.

The computer engineering program culminates in the senior year with two major design experiences. ELE 408/409 is where all the skills accumulated through the curriculum will be employed in a group senior design project. ELE 480 and 481 provide each student with the opportunity to work in a multi-disciplinary team in a senior capstone design project.

Graduates from the program go on to positions in both government agencies and the private sector, or enter graduate school for further study. Many computer engineering undergraduate students work with faculty on research projects before entering graduate school.

The computer engineering major requires 121–124 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education outcome(s)1 (3).

Second semester: 16 credits

EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)1 (6).

Sophomore Year First semester: 15 credits

ELE 201 (3), 202 (1), 208 (3), 209 (1); MTH 244 (3); and PHY 204 (3), 274 (1).

Second semester: 15 credits

CSC 211 (4); ELE 212 (4), 215 (1); MTH 243 (3); and general education outcome(s)1 (3).

Junior Year First semester: 17 credits

CSC 212 (4); ELE 313 (3), 338 (3), 339 (1); MTH 215 (3) and MTH/CSC 447 (3).

Second semester: 16 credits

ELE 301 (3), 302 (1), 305 (3); MTH 451 (3); and general education outcome(s)1 (6).

Senior Year First semester: 14–15 credits

ELE 400 (1), 405 (3), 406 (1), 437 (3), 480 (3) [capstone]; and approved professional elective2 (3-4).

Second semester: 16–18 credits

ELE 408 (3), 409 (1), 481 (3) [capstone]; two approved professional electives2 (6-8); and general education outcome(s)1 (3).

1 General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2 Professional Elective Requirements: Three (3) courses from the following: BME/ELE 461; BME 464/465; CSC 301, 305, 402, 406, 412, 415, 436, 481; CSF 410, 412; any ELE 300-, or 400-level course not required by the CPE major; with prior approval of the electrical, computer, and biomedical engineering department chairperson, any ELE 500-level course.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Minor in Computer Engineering. Minors require the completion of 18 or more credits. A minimum grade point average of 2.00 must be earned in the minor courses, and at least 12 of the 18 credits must be at the 200 level or above. At least half of the credits required for the minor must be earned at the University of Rhode Island. General education requirements may be used for the minor, but no course may be used for both the major and minor field of study. Minor courses may not be taken on a pass-fail basis. Students interested in pursuing a minor in computer engineering should speak with the department chairperson to discuss specific course requirements.

Accelerated Five-Year B.S./M.S. Degree Program. To qualify for this program, students must earn a cumulative GPA of 3.30 or higher while pursuing their B.S. degree. To ease the course

load at the graduate level, candidates are encouraged to earn some graduate credits (e.g. one or two courses not required for their B.S. degree) during their senior year. Additional program information can be obtained by contacting the department chairperson.

ELECTRICAL ENGINEERING

The Bachelor of Science (B.S.) degree in electrical engineering is offered by the Department of Electrical, Computer, and Biomedical Engineering (ECBE). The electrical engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.

Faculty: Professor He, Chairperson. Professors Fischer, Kumaresan, Sunak, Swaszek, and Vaccaro; Associate Professor Wei; Assistant Professors Abhikari, Bi, Jeong, and Stegagno; Lecturer Cai. Supporting Faculty: Professors Besio, Lo, Sendag, Yan Sun, and Q. Yang; Associate Professors Mankodiya and Vetter; Assistant Professors Lin and Shahriari; Professor-in-Residence Uht; Professors Emeriti Boudreaux-Bartels, Daly, Jackson, Kay, Lengyel, Ohley, and Spence.

Program Educational Objectives.

Three to five years after graduation from the B.S. in electrical engineering, graduates will:

1. Successfully practice electrical engineering to serve state and regional industries, government agencies, or national and international industries.
2. Work professionally in one or more of the following areas: analog electronics, digital electronics, communication systems, signal processing, control systems, and computer-based systems.
3. Achieve personal and professional success with awareness and commitment to their ethical and social responsibilities, both as individuals and in team environments.
4. Maintain and improve their technical competence through lifelong learning, including entering and succeeding in an advanced degree program in a field such as engineering, science, or business.

Student Outcomes. Electrical engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. Since instrumentation is at the heart of modern science and technology, electrical engineers are employed not only in the computer, electronics, communications, and power industries, but also in diverse enterprises such as transportation, the chemical industry, large hospitals, and government laboratories.

The curriculum emphasizes the scientific basis of electrical engineering and the application of mathematical analysis to engineering problems. Work is required in linear systems and signals, analog and digital circuits, electromagnetic theory, and electronics. Creative use of scientific principles in problems of engineering design is stressed, particularly in the senior year. The development of computer hardware and software is a part of many electrical engineering courses. Extensive laboratory work serves to bridge the gap between mathematical analysis and the real world of "hardware." Separate undergraduate laboratories are available for electrical measurements, analog electronics, digital electronics, microprocessors, hardware description languages, embedded systems, electromagnetics, control systems, and communications.

Capstone Design Courses ELE 480 and 481 provide the opportunity to work on a multidisciplinary team in a senior capstone design project.

The electrical engineering major requires 122–125 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education outcome(s)1 (3).

Second semester: 15 credits

CSC 200 (4); EGR 106 (2); ELE 101 (1); MTH 142 (4); and PHY 203 (3), 273 (1).

Sophomore Year First semester: 17 credits

ELE 201 (3), 202 (1); MTH 244 (3); PHY 204 (3), 274 (1); and general education outcome(s)1 (6).

Second semester: 15 credits

ELE 205 (2), 206 (1), 212 (4), 215 (1); MTH 243 (3); and PHY 205 (3), 275 (1).

Junior Year First semester: 16 credits

ELE 313 (3), 338 (3), 339 (1); MTH 215 (3); MTH 451 (3) or ISE 311 (3); and general education outcome(s)1 (3).

Second semester: 15 credits

ELE 301 (3), 302 (1), 314 (3), 322 (4), 343 (3), 344 (1).

Senior Year First semester: 14-16 credits

ELE 400 (1), 480 (3) [capstone] – (see note)

Second semester: 15-16 credits

ELE 481 (3) [capstone] – (see note)

Note: Senior Year total credits for two (2) semesters: 29–32. See your advisor for help in preparing a suitable program. Required courses: professional electives2 (13-16); general education outcome(s)1 (9).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to fill each remaining space in order to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Professional Elective Requirements: Four (4) courses that satisfy both of the following:

(a) Three (3) courses from: ELE 423/424, 425, 435/436, 447/448, 456, 457, 458/459, of which at least one (1) must include a lab component (423/424, 435/436, 447/448, 458/459).

(b) The fourth course must be from: an additional course from (a) above; ELE 405/406, 408/409, 437, 438, 470; with prior approval of the electrical, computer, and biomedical engineering department chairperson, any other 300-, or 400-level College of Engineering course not required by the ELE major.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Minor in Electrical Engineering. The minor require the completion of 18 or more credits. A minimum grade point average of 2.00 must be earned in the minor courses, and at least 12 of the 18 credits must be at the 200 level or above. At least half of the credits required for the minor must be earned at the University of Rhode Island. General education requirements may be used for the minor, but no course may be used for both the major and minor field of study. Minor courses may not be taken on a pass-fail basis. Students interested in pursuing a minor in electrical engineering should speak with the department chairperson to discuss specific course requirements.

Accelerated Five-Year B.S./M.S. Degree Program. To qualify for this program, students must earn a cumulative GPA of 3.30 or higher while pursuing their B.S. degree. To ease the course load at the graduate level, candidates are encouraged to earn some graduate credits (e.g. one or two courses not required for their B.S. degree) during their senior year. Additional program information can be obtained by contacting the department chairperson.

INDUSTRIAL AND SYSTEMS ENGINEERING

The Bachelor of Science (B.S.) degree in industrial and systems engineering is offered by the Department of Mechanical, Industrial, and Systems Engineering (MCISE), and is open to qualified students under the New England Regional Student Program. The Industrial and Systems Engineering Program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). The department also offers the Master of Science (M.S.) degree in systems engineering and the Doctor of Philosophy (Ph.D.) in industrial and systems engineering. In collaboration with the College of Business Administration, qualified students could choose to pursue a Master of Business Administration (M.B.A.) degree that will take one extra year following their completion of the B.S. in industrial and systems engineering.

Faculty: Professor Rousseau, Chairperson; Professors Sodhi and Wang; Associate Professor Maier-Speredelozzi; Assistant Professor Macht; Professors Emerti Boothroyd, Dewhurst, and Knight.

Department Mission Statement. Provide high quality undergraduate and graduate education that will prepare graduates for successful careers in mechanical, industrial and systems engineering and related fields. Conduct high quality research that supports our educational goals, state and national needs, and advances the state of knowledge in our fields of study. Provide professional expertise, service and outreach to local and national industries and agencies.

Program Educational Objectives.

Three to five years after graduation from the B.S, in Industrial and Systems Engineering program, graduates will:

1. Successfully practice industrial and systems engineering to serve local, state, regional, national, and international industries, and government agencies.
2. Work professionally in the fields of industrial and systems engineering in either manufacturing or service sectors, working in areas such as systems engineering, sustainability, quality engineering, logistics, supply chain management, advanced manufacturing, human factors, health care, or transportation.
3. Achieve personal and professional success with an understanding and appreciation of ethical behavior, social responsibility and diversity, both as individuals and in team environments.
4. Pursue continued life-long learning through further graduate education, short courses or other training programs in engineering or related fields.

Student Outcomes. Industrial and systems engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. The industrial and systems engineering curriculum is designed to provide significant strength in mathematics, basic science, and engineering science, together with a coordinated set of courses important to the professional industrial or systems engineer. Fundamental manufacturing processes, economics, statistics, quality systems, and mathematical and computer modeling of production and service systems are included.

The industrial and systems engineering major requires 120 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and general education outcome(s)1 (6).

Second semester: 16 credits

EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)1(6).

Sophomore Year First semester: 16-17 credits

[ISE 240 (3) and 241 (1) or MCE 201 (3)]; ISE/SUS 261G (3); MCE 262 (3); MTH 362 (3); and PHY 204 (3), 274 (1).

Second semester: 15-16 credits

EGR 316G (3); [ISE 240 (3) and 241 (1) or MCE 201 (3)]; MTH 243 (3); Science Elective2 (3); and Technical Elective3 (3).

Junior Year First semester: 15 credits

ACC (BUS) 201 (3); CHE 333 (3); and ISE 311 (3), 325 (3), 332 (3).

Second semester: 15 credits

ISE 304 (3), 312 (3), 333 (3); 334 (3); and Professional Elective4 (3).

Senior Year First semester: 15 credits

ISE 401 (3) [capstone], 420 (3), 451 (3); Professional Elective4 (3); and general education outcome(s)1 (3).

Second semester: 12 credits

ISE 402 (3) [capstone]; Professional Electives4 (6); and Technical Elective3 (3).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree.

A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Science Elective: choose one (1) from CHM 112, CHM 124, KIN 122, NRS 100, or PHY 205 and PHY 275

3. Technical Electives: choose two (2) from CVE 220, ELE 220, or MCE 263

4. Professional Electives: Must be satisfied by twelve (12) credits of professional electives, at least six (6) of which must be 400- or 500-level ISE courses not required by the ISE major. The remaining courses may be any 300-, 400-, or 500- level courses offered by the College of Engineering not required by the ISE major, CSC, MTH, or PHY (except CHE 428, 451, 452; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); FIN 420, INE 449, MGT 341, 344, 443, 444, 448, 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; any 500-level STA courses (except STA 532); MBA 530, 550 (requires ISE/MBA 4+1 Admission); PSY 335, 384, 385, 434. Note: Only ISE 513 or STA 513 will be allowed – not both (these are cross-listed courses).

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Accelerated Five-Year B.S./M.S. Degree Program. Eligibility for this program requires second semester junior status with a minimum overall GPA of 3.00. Additional program information can be obtained by contacting the department chairperson. URI also offers a five-year program that includes a B.S. in industrial and systems engineering and an M.B.A. from the College of Business Administration.

MECHANICAL ENGINEERING

The Bachelor of Science (B.S.) degree in mechanical engineering is offered by the Department of Mechanical, Industrial, and Systems Engineering (MCISE). The mechanical engineering program is accredited by the Engineering Accreditation Commission of ABET, Inc. (www.abet.org). The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in mechanical engineering.

Faculty: Professor Rousseau, Chairperson. Professors Chelidze, Datseris, Faghri, Ghonem, Jouaneh, Nassersharif, Shukla, Taggart, and Zhang; Assistant Professors Giri, Y. Lin, Matos, and Yuan; Lecturer Rahmani; Professors Emeriti Kim, Lessmann, Meyer, Palm, Sadd, and White.

Department Mission Statement. Provide high quality undergraduate and graduate education that will prepare graduates for successful careers in mechanical, industrial and systems engineering and related fields. Conduct high quality research that supports our educational goals, state and national needs, and advances the state of knowledge in our fields of study. Provide professional expertise, service and outreach to local and national industries and agencies.

Program Educational Objectives.

Three to five years after graduation from the B.S. in mechanical engineering program, graduates will:

1. Successfully practice mechanical engineering to serve state, local, national, and international industries and government agencies.
2. Work professionally in one of the two major stems of mechanical engineering: mechanical and/or thermal systems or related fields.
3. Achieve personal and professional success with an understanding and appreciation of ethical behavior, social responsibility and diversity, both as individuals and in team environments.
4. Pursue continued life-long learning through further graduate education, short courses or other training programs in engineering or related fields.

Student Outcomes. Mechanical engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. The curriculum provides a thorough and well-rounded foundation in basic science, mathematics, engineering science, and general education to prepare the graduate for a professional engineering career. The curriculum is also excellent preparation for graduate school. The program is strong in providing a background in design, solid and fluid mechanics, systems engineering, and the thermal sciences, including energy and energy transfer. Computer applications are stressed throughout the curriculum. All undergraduates are invited and encouraged to join the student section of the American Society of Mechanical Engineers, which sponsors industrial plant visits, special lectures, and other activities. Students may also join chapters of the Society of Automotive Engineers (SAE) and the American Society of Mechanical Engineers (ASME).

The work in the first two years consists of basic courses in science (math, physics, chemistry), applied science (mechanics, electricity and magnetism, basic computer literacy and computer-aided problem solving), manufacturing processes, and general education requirements (humanities, social sciences, English communication). Two introductory engineering courses are included in the freshman year.

The junior year concentrates on fundamental mechanical engineering courses (thermodynamics, fluid mechanics, systems engineering, engineering analysis, heat transfer), materials sciences, and design of machines. Further general education studies are also covered.

The senior year includes the capstone design sequence, mechanical engineering experimentation, and a wide variety of professional electives such as mechanical control systems, advanced fluid mechanics, advanced mechanics of materials, mechatronics, internal combustion engines, applied energy conversion, tribology, product design for manufacture, air conditioning, heating and ventilation, vibrations, finite element method, and experimental stress analysis. The program also includes two laboratory courses in the junior and senior years.

Computer techniques are integrated throughout the curriculum. Computational facilities including PCs and workstations are available in the College of Engineering's Engineering Computer Center (ECC) and the University's Office of Information Technology Services (ITS). The department's computer classrooms provide state-of-the-art hardware and software for simulation, design, and product development.

The mechanical engineering major requires 120 credits.

Freshman Year First semester: 15 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and general education outcome(s)1 (6).

Second semester: 16 credits

EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)1 (6).

Sophomore Year First semester: 13-14 credits

[ISE 240 (3) and 241 (1) or MCE 201 (3)]; MCE 262 (3); MTH 243 (3); and PHY 204 (3), 274 (1).

Second semester: 15-16 credits

CVE 220 (3); [ISE 240 (3) and 241 (1) or MCE 201 (3)]; MCE 263 (3); MTH 244 (3); and Science Elective2 (3).

Junior Year First semester: 15 credits

CHE 333 (3); MCE 301 (3), 341 (3), 354 (3), 372 (3).

Second semester: 15 credits

ELE 220 (3); MCE 302 (3), 313 (3), 348 (3), 366 (3).

Senior Year First semester: 15 credits

EGR 316G (3); MCE 401 (3) [capstone], 414 (3); and professional electives3 (6).

Second semester: 15 credits

MCE 402 (3) [capstone]; professional electives3 (6); and general education outcome(s)1 (6).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Science Elective: choose one (1) from CHM 112, CHM 124, or PHY 205 & PHY 275

3. Professional Elective Requirements: Must be satisfied by twelve (12) credits of professional electives, with a minimum of three (3) three (3)-credit MCE courses (no more than two (2) courses from the MCE 47*/CHE 47* series), two (2) of which must be taken at URI. The fourth course may be a 300-, 400-, or 500-level course offered by the College of Engineering, CHM, CSC, PHY, or STA; or a 400- or 500-level MTH course. Professional elective courses taken outside URI are subject to URI transfer credit rules and require prior written approval.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Minor in Nuclear Engineering. Qualified mechanical engineering students may pursue a minor in nuclear engineering. Requirements for the minor can be found in the college's minors section of this catalog. Additional information can be found at uri.edu/engineering/academics/minors/nuclear

Accelerated Five-Year B.S./M.S. Degree Program. The department offers an accelerated five-year B.S./M.S. degree program in mechanical engineering. Eligibility for this program requires second semester junior status with a minimum overall GPA of 3.00. Additional program information can be obtained by contacting the department chairperson.

OCEAN ENGINEERING

The Department of Ocean Engineering offers a curriculum leading to the Bachelor of Science (B.S.) degree in ocean engineering. The Ocean Engineering Program is accredited by the Engineering Accreditation Commission of ABET, Inc. (www.abet.org). URI's Department of Ocean Engineering is nationally and internationally recognized as one of the leaders in ocean engineering, and also offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees. As it is a unique program in New England and throughout the country, qualified students can apply under the New England Regional Student Program (RSP).

Faculty: Professor Miller, Chairperson. Professors Ballard, Baxter, S. Grilli, and Hu; Associate Professors Dahl, Hashemi, Licht, and Roman; Assistant Professors Phillips and Van Uffelen; Associate Research Professors A. Grilli, Potty, and Vincent; Professors Emeriti Silva, Spaulding, Stepanishen, and Tyce.

Department Mission Statement. The Department of Ocean Engineering's mission is to provide high-quality undergraduate and graduate degree programs that prepare our students for professional careers in ocean engineering in industry, academia, and government; to develop and maintain internationally recognized research programs in selected areas of ocean engineering; to actively serve the profession and community in our areas of expertise; and to provide a challenging work and learning environment where diversity, community, scholarship, professional development, and excellence are valued and rewarded. The program is designed to provide students with a strong base in fundamental sciences, mathematics, and engineering; a broad base in ocean engineering; opportunities for the integration of theory, experimentation, and design; appreciation of ethical, social, and environmental issues in the practice of the profession; and strong oral and written communication skills.

Program Educational Objectives.

Three to five years after graduation, our graduates will be:

1. Gainfully employed with private or government organizations and advancing to positions of increased responsibility, or pursuing an advanced degree in an engineering program.
2. Working in one of the specialty areas within the broad field of ocean engineering including ocean instrumentation, ocean robotics and vehicles, ocean waves and coastal engineering, underwater acoustics, marine structures, marine geomechanics, ocean renewable energy, and ocean engineering design.
3. Behaving ethically, contributing to society, participating in strengthening a diverse engineering professional environment, and succeeding in diverse workplaces, nationally and internationally.

Student Outcomes. Ocean engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.

Program Description. URI's curriculum provides an ocean engineering program that gives students a firm base in engineering fundamentals and prepares them for direct entry into a professional career or continued study toward a graduate degree. The required ocean engineering courses begin at the freshman level and include laboratory, data analysis, and design courses. A strong emphasis is on the application of scientific principles in the ocean environment gained through laboratory courses. Experiments covering several basic areas are used to provide an integrated approach to investigations into ocean phenomena and processes. Students are involved in the planning and execution of experiments, including data collection and analysis and the reporting of results. This hands-on experience provides graduates with an understanding of ocean engineering activities in scientific and industrial fields.

The broad-based program exposes students to the following topics: offshore renewable energy, ocean instrumentation and data analysis, ocean robotics and vehicles, underwater and sub-bottom acoustics, wave and marine hydrodynamics, coastal processes, marine geomechanics, and coastal and offshore structures. Students have the option to concentrate in one of the ocean engineering disciplines by following one of the academic tracks, which are faculty selected course sequences in Acoustics, Coastal Engineering, Hydrodynamics (Naval Architecture or Waves/Coastal), Ocean Renewable Energy, Offshore Structures, and Robotics.

A highlight of the ocean engineering undergraduate experience is a two-semester Senior Capstone Ocean Engineering Design Project, which integrates previously obtained knowledge into a comprehensive team design project. Each year diverse projects are offered as small sections, many of them with industry participation/funding and typically advised by multiple faculty advisors. Students work as teams on integrated sub-tasks, prepare substantial reports and give oral presentations.

The Department of Ocean Engineering is located at URI's Narragansett Bay Campus. The facilities include a 30 x 3.6 x 1.8 m (length, width, depth) tow and wave tank, a wave-current interaction flume, a large and deep (4.2 m) acoustics tank, an electronics shop, machine shop, rapid prototyping equipment including 3D printers and a laser cutter, and the Marine Geomechanics Laboratory. These facilities are available to undergraduate and graduate students for course work, research, and independent study.

The department has access to a 42-foot research vessel equipped with a fully integrated side-scan sonar and sub-bottom mapping system, and vibracoring and gravity coring systems. This vessel is used for both lab courses and research. Also available in the department are a Seaglider Autonomous Underwater Vehicle, several inspection-class Remotely Operated Vehicles (ROVs), aerial drones, and a deep-sea oceanographic winch system.

The ocean engineering major requires 126 credits.

Freshman Year First semester: 16 credits

CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); PHY 203 (3), 273 (1); and general education outcome(s)1 (3).

Second semester: 17 credits

ECN 201 (3); EGR 106 (2); MTH 142 (4); OCE 101 (1); PHY 204 (3), 274 (1); and general education outcome(s)1 (3).

Sophomore Year First semester: 14 credits

MCE 262 (3); MTH 243 (3); OCE 205 (4); and PHY 205 (3), 275 (1).

Second semester: 15 credits

CVE 220 (3); MCE 263 (3); MTH 244 (3); OCE 206 (3) and OCE 213 (3).

Junior Year First semester: 17 credits

ISE 311 (3); MCE 354 (3); OCE 301 (4), 315 (1); Technical Elective2 (3); and general education outcome(s)1 (3).

Second semester: 18 credits

OCE 311 (4), 394 (3), 408 (4), 471 (4); and general education outcome(s)1 (3).

Senior Year First semester: 14 credits

CHE 333 (3); OCE 416 (2), 421 (3), 4954 (3) [capstone]; and professional elective3 (3).

Second semester: 15 credits

OCE 4964 (3) [capstone]; OCG 451 (3), professional electives3 (6); and general education outcome(s)1 (3).

1. General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course(s) of your choice (Free Elective) to fill each remaining space in order to ensure you have earned at least 120 credits as required to earn a BS degree. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.

2. Technical Elective Requirement: choose one (1) from CVE 354, MCE 341, or OCE360

3. Professional Elective Requirements: Any 300-, 400-, or 500-level courses in engineering, MTH, OCG, or PHY.

2 & 3 A minimum of two (2) courses from the technical and professional electives must be OCE

4 OCE 495 and OCE 496: An approved off-campus experience, usually between the junior and senior years, can be substituted for OCE 495 and 496.

International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language.

Minor in Robotics Engineering. Qualified ocean engineering students may pursue a minor in robotics engineering. Requirements for the minor can be found in the college's minors section of this catalog. Additional information can be found at uri.edu/engineering/academics/minors/robotics

Graduate Degree Programs. Qualified ocean engineering students may seek to continue their studies in this program after completing the Bachelor of Science degree. Program information can be obtained by contacting the Ocean Engineering Graduate Director.

Environment and Life Sciences

INTRODUCTION

John Kirby, *Dean*

Becky Sartini, *Associate Dean, Academic Affairs*

Cheryl Wilga, *Associate Dean, Research*

Kimberly Anderson, *Assistant Dean, Academic and Student Affairs*

Michelle Fontes, *Assistant Dean, Diversity, Recruitment, and Retention*

In the College of the Environment and Life Sciences (CELS), we strive for excellence in teaching, research, and service. Our mission is to provide our students with the skills, knowledge, and insight needed to meet the challenges of today's world; address contemporary problems through innovative, relevant scholarly research; and, in the tradition of our Land Grant and Sea Grant heritage, extend our research-based knowledge to the local, state, and global community. While the interests and expertise of the faculty, students, and professional staff of the College are diverse, ranging from the most basic aspects of the biological systems that make up life on earth to the complexity of terrestrial and marine ecosystems, the CELS community is united in its concern for and dedication to the enhancement of human health and well-being, environmental sustainability, and stewardship of the earth's resources.

DEGREES AND MAJORS

The College of the Environment and Life Sciences (CELS) offers undergraduate majors leading to three degrees: the Bachelor of Science (B.S.), the Bachelor of Arts (B.A.), and the Bachelor of Landscape Architecture (B.L.A.), with specific programs for options that prepare students for graduate study, professional training, or specialized careers. See above for a complete listing of undergraduate majors offered by CELS.

Minor:

The College of the Environment and Life Sciences offers students in any major the opportunity to develop a minor. See

Minor Fields of Study for requirements and options relating to minors, along with a list of approved interdepartmental minors.

Undergraduate Certificates: The Undergraduate Certificates in CELS are designed to certify to potential employers that recipients have acquired broad knowledge and a set of practical skills in applying analytical and technical tools to critical topic-related challenges faced by modern society.

For more information, see Certificate in Energy Economics and Policy and the Marine Technical Certificate.

Experiential Education: CELS encourages students in all majors to pursue opportunities such as undergraduate research fellowships, internships, apprenticeships, and field studies that will complement their formal classroom learning.

Graduate Study: Graduate study is offered at the Certificate, Master, and Doctoral levels.

For information on admission, degree requirements, and descriptions of each program, see the listing of advanced programs and degrees in the "Graduate Programs" section of this catalog.

Accelerated Bachelor's to Master's Degree (ABM): The Accelerated Bachelor's to Master's (ABM) programs offer students the opportunity to complete a B.S. and M.S. degree in five years on average.

Currently, the Animal Science and Technology (B.S.), Aquaculture and Fisheries Science (B.S.), Environmental and Natural Resource Economics (B.S.), Environmental Science and Management (B.S.), Sustainable Agriculture and Food Systems (B.S.) and the Wildlife and Conservation Biology (B.S.) majors offer ABM programs.

Program-specific eligibility and admission criteria for each program are found in the "Undergraduate Programs" section of this catalog.

Fifth-year Master of Oceanography Program: The fifth-year Master of Oceanography (M.O.) program is designed for URI students who want to enter the Graduate School of Oceanography's M.O. program while still an undergraduate and complete the degree in the year following completion of the undergraduate bachelor's degree. The program is open to qualified URI undergraduates in the natural sciences or engineering. Eligibility and program requirements can be found in the "Graduate Programs" section of this catalog.

For more information on programs, degrees and other matters within the College, visit uri.edu/cels or call 401.874.2957.

In case of discrepancies between this Catalog and the departmental materials, the URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

FACULTY

Biological Sciences: Professor Roberts, *chairperson*. Professors Fastovsky, Kirby, Kolbe, Lane, Preisser, and Webb; Associate Professors Davies, Dunsworth, Irvine, Moseman-Valtierra, Putnam, and; Assistant Professors Couret, Mosley Austin, Prada, Puritz, Schwartz, and Wetherbee; Teaching Professor Cary; Senior Lecturers Davis and Van Sciver; Lecturers Adams, Thawley; Professors Emeriti Bibb, Bullock, Costantino, Goertemiller, Goldsmith, Harlin, Heppner, Kass-Simon, Killingbeck, Koske, Norris and Twombly.

Cell and Molecular Biology:

Professor Chandlee, *chairperson*. Professors Chandlee, Howlett, Jenkins, Kausch, Nelson, and Sun; Associate Professors Camberg, Gregory, Martin, and Zhang; Assistant Professors Dutta, Fallini, K. Ramsey, and M. Ramsey; Senior Lecturer Lin; Clinical Assistant Professors Greene, Osgood-Dean and Plouffe; Research Professors Rothman and Srikiakhachorn; Research Associate Professor Moise; Adjunct Professor Dellaporta; Adjunct Clinical Assistant Professor Castellone; Professors Emeriti Hufnagel, Laux, Sperry, and Tremblay; Associate Professor Emeritus Mottinger; Clinical Professor Emeriti Bozzi and Paquette; Clinical Associate Professor Emeritus Klitz.

Environmental and Natural Resource Economics: Professor H. Uchida, *chairperson*. Professor E. Uchida; Associate Professors T. Guilfoos, C. Lang, T. Sproul, and S. Trandafir; Assistant Professor P. Liu; Professors Emeriti J. Opaluch, J. Sutinen, and T. Tyrrell.

Fisheries, Animal and Veterinary Science: Associate Professor Petersson, *chairperson*. Professors Bradley, Gomez-Chiarri, Rhodes, and Rice; Associate Professors Humphries and Sartini; Assistant Professors Baur, Hoffman, Richard, and Suckling; Lecturers Deming and Gill; Senior Lecturers Card and Moen; Adjunct Professors Deacutis, Rheault, Smolowitz, Wikfors, and Zajac; Adjunct Assistant Professors Castro, Dudzinski, Hancock, Iba, Jamu, McNamee, Mous, Proestou, Romano, Schwartz, A. Upadhyaya and I. Upadhyaya; Adjunct Clinical Professor Serra; Adjunct Lecturer: Lazar; Adjunct Instructors: Baker, Breene, Haberek, Millar, and Searle; Professors Emeriti Bengtson, Costa-Pierce, DeAlteris, Mallilo, McCreight, Recksiek, and Wolke.

Geosciences: Associate Professor Savage, *chairperson*. Professors Boving, Fastovksy and Veeger; Associate Professors Cardace, and Pradhanang; Professors Emeriti Cain, Hermes, and Murray.

Landscape Architecture: Professor Sheridan, *chairperson*. Professors Atash and Green; Associate Professor Gordon; Faculty of Practice Buxton; and Professors Emeriti Hanson and Simeoni.

Marine Affairs: Associate Professor Becker, *chairperson*. Professors Burroughs, Dalton, and Thompson; Associate Professors Bidwell, Garcia-Quijano, Lloréns, Macinko, Moore, and Trandafir; Assistant Professors Diamond, Hiwasaki, Mendenhall, and Treviño Peña; Visiting Professor Saumweber; Joint Appointments Professors Mather (History) and Walsh (GSO); Adjunct Professors Colburn (NOAA), Crawford (CRC), Hoagland (WHOI), Jin (WHOI), Kotowicz (CRC), Lacasse (RIC), Mulvaney (EPA), Oto (UW), Raakjaer (Aalborg University, Denmark), Robadue (CRC), Smythe (USCG Academy), Torrel (CRC), and Wyman (RWU); Professor Emeriti Juda, Nixon, and Pollnac; Associate Professor Emeritus Krausse.

Natural Resources Science: Professor Paton, *chairperson*. Professors Amador, DeHayes, Forrester, Gold, McWilliams, Meyerson, Stolt, Thornber, Uchida, and Wang; Associate Professor Karraker; Teaching Professor Floyd; Clinical Associate Professor Menezes; Assistant Professors Gerber, Jones, and Parent; Assistant Research Professor McGreevy; Senior Lecturer Still; Lecturer Peach; Clinical Assistant Professors Cox and Olagundoyi; Adjunct Professors Groffman, Johnson, Paul, Pysek, Perez, Reaser, Roman, Thompson, and Tilchin; Adjunct Associate Professors Ayvazian, Cerrato, Chase, Daehler, Dru, Gorres, Gottschalk Druschke, Hollister, Hughes, Kellogg, Kuhn-Hines, Mitchell, Nowicki, O'Connell, Pandit, Pierce, Reed, Rockwell, and Smith; Adjunct Assistant Professors Augeri, Babson, Bergondo, Buchanan, Buffum, Dabek, Detenbeck, Eisenbies, Eldridge, Farnsworth, Farris, Gayaldo, Good, Hychka, Jarecki, Lashomb, Martin, McKinney, McNally, Milstead, Oczkowski, Peters, Rohr, Saltonstall, Steele, Tefft, Vigness-Raposa, and Vinhateiro; Professors Emeriti August, Brown, Golet, Husband, and Wright.

Plant Sciences and Entomology: Professor Mitkowski, *chairperson*. Professors Alm, Brown, Mather, Maynard and Ruemmele; Associate Professor Englander; Assistant Professor Taylor; Professor-in-Residence Ginsberg; Adjunct Assistant Professors Gettman and Tewksbury; Professors Emeriti Casagrande, Hull, LeBrun and Sullivan; Associate Professor Emeritus Krul.

CURRICULUM AND GRADUATION REQUIREMENTS

Transfer from University College for Academic Success into CELS

All entering freshmen and transfer students, regardless of major or program, are admitted by the University into the University College for Academic Success (UCAS).

Students must meet the following requirements in order to move from UCAS into CELS:

Credits-complete 30 credits (Biological Sciences B.S.; Biology B.A.; Marine Biology; Wildlife and Conservation Biology) OR complete 24 credits (all other majors in the College).

Courses-complete specific courses with a specific grade, as described in the section that follows for each major (Biological Sciences B.S.; Biology B.A.; Marine Biology; Wildlife and Conservation Biology).

GPA– earn an overall grade point average (GPA) of 2.00 at URI (all majors).

University Requirements for Graduation

Earn at least one half of the concentration credits required for the major at URI (same applies to a minor).

Earn at least one-fourth of the credits required for graduation at URI.

No more than half of the credits required for graduation can be transferred from two-year institutions.

For the B.A. degree, at least 42 credits in courses numbered 300 or above.

College Requirements for Graduation

(B.A. and B.S.)

Minimum cumulative GPA of 2.00.

Minimum GPA of 2.00 in the major concentration area (see specific program requirements).

Completion of the university's general education program as described below.

Completion of a minimum of 120 credits.

Completion of courses as described in the listing which follows for each program and as listed on the curriculum sheet.

General Education.

General education consists of 40 credits.

For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Environment and Life Sciences Programs

ANIMAL SCIENCE AND TECHNOLOGY

This major, offered by the Department of Fisheries, Animal and Veterinary Science, is designed for students interested in applied animal science careers. Animal and veterinary sciences play a vital role in the management and care of livestock, companion animals as well as those animals maintained at zoos, aquariums and laboratory animal facilities. Options are available to students interested in animal sciences or veterinary medicine.

The major requires the following core courses: AVS 101, 102, 110, 331, 333 (9 credits) plus option-specific courses as indicated below. Including the core courses, there are 25-46 credits of basic science including BIO 101/103 and BIO 102/104, 21-31 credits of concentration courses and 11-30 credits of supporting courses required for this major. A total of 120 credits are required for graduation.

Animal Science Option. This option includes coursework in animal management, nutrition, physiology, behavior, and disease, and provides broad flexibility for students in their choice of animal science courses. Students have the option to focus their coursework specifically on domestic livestock, exotic animals or animal technology, or be more broadly focused. Research techniques and procedures for animal care are emphasized along with a strong background in the sciences. Students in this option pursue careers as researchers, veterinary technicians, food animal producers, laboratory animal technicians or high school agricultural education teachers. Additionally, there are career opportunities at zoos or aquariums (educator, researcher and exotic animal manager), within the federal, state and local government as well as with many animal-related businesses.

In addition to the core courses specified of the major, the following courses are required: AVS 212, 332, 343, and 6 additional credits in 400-level courses in AVS; COM 100, CHM 101/102 or 103/105; MTH course which fulfills A1, B3 general education outcomes, WRT 104 or 106, and an additional 300-level or higher WRT course. The remaining credit requirements will be selected from the concentration courses (9 credits) and supporting electives (26 credits) approved for this option.

Pre-Veterinary Option. This option requires a demonstrated capability in the basic sciences and prepares students for admission to veterinary schools offering a Doctorate of Veterinary Medicine (DVM) degree. Students in this option will also be well prepared to pursue graduate programs in animal physiology, nutrition and health. Because admission requirements among schools are not totally uniform and are subject to change, students should determine specific requirements of the schools in which they are interested.

In addition to the core courses specified for the major, the following courses are required: AVS 304, 332, 412, 472; BIO 341, BIO/CMB 352; COM 100, CMB 211, 311; BUS or ECN (3 credits); CHM 101/102, 112/114, 227, 228/226; PHY 111/185, 112/186; MTH 131, STA 308, WRT 104 or 106, and WRT 332 or 334. The remaining credits will be selected from the concentration courses (6 credits) and supporting electives (6 credits) approved for this option.

Accelerated Bachelor in Science to Master's Degree (ABM) Program. The Environmental Science and Management ABM Sustainable Food Systems option (the SFS ABM) offers qualified students in the Animal Science and Technology B.S. program the opportunity to complete the requirements for their B.S. and the Masters in Environmental Science and Management (M.E.S.M) non-thesis professional degree in five years. For additional information please see Environmental Science and Management (M.E.S.M.) ABM (Sustainable Food Systems) in the ABM section of this catalog and the Master of Environmental Science and Management in the Graduate section of this catalog.

AQUACULTURE AND FISHERIES SCIENCE

Aquaculture and Fisheries play an essential role in the sustainability and health of our planet by providing food and other services. This major prepares students for professional, technical, academic, or research careers focused on the safe and sustainable production of products and services from aquatic (marine and freshwater) environments. Core values include an emphasis on the intrinsic value of sustainable food production in the context of other ecosystem processes, heterogeneous scales of production (from small farms and fishers that sell directly to consumers to large scale producers), and preserving local cultures and biodiversity while understanding future demands.

The major requires 10 credits in introductory professional courses including AFS 105G/106, EEC 105, and NRS 100; and a minimum of 24 credits in basic sciences including BIO 101/103, BIO 102/104, CHM 101/102 or CHM 103/105, one course in mathematics (MTH 103, MTH 111, MTH 131 or MTH 141), one course in the physical sciences, one course in ecology or ecosystem science, and one course in computational sciences or statistics. In addition, the major requires a minimum of 20 credits in concentration courses at the 300 level or above, and 12 credits of the concentration courses must be selected from courses offered by AFS. The additional credits of the concentration may be selected from courses offered in BIO, EEC, MAF, NRS, and OCG. The major also requires a minimum of 3 credits in an internship or special project. Finally, the program requires a minimum of 25 credits of supporting electives selected from an approved list of courses in AFS, APG, AVS, BIO, EEC, GEO, MAF, NRS, OCG and SAF. A total of 120 credits is required for graduation.

Marine Technical Certificate Program

The URI Marine Technical Certificate Program provides students with experiential learning opportunities to acquire technical skills and professional certifications needed for marine-related research careers. Skills include boat handling, scuba diving, underwater research, equipment maintenance, and troubleshooting in adverse conditions in field-based settings. These skills are critical for performance in disciplines such as marine biology, oceanography, aquaculture, fisheries, biological sciences, biomedical technology, natural resources science, ocean engineering, underwater archaeology, and maritime history. Participants will acquire field-based experiences and the necessary professional certifications per the American Academy of Underwater Sciences (AAUS), the World Recreational Scuba Training Council (WRSTC), and any

relevant equipment service technician certifications. Upon completion of this undergraduate certificate, students will have the learning to: 1) apply technical skills to tackle real world research questions around marine and environmental issues, 2) demonstrate practical and technical skills in scuba diving, boating operations, and specialized underwater research necessary for fieldwork, and 3) apply knowledge to troubleshoot equipment-related issues when conducting research. The Marine Technical Certificate Program will provide a formal certificate acknowledging this experiential learning as well as real-world, practical experience necessary for most field-based positions in marine-related research careers.

Admission requirements: Applications should include: 1) college transcript certifying current enrollment in a URI undergraduate marine-related or environmental degree, 2) two letters of recommendation from peers, mentors, or colleagues supporting your ability to complete necessary coursework to technical skills, and 3) a personal written statement why you are seeking enrollment to this certificate program and your needs for future career goals. Students accepted into the program will be advised on course prerequisites prior or during their first semester in the program. Students should send all required application materials to the program coordinator, Anya Hanson. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 1 December.

Program requirements: 15 credits from the following undergraduate course list: AFS 270, AFS 290, AFS 433, and AFS 391/392 or AFS 491/492 with elective credits from AFS 395 or HIS 396. Courses will be chosen in consultation with the program coordinator and based on the student's career interests and current undergraduate degree. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable. These courses may also be applied to a degree program at URI. Students will receive their Certificate upon successful completion of the 15 required course credits.

Accelerated Bachelor in Science to Master's Degree (ABM) Program. The Environmental Science and Management ABM Sustainable Food Systems option (the SFS ABM) offers qualified students in the Aquaculture and Fisheries Science (AFS) B.S. program the opportunity to complete the requirements for their B.S. and the Masters in Environmental Science and Management (M.E.S.M) non-thesis professional degree in five years. For additional information please see Environmental Science and Management (M.E.S.M.) ABM (Sustainable Food Systems) in the ABM section of this catalog and the Master of Environmental Science and Management in the Graduate section of this catalog.

BIOLOGY, BIOLOGICAL SCIENCES, MARINE BIOLOGY

The Department of Biological Sciences offers a Bachelor of Arts (B.A.) degree in biology and Bachelor of Science (B.S.) degrees in biological sciences and in marine biology. Both B.S. degrees satisfy the course requirements for application to medical, dental, or veterinary school programs. Students in all three majors are encouraged to participate in faculty-led research projects.

BACHELOR OF ARTS IN BIOLOGY

A B.A. in Biology is ideal for students who wish to pursue a liberal arts education or a second major, along with training in biology. Many B.A. Biology majors choose a minor or a second major in the arts, humanities, or social sciences to prepare for careers that require interdisciplinary training. B.A. Biology is an ideal second major for students pursuing a degree in secondary education. The curriculum exposes students to the breadth of biological knowledge, builds skills in evaluation and communication of scientific information, and promotes awareness of the impacts of science on humans and the environment.

Students selecting a major in biology must complete at least 30 credits (maximum 45 credits) in the major including the following courses: BIO 101 or 101H/103 and 102/104 (8), and CMB 201 or 211 (4). They must also complete at least three credits from each of the first three lists (A, B, and C) below. The balance of 30 credits may be selected from lists A-D. Students in this major must complete two courses in chemistry with laboratories, and one course in MTH or STA numbered 103 or above. BIO 105, 181G and 498 are not for major credit.

List A (plant biology): BIO 308, 310, 311, 321, 323, 332, 346, 365, 416. List B (animal biology): BIO 121, 201, 220, 221, 222, 223, 242, 244, 286, 300, 301, 302, 350, 354, 355, 366, 385, 388, 404, 412, 417, 419, 422, 425G, 444, 467. List C (integrative biology): BIO 228, 230G, 256G, 262, 263, 272, 282G, 320, 341, 345, 352, 353, 360, 388, 396, 437, 439, 440G, 452, 455, 457, 472, 480, 482G, 485. List D (other): CMB 242, 245, 320, 333, 334, 413, 414, 415, 416, 432, 435, 483; up to three credits of the following independent study or special topics courses: AFS 491, 492; AVS 491, 492; BIO 491, 492; CMB 491, 492; NRS 491, 492; PLS 491, 492.

Students must maintain a 2.00 grade point average in BIO and CMB courses used to meet the major requirements. A total of 120 credits is required of which 42 credits must be in courses numbered 300 or above.

In order to transfer from University College for Academic Success to the College of the Environment and Life Sciences as a Biology major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101 or 101H, 102, 103, 104 with grades of C or better.

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

A B.S. in Biological Sciences prepares students for careers in the life sciences and health professions. Graduates are employed in the public and private sectors or continue their training for careers in medicine, dentistry, veterinary medicine, or other professions that require post-graduate training. The major provides foundational training in biological and physical sciences with flexibility to specialize in sub-disciplines such as biodiversity, ecology, evolution, genetics, physiology, or molecular, cellular, or developmental biology. Laboratory, field, and seminar courses build skills in experimental design and interpretation and promote awareness of the impacts of science on humans and the environment.

Students selecting a major in biological sciences must complete at least 35 credits in BIO including 101 or 101H/103, 102/104 and 352 (12 credits). The remaining 23 credits must include at least one course from each of three of the following five core areas: cell and development (BIO 302, 311, 341); ecol-

ogy and evolution (BIO 262, 272); molecular biology (BIO 437); organismal diversity (BIO 308, 310, 321, 323, 354, 365, 366, 385, 404, 412, 417); physiology (BIO 201, 220/221, 222/223, 242/244, 346). These 23 credits must also include at least one course from list A (plant biology), one course from ist B (animal biology), and at least three BIO laboratory courses in addition to 103 and 104 and excluding 491 and 492. BIO 105, 181G, 286 and 498 are not for major credit.

Students must complete CHM 101, 102, 112, 114 or CHM 191, 192; CHM 226, 227, 228 or CHM 124, 126, CMB 311; CMB 201 or 211; MTH 131 or 141; MTH132 or 142 or STA 308; PHY 111, 112, 185, 186 or PHY 203, 204, 273, 274; and WRT 104 or 106.

Up to three credits of independent study or special topics (491 and 492) in the following disciplines may be applied toward the major requirements: AFS, AVS, BIO, CMB, NRS, and PLS.

List A (plant biology): BIO 308, 310, 311, 321, 323, 332, 346, 365, 416. List B (animal biology): BIO 121, 201, 220, 221, 222, 223, 242, 244, 300, 301, 302, 354, 350, 355, 366, 385, 388, 404, 412, 417, 419, 422, 425G, 444, 467.

Students must maintain a 2.00 grade point average in BIO courses used to meet the major requirements. A total of 120 credits is required for graduation.

In order to transfer from University College for Academic Success to the College of the Environment and Life Sciences as a Biological Sciences major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101 or 101H, 103, 102, 104 with grades of C or better; CHM 101 with a grade of C- or better.

BACHELOR OF SCIENCE IN MARINE BIOLOGY

The B.S. in Marine Biology allows students to explore the vast world of marine biology while providing an important foundation in modern biological sciences. It is designed for students who plan to work in marine biology, biological oceanography, marine conservation, or related fields at a professional level, or who wish to apply their training to a wide range of other exciting careers in the public and private sectors. We encourage students to participate in lab, field, and shipboard research with faculty members. Graduates work in marine and environmental science and policy, or continue their education in veterinary school or in graduate school in a wide range of fields.

A minimum of 36 credits is required and must include BIO 101 or 101H/103, 102/104, 130, 352 and 360 (17 credits) and at least one course from each of three of the following five areas: cell and developmental biology (BIO 302, 311, 341); ecology and evolution (BIO 262, 272); molecular biology (BIO 437); organismal diversity (BIO 308, 310, 321, 323, 354, 365, 366, 385, 404, 412, 417, 425G; CMB 211); physiology (BIO 201, 346). The balance of the 36 credits must be selected from among the marine biology electives: AFS 415, 486; AVS 440, BIO 256G, 308, 310, 345, 354, 355, 365, 412, 416, 422, 425G, 455, 457, 469, 475, 485, 563; NRS 475; OCE 575; OCG 420, 480, 561, 576. Students are encouraged to participate in research; up to three credits of independent study or special topics (BIO 491, 492, 495) in the following disciplines may be applied toward this requirement: AFS, AVS, BIO, CMB, NRS, OCE, OCG and PLS. Students must take at least two BIO laboratory courses in addition to 103, 104 and 360, and excluding 491, 492, and 495.

In addition, students must take CHM 101, 102, 112, 114 or CHM 191, 192; CHM 226, 227, 228 or CHM 124,126, CMB 311; MTH 131 or 132; MTH 141 or 142 or STA 308; OCG 301 or 451; PHY 111, 112, 185, 186 or PHY 203, 204, 273, 274; and WRT 104 or 106.

Students must maintain a 2.00 grade point average in BIO courses used to meet the minimum of 36 credits for the major. A total of 120 credits is required for graduation.

In order to transfer from University College for Academic Success to the College of Environment and Life Sciences as a Marine Biology major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101 or 101H, 102, 103, 104 with grades of C or better and CHM 101 with a grade of C- or better.

The Minor. The minor in marine biology requires at least 20 credits, including 8 credits of general biology (BIO 101/103 and 102/104, or equivalent, e.g., Advanced Placement), marine biology (BIO 360), and at least 8 additional credits chosen from among courses counted as marine biology electives for the B.S. degree in marine biology. A maximum of 3 credits in research (e.g., BIO 491, 492) may be counted towards the minor. At least half of the credits for the minor must be earned at URI. A minimum GPA of 2.00 must be earned in the credits required for the minor. Application for a minor must be filed with the coordinator of the Marine Biology Program prior to the completion of the first semester of the senior year.

BIOTECHNOLOGY

The B.S. in Biotechnology is designed to prepare students for professional careers in the rapidly growing biotechnology and biomedical industries. Students will be qualified to work in areas such as technical support, manufacturing and research. The major includes a 12 credit internship at a biotechnology or biomedical company. A few key courses are offered only at the Providence Campus where students learn in specialized biotechnology laboratories. All other courses are offered on the Kingston Campus with some courses on both campuses.

The following courses are required: BIO 101/103, 102/104, 341, BIO/CMB 352, BIO/CMB 437; BTC 102, 110, 195, 199*, 405; CHM 101/102, 112/114, 124/126; CMB 190, 211, 311, 333 and 437; MTH 103 or 111 and 131 or 141, or MTH 131 or 141 and STA 307, 308, or 409. *While internships cannot be guaranteed, most students are able to secure positions. In lieu of an internship experience, students can take 12 credits of the following courses: CMB 320, CMB 334, CMB 421, CMB 432, CMB 435, CMB 450, CMB 464, CMB 482.

CELL AND MOLECULAR BIOLOGY

This major is the study of cells, the fundamental unit of life, and the biological macromolecules—including DNA, RNA, proteins, lipids and carbohydrates—that determine the structure and function of cells. The Cell and Molecular Biology major provides excellent preparation for careers in medicine (the major automatically satisfies the pre-health course requirements), biomedical and life science research, and the biotechnology and pharmaceutical industries. A student may get a B.S. degree in Cell and Molecular Biology (general option), or get a B.S. degree in Cell and Molecular Biology specializing in Biochemistry, Bioinformatics, or Microbiology.

All Cell and Molecular Biology majors are required to take: BIO 101/103 and 102/104; CHM 101 or 191, 102 or 192, 112, 114, 226, 227, and 228; CMB 211, 311 and 352; PHY 111 or 203, 112 or 204, 185 or 273, and 186 or 274; and MTH 131 or 141 plus one of the following: MTH 111, 132, 142; CSC 201; or STA 307, 308, or 409. Students planning to attend graduate school are advised to take MTH 131 and 132, or 141 and 142.

Biochemistry Option. Students in the Cell and Molecular Biology major may elect the biochemistry option, which provides additional training in advanced areas of Biochemistry.

The following additional courses are required for this option: BIO 341, CMB 412 and one additional 300-level or above CMB course determined in consultation with your advisor.

Bioinformatics Option. Students in the Cell and Molecular Biology major may elect the Bioinformatics option, which meets the guidelines of the International Society for Computational Biology Education Committee and provides students with interdisciplinary trainings in preparation for diverse career opportunities in the health sciences, medical research, environmental research, and the biotechnology and pharmaceutical industries. Students will take courses across several departments and colleges, including Cell and Molecular Biology, Computer Sciences, Biological Sciences, Chemistry, Physics, and Mathematics. These courses will provide students with a well-rounded education in the general sciences and specialty training in bioinformatics and computational biology.

The following additional courses are required for this option: CMB 320, 450, 495; CSC 201, 211, 212. In addition, the students must complete at least 1 credit of a Cell and Molecular Biology laboratory course above the 300-level and at least 9 credits in specialty concentration courses.

Microbiology Option. Students in the Cell and Molecular Biology major may elect the Microbiology option, which meets the guidelines for the American Society for Microbiology. This major provides excellent preparation for a career in microbiology research and laboratory biologics testing in an academic or industrial setting, graduate education in Microbiology or Cell and Molecular Biology, and medical, dental or veterinary school. Students who develop a strong interest in clinical laboratory aspects of microbiology can easily move to URI's Medical Laboratory Sciences program.

The following additional courses are required for this option: the capstone experience courses 333, 413, 414, 415, 416, and 495; and one course selected from CMB 412, 432, 435, 450 or 576. Students in the microbiology option must take an additional 9 credits of 300-level or above CMB courses; or BIO 341, or CMB 437.

General Option. For a CMB major that selects the general option, in addition to the courses required of all CMB majors, 29 credits are required as follows: BIO 341, CMB 333, 495, and 4 credits CMB laboratory courses. As part of the 29 credits, 18 can be selected from any 300-level or above CMB course and BPS 535 and PHY430.

A total of 120 credits is required for graduation.

Minor in CMB. Undergraduate students at URI may declare a "minor" field of study in addition to their major and are encouraged to pursue a minor in CMB. A minor is a secondary concentration of courses compared to the major. Requirements may be satisfied by completion of 18 or more credits of courses offered by CMB (or related fields). To declare a minor, a student must have approval of the CMB department chairperson (or faculty sponsor) and the student's academic dean. At least twelve of the eighteen credits required for a minor shall be at the 200-level or above. A minimum average of 2.00 must be earned in the eighteen or more credits required for the minor. At least eight of the credits required for a minor must be earned at URI. A maximum of two courses required in a major program may be used to apply to both the major and minor fields of study. Courses from other curricula that are recommended or required for the major may apply to the minor. Courses in General Education may be used for the minor. Courses in the minor may not be taken under the pass-fail grading option. Application of a minor should be filed with the student's dean prior to applying for graduation but after receiving the signature of the CMB department chair. Approval of a minor does not guarantee space in any course required for the minor.

Dual Majors in Cell and Molecular Biology BS and Neuroscience BS

Highly motivated students with an interest in neuroscience are encouraged to explore the possibility of a dual degree in Cell and Molecular Biology B.S, and Interdisciplinary Neuroscience (Molecular Neuroscience major) B.S. This choice combines two related fields into a challenging 5-year program that may include additional summer study. If the dual major is pursued, the student should work closely with Dr. Jodi Camberg (advisor, CMB) to develop a course schedule early on to accommodate the requirements of both majors.

The Department of Cell and Molecular Biology also participates in the interdisciplinary and interdepartmental graduate programs in Biological and Environmental Sciences, offering both M.S. and Ph.D. degrees with specialization in Cell and Molecular Biology. Additional information may be obtained at uri.edu/cmb/cell-and-molecular-biology/.

ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

How can we create a sustainable society that protects the environment while maintaining a prosperous society? Why have humans caused environmental degradation on local, regional, and global scales, and what can we do about it? Public officials, nonprofit organizations, and private businesses need professionals who can answer these questions in order to design a new sustainable world.

As a major in environmental and natural resource economics, you will acquire tools that can help answer these questions. The environmental and natural resource economics major integrates the natural sciences with economics to help us understand why many of earth's natural resources are under threat and how we can design policies to address these threats. This major teaches students to weigh options and make important decisions concerning the protection, restoration, development, and use of our natural resources. The major prepares students for graduate school or for careers in the public and private sector that address environmental and natural resource management, business, or public policy. Professionals in these fields play an important role in coordinating interdisciplinary teams to address such complex problems. Graduates gain an understanding of both natural sciences and the economy.

The degree requires a minimum of 120 credits, including 24 credits in concentration. In addition to satisfying the general education requirements, students need nine credits in introductory professional courses, including natural resource conservation (NRS 100), introduction to resource economics (EEC 105), and environmental economics and policy (EEC 205). The major also requires a minimum of three credits in written communication skills (WRT) at the 200 level or higher. It is also possible to earn a double degree in environmental economics and general business, which we call Green Business (see details below).

The Environmental and Natural Resource Economics department offers multiple academic opportunities such as two curriculum options or pathways within the major, a double degree program, an energy certificate, a global water resource minor, and an accelerated Bachelor-Masters (ABM) program. The two curriculum options under the ENRE major are: Green Markets and Sustainability (GMS) and Environmental Economics and Management (EEM). These options, the double degree program, energy certificate, global water resource minor, and ABM program are discussed below.

Option 1: Green Markets and Sustainability (GMS). This option is for students who wish to develop a deep understanding of social and economic systems as they relate to a sustainable environment. This option is designed to provide considerable flexibility so students can focus their studies to meet their professional goals. Twenty-four credits in concentration courses are required at the 300 level or above, with 15 credits in environmental and natural resource economics (EEC), including economics of natural resource management and policy (EEC 310), benefit-cost analysis (EEC 440), and a capstone course in environmental economics and policy (EEC 432), three credits in intermediate economic theory or intermediate microeconomics (ECN 328 or 323), and six credits in other concentration courses selected by students in consultation with their advisors. Up to nine concentration credits may be in economics (ECN) or business (ACC, BAI, FIN, INE, MGT, MKT, SCA). A minimum of 21 credits in basic and supporting sciences are required in mathematics (MTH 103, 111, 131, or BAI 111), introductory statistics (STA 307, 308, 409, or BAI 210), and environmental geology or understanding the earth (GEO 100G or 103). Applied calculus (MTH 131) is strongly recommended, especially for students who are considering going to graduate school. Supporting sciences can be selected from a broad range of subjects including aquaculture and fisheries technology, animal and veterinary science, biology, business (BAI 210 and 212 only), cell and molecular biology, chemistry, computer science, ecology, geology, genetics, mathematics, natural resources science, oceanography, physics, plant physiology, or statistics. An additional 27 credits in supporting electives allow the student either to develop a closely related focus area (e.g., green business) or to sample from a broad set of relevant courses.

Option 2: Environmental Economics and Management (EEM). This option is for students who seek a balanced focus on environmental sciences and environmental economics. The option requires 31 credits of basic sciences, including at least eight credits in principles of biology (BIO 101/103, 102/104); four credits in general or introductory chemistry (CHM 101/102 or 103/105); four credits in introduction to soil science (NRS 212); four credits in introductory ecology (BIO 262); four credits in understanding the earth (GEO 103); three credits in applied calculus (MTH 131); and four credits in introductory statistics (STA 308). The 24-credit concentration includes a minimum of 9 concentration credits in environmental and resource economics (listed under EEC), including economics of natural resource management and policy (EEC 310), benefit-cost analysis (EEC 440), and a capstone course in environmental economics and policy (EEC 432), as well as three additional credits in intermediate economic theory (ECN 328) or intermediate microeconomics (ECN 323). Students are also required to take a minimum of 12 concentration credits selected from ecology, soils and watersheds, and geosciences. Students choose a minimum of 20 credits in supporting electives.

Green Business. The Department of Environmental and Natural Resource Economics and the College of Business offer a double degree program in environmental and natural resource economics and general business. This program is designed for those interested in corporate sustainability, energy efficiency, non-profit management, green marketing, renewable energy, global environmental challenges, environmental policy, and energy finance. Students earn a B.S. in Environmental and Natural Resource Economics from the College of the Environment and Life Sciences and a B.S. in Business Administration from the College of Business. More details on this program can be found at https://web.uri.edu/enre/double-degree-bus-enveco.

Certificate in Energy Economics and Policy. This program is designed to certify to potential employers that recipients have acquired broad knowledge and a set of practical skills in applying analytical tools to critical energy-related challenges faced by modern society. The program is comprised of intensive training in energy economics, management and policy, and is designed to address energy management issues at scales ranging from the individual building, to the microgrid, to the national and international levels. These skills are in great demand by local, state and federal government agencies, non-governmental organizations and the private sector. Recipients of our energy certificate will have acquired a skill set that is ideally suited to meet these needs, and will help them compete for jobs in the marketplace. Requirements may be satisfied by completing 15 credits from the courses listed below. Students must receive a minimum grade of C in each class and an overall average of B (3.0) or higher. Required courses (9 credits) include EEC 350G, EEC 352G, and EEC497. Supporting courses (6 credits) are selected from the following list: CPL 434, CPL 485, EEC 345G, EEC 355, EEC 440, EGR/MAF 213G, MAF 445, SUS 315, and LAR 472. Additional courses may be used upon approval of the Program Director. More details on this program can be found at https://web.uri.edu/enre/energy-certificate/.

Accelerated Bachelor's and Master's Degree (ABM) Program in Environmental and Natural Resource Economics (ENRE). The Accelerated Bachelor's and Master's (ABM) program in Environmental and Natural Resource Economics (ENRE) will offer qualified, focused students the opportunity to complete both the B.S. and the M.S. degrees in ENRE (non-thesis option only) in five years on average. Students will typically complete their B.S. degree requirements by the end of the fourth year, and then complete the M.S. degree requirements by the end of their fifth year. The M.S. degree program includes a major paper that allows the students to gain experience in the research process under faculty mentorship. Students accepted into the ABM program will be able to double count up to 11 credits

towards both the B.S. and M.S. degrees. Only 400-level and 500-level courses designated for graduate credit are eligible to be double counted.

Admission Requirements to the ENRE Accelerated Bachelor's to Master's Program. For admission into the program, students must apply for the ABM program through the URI Graduate School admission system by the beginning of the spring semester of their junior year (must have earned at least 75 credits to be eligible) and have a minimum 3.00 in cumulative GPA to be considered.

To apply for the Accelerated B.S. to M.S. Program, the student must have completed the following courses at the time of application: EEC 105 (or ECN 201); EEC 205; EEC 310; ECN 328 or equivalent; STA 307, 308, 409, BAI 210 or equivalent; and MTH 131 or equivalent.

A letter of support for admission from the student's undergraduate advisor or the student's future major professor must be included as part of the application process. Students will be admitted to the M.S. degree contingent on meeting all the admission requirements for the URI Graduate School. GRE is not required for the ABM program.

More details on program requirements and the application process can be found at https://web.uri.edu/enre/abm/.

Global Water Resources Minor. Please see Interdepartmental Minors for detailed information.

ENVIRONMENTAL SCIENCE AND MANAGEMENT

The major in environmental science and management, offered by the Department of Natural Resources Science, prepares undergraduate students for professional careers in the public and private sectors of natural resources management. Environmental Science and Management incorporates course work in water resources, geospatial technologies, wetland ecology, wildlife biology, soil science, forestry, and land use/environmental quality relationships. Coursework emphasizes the field techniques that underpin environmental assessment and restoration. This is a comprehensive major that includes a solid background in the basic sciences and exposure to a broad array of subject matter relating to environmental science and management. This major provides solid preparation for more specialized study at the graduate level and prepares undergraduate students for professional careers in the public and private sectors of natural resources management. Flexible course requirements allow students to develop individual areas of concentration and prepare for a variety of positions in environmental science and management after graduation. This major is also suitable for students who wish to become certified as teachers of environmental science and natural resources at the secondary level. With proper course selection environmental science majors can meet the educational requirements for certifications by professional and governmental agencies as biologists, soil scientists, natural resource specialists, geospatial specialists, hydrologists, and other classifications.

The major requires 19 credits of professional courses, which include introduction to resource economics (EEC 105; 3 credits), physical geology (GEO 103; 4 credits), natural resource conservation (NRS 100; 3 credits), seminar in natural resources (NRS 200; 1 credit), introductory soil science (NRS 212; 4 credits), and conservation biology (NRS 223; 4 credits). As part of the basic science requirements (25-27 credits), environmental science and management majors must complete eight credits in biological sciences (BIO 101/103 and BIO 102/104); four credits in general or introductory chemistry (CHM 101/102 or CHM 103/105); four credits in introductory organic chemistry (CHM 124/126); three credits in applied calculus (MTH 131); three to four credits in statistics (STA 308 or STA 409); and three to four credits in either introductory biochemistry (CMB 311), introductory microbiology (CMB 201 or CMB 211), or general chemistry II (CHM 112/114). At least 24 credits of concentration courses must be taken. These core courses are selected from the following groups: biological and ecological science; watershed and environmental quality; methods in environmental science; natural resources management; and land use management. At least one course must be selected from each group. Up to six credits of letter grade experiential learning courses may be taken as concentration courses.

Supporting electives (18 credits) must be selected from an approved list of courses, mostly at the 300 and 400 levels. At least 9 supporting elective credits must be NRS courses. Up to 9 credits of experiential learning courses may be taken toward satisfying supporting elective requirements.

Accelerated Bachelor's to Master's Program (ABM)

ABM Program in Natural Resources Science: The accelerated B.S. to M.E.S.M. Program (ABM) in Natural Resources Science will offer qualified students the opportunity to complete both the B.S. (Wildlife and Conservation Biology, or Environmental Science and Management) and the Masters of Environmental Science and Management (M.E.S.M.), non-thesis professional degree, in five years. Students will typically complete their B.S. degree requirements by the end of the fourth year, and then complete the M.E.S.M. degree requirements by the end of their fifth year. The students accepted into the ABM in Natural Resources Science program will be able to double count approved course credits towards both degrees, constituting up to one-third (12 credits) of the total credits required for the M.E.S.M. degree (36 credits total).

Admission Requirements to the Accelerated Bachelor's to Master's Program: Students shall apply for the ABM in Natural Resources Science program through the URI Graduate School admission system and are eligible to apply once they have earned at least 75 credits. Students will be enrolled in the ABM in Natural Resources Science program after they have met all Graduate School admission requirements and completed a minimum of 90 undergraduate credits.

The program is open to undergraduates in the Natural Resources Sciences degree program who have completed 75 credits with a minimum cumulative GPA of 3.2 and have earned a grade of "B" or better in the following courses (or equivalent or AP credit): BIO 102, NRS 212, NRS 223, and MTH 131 or STA 308 or equivalent.

A letter of support for admission from the student's undergraduate advisor or the student's future major professor must be included as part of the application process. Students will be admitted to the M.E.S.M. degree program contingent on meeting all the admission requirements for the URI Graduate School. The GRE is not required for the M.E.S.M. program.

Additional information can be obtained by contacting the ABM in Natural Resources Science Program Coordinator Dr. Brett Still (bstill@uri.edu).

Minors in Natural Resources Science

The following minors are University-approved. Students may also design their own minors; see Minor Fields of Study.

GIS and Remote Sensing. This minor field of specialization provides students in-depth training in the use of GIS (geographic information system) and remote sensing technology and application of geospatial data processing methods to environmental problem solving. Students who declare a minor in GIS and remote sensing must complete 18 credit hours consisting of the following core courses: NRS 409, 410, 415, 516, and 522. The remaining credits may be taken from NRS 423, 524, 533, or CPL 511. Students minoring in GIS and remote sensing are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application.

Global Water Resources. Please see Interdepartmental Minors for detailed information.

International Development. Please see Interdepartmental Minors for detailed information.

Restoration Science and Management. Please see Interdepartmental Minors for detailed information.

Soil Environmental Science. This minor field of specialization provides students in-depth training in the application of soils information to solve environmental problems and issues. Students fulfilling the requirements of the soil environmental science minor meet the qualifications for basic membership in the Society of Soil Scientists of Southern New England, are eligible for certification as soil scientists under the American Registry of Certified Professional Soil Scientists, and meet the requirements for federal job listings under soil scientists. Students who declare a minor in soil environmental science must complete 18 credits from the following courses: NRS 212, 351, 412, 426, 450G, 452G, 461, 471, 510, or 567. Students minoring in soil environmental science are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application.

Wildlife and Conservation Biology. Please see Wildlife and Conservation Biology for detailed information. A major in this program is also available.

GEOLOGY AND GEOLOGICAL OCEANOGRAPHY

The Department of Geosciences offers a single degree: the B.S. in geology and geological oceanography, with two options, a geology option and a geological oceanography option. This degree is designed for students with an interest in earth, environmental, or oceanographic science careers or affiliated fields such as environmental law and earth/environmental science education. The two options allow students to take specialty courses focusing on a range of geoscience topics such as environmental geology/hydrogeology, sedimentology/stratigraphy/paleontology, coastal geology/oceanography, geochemistry/petrology, or geophysics/tectonics, and supporting elective courses chosen from geosciences, natural resources science, environmental economics, and oceanography. Students may use their supporting electives to pursue in-depth study within a given field or to broaden their interdisciplinary perspective. Students are required to complete an interdisciplinary core of introductory courses including GEO 103 Understanding Earth (4), NRS 100 Natural Resource Conservation (3), and EEC 105 Introduction to Resource Economics (3); geosciences core courses including GEO 204 Problem-solving in Earth History (4), GEO 210 Landforms: Origins and Evolution (4), GEO 305G Global Climate Change (4), GEO 320 Earth Materials (4), GEO 370 Structure of the Earth (4), and GEO 450 Introduction to Sedimentary Geology (4); supporting science/mathematics courses including MTH 131 (3) or 141 (4); BIO 101 (3) and 103 (1); CHM 101 (3), 102 (1), STA 308 (4) or 409 (3); PHY 111 (3), 185 (1) or 203 (3), 273 (1); and one of the following: BIO 102 (3), 104 (1), CHM 112 (3), 114 (1), PHY 112 (3), 186 (1), MTH 132 (3), MTH 142 (4), PHY 204 (3), 274 (1), or CHM 124 (3), 126 (1); and 20 credits of supporting electives taken at the 200-level or above from EEC, GEO, NRS, OCG or from another program with prior approval from the GEO department chair; 3 credits of supporting elective may be satisfied by a 100-level course in GEO or OCG if taken within the first 60 credits. Double majoring in Geology and Geological Oceanography works well with other B.S. granting programs in CELS and also many Engineering programs.

GEO 480, 491, 497, and 499 and OCG 493/494 are capstone experiences available for this major. Internship experiences are encouraged; credit may be awarded through GEO397 if work is appropriate.

To transfer from University College to the College of the Environment and Life Sciences as a Geology and Geological Oceanography major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned at least a 2.0 grade point average in a minimum of 30 total credits, as well as a minimum of a B- in GEO 103; a minimum of a C in CHM 101, and a minimum of a C+ in pre-calculus (MTH 103 or MTH 111) or a C in calculus (MTH 131 or MTH 141).

A total of 120 credits and a 2.00 grade point average within the major are required for graduation.

Geology Option. This option allows students the flexibility to define their own area of concentration within the geosciences. Students selecting this option complete GEO 483—Hydrogeology (4); GEO 480 (4–6) or a GEO elective at the 200-level or above; and an additional GEO elective at the 200-level or above chosen in consultation with their advisor. Example areas of concentration include environmental geology/hydrogeology, sedimentary geology/stratigraphy, and geophysics/tectonics.

Geological Oceanography Option. Students completing this option will be well prepared to pursue careers in either conventional geology/earth science or geological oceanography. Students selecting this option complete three upper-level oceanography courses including OCG 301—General Oceanography (3) or OCG 451—Oceanographic Science (3), OCG 440 or 540—Geological Oceanography (4), and an OCG elective taken at the 400-level or above; and a 3-credit senior research project, OCG 493 or 494—Special Problems and Independent Study in Oceanography (3), taken in the Graduate School of Oceanography (GSO), under the direction of a GSO faculty member. Students entering the URI Graduate School of Oceanography from this program will have a significant head start compared with those entering from most other undergraduate institutions.

Department of Geosciences website: uri.edu/geo

INTERDISCIPLINARY NEUROSCIENCE

Program Faculty

uri.edu/inp/people

Overview

The B.S. program is designed to provide you with a foundational understanding of the brain and the nervous system. Our interdisciplinary approach will provide you with knowledge in areas such as nervous system diseases and current therapeutic strategies, the cellular molecular biology of the nervous system, cognition and behavior. You'll have the opportunity to gain experience with a multitude of experimental approaches and techniques used to solve unanswered questions in the field of neuroscience.

There are three major options available for the B.S. degree:

- a major in Clinical Neuroscience from the College of Health Sciences,
- a major in Molecular Neuroscience from the College of Environment and Life Sciences, and
- a major in Neuropharmacology from the College of Pharmacy.

The option for different majors is unique and makes URI truly distinct when it comes to undergraduate neuroscience education. The interdisciplinary nature of the program allows you access to a broad range of faculty with expertise in neuroscience research across the campus and the George and Anne Ryan Institute for Neuroscience.

Careers

Students who graduate with a B.S. in interdisciplinary neuroscience have an ever-growing choice of career options. These include graduate school in neuroscience, medical school, graduate programs in allied health professions; research positions in academic, government, biotech or pharmaceutical laboratories; and a variety of professional opportunities in science education, science writing, data science, and health care.

Requirements

The B.S. program requires a minimum of 120 credits for graduation: 40-43 preparation, 31-36 core, 40 general education, and 18 in your chosen major/track (clinical, molecular, or neuropharmacology).

To transfer out of University College for Academic Success and enter your selected degree granting college, you must complete a minimum of 56 credits of the following courses with a 2.0 GPA average: BIO 101/103, BIO 102/104, BIO 220/221, BIO 222/223, CHM 101/102, CHM 112/114, CHM 124 or 227, PHY 111/185, MTH 103/131, PSY 113, COM 100, WRT 104 or 106, URI 101, NEU 101, NEU 110, NEU 210, NEU 262, and NEU 230.

Preparation Courses

Preparation courses ensure that you have the background to be successful in the major and in applying to graduate and professional programs. (40-43 credits)

CHM 101/102: General Chem I/Lab (4)

CHM 112/114: General Chem II/Lab (4)

CHM 124: Introduction to Organic Chemistry OR CHM 227: Organic Chemistry (3)

MTH 131 (+MTH 103 if needed as prereq): Applied Calculus I (3)

BIO 101/103: Biology I/Lab (4)

BIO 102/104: Biology II/Lab (4)

BIO 220/221: Fundamentals of Anatomy and Physiology I/Lab (4)

BIO 222/223: Fundamentals of Anatomy and Physiology II/Lab (4)

WRT 104: Writing to Inform and Explain (3) OR WRT 106: Writing for Research

COM 100: Communication Fundamentals (3)

PSY 113: General Psychology (3)

URI 101: Introduction to URI (1)

Core Courses

The neuroscience core introduces you to the fundamental concepts of brain and nervous system function, development, and disease. You will learn about research methods used in the field and apply that knowledge in experiential learning opportunities on- or off-campus. (31-36 credits)

NEU 101: Foundations of Neuroscience (3)

NEU 110: Neurosciences Seminar (1)

NEU 210: Neuroethics and Diversity (3)

NEU 262: Neuroscience Research Methods (4)

NEU 230: Neuroscience Professional Development (1)

NEU 301: Cellular and Molecular Neuroscience (3)

NEU 310: Developmental Neurobiology (3)

NEU 320: Clinical Neurosciences (3)

STA 307: Biostatistics (3)

PHY 111/185: General Physics I/Lab (4)

NEU 410: Experimental Neuroscience (1-6) OR ITR 302 & 304 (6)

NEU 460: Neurosciences Journal Club (1)- ITR 302 & 304 will earn students 6 credits. Cannot be taken for less. See advisor for more details.

General Education Courses

All students at URI are required to complete 40 credits of General Education courses, including all 12 outcomes of learning objectives. The following courses are required for the Interdisciplinary Neuroscience degree, and count towards General Education credit:

WRT 104: Writing to Inform and Explain (3) OR WRT 106: Writing for Research

COM 100: Communication Fundamentals (3)

CHM 101: General Chemistry Lecture I (3)

BIO 101: Principles of Biology I (3)

BIO 103: Principles of Biology Lab I (1)

BIO 102: Principles of Biology II (3)

BIO 104: Principles of Biology Lab II (1)

PHY 111: General Physics I (3)

PHY 185: General Physics I Lab (1)

MTH 131: Applied Calculus 1 (3) and MTH 103: Applied Pre-Calculus (3)(only if needed)

Clinical Neuroscience

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include Neuropharmacology in the College of Pharmacy, Molecular Neuroscience in the College of the Environment and Life Sciences, and Clinical Neuroscience in the College of Health Sciences.

INP students enrolled in the Clinical Neuroscience major will continue to take neuroscience courses as outlines in the B.S. in INP degree and will meet all graduation requirements as outlined in the B.S. in INP degree. To meet the requirements for graduation with the Clinical Neuroscience major within INP, students must complete 15 credits from the required Clinical Neuroscience Major Course list and 3 credits from the Clinical Neuroscience Major Electives list. Please see both lists below:

Clinical Neuroscience Major Course List: BPS/PSY 205G; BPS 321; CMD 280G; PSY 232, 254, 301, 381, 384, 385, 434; HDF 357; KIN 300.

Clinical Neuroscience Major Electives List: CMB 210; CMD 377, 492, 494; BPS 313, 401; PSY 261, 275, 460; PHP 336G, 405.

To learn more about the Clinical Neuroscience major, please visit the Interdisciplinary Neuroscience Program website here: https://web.uri.edu/inp/academics/b-s-program/clinical-track

Molecular Neuroscience

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include Clinical Neuroscience in the College of Health Sciences, Molecular Neuroscience in the College of the Environment and Life Sciences, and Neuropharmacology in the College of Pharmacy.

INP students enrolled in the Molecular Neuroscience major will continue to take neuroscience courses as outlined in the B.S. in INP degree and will meet all graduation requirements as outlined for the B.S. INP degree. To meet the requirements for graduation with the Molecular Neuroscience major within INP, students must choose 15 credits from the Molecular Neuroscience Major Course list and 3 credits from the Molecular Neuroscience Major Electives list. Please see both lists below.

Molecular Neuroscience Major Course list: CSC/DSP 310, CMB 311, 460, CMB/BIO 352, 341, 437, CHM 227, 226/228, CMB 460, and PHY 112, 186

Molecular Neuroscience Major Electives list: CMB 333, 312 OR 412, 320, 353, 435, 482, and BIO/CMB 452

To learn more about the Molecular Neuroscience major, please visit the Interdisciplinary Neuroscience Program website.

Neuropharmacology

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include neuropharmacology in the College of Pharmacy – Department of Biomedical and Pharmaceutical Science (BPS), molecular neuroscience in the College of the Environment and Life Sciences – Department Cell and Molecular Biology (CMB), and clinical neuroscience in the College of Health – Department of Psychology.

INP students enrolled in the neuropharmacology major will continue to take neuroscience courses as outlined in the B.S. in INP degree and will meet all graduation requirements as outlined for the B.S. INP degree. To meet the requirements for graduation with the neuropharmacology major within INP, students must complete 15 credits from the Neuropharmacology Major Course list and 3 credits from the Neuropharmacology Major Electives list. Please see both lists below.

Neuropharmacology Major Course List: BPS 313, 321, 345, 401, 432, 442; BPS/CMB 450; CHM 226 & 228, CMB 311, 426; BIO/CMB 437, and CMB 460.

Neuropharmacology Major Electives List: BIO 482G; BME 281, 307, 360; BPS 201, 402; BPS/PSY 205G, 436; CMB 464, 482; CMD 280G; NEU 502, 503; PSY/NEU 381; PHP 336G, 405, and 555.

To learn more about the Neuropharmacology major, please visit the Interdisciplinary Neuroscience Program website here: https://web.uri.edu/inp/academics/b-s-program/neuropharmacology-track

LANDSCAPE ARCHITECTURE

Landscape architecture is a 126-credit curriculum leading to the Bachelor of Landscape Architecture (B.L.A.) degree. Accredited by the Landscape Architecture Accreditation Board of the ASLA, the curriculum is designed to prepare undergraduates for professional careers in public and private practice. Landscape architecture is a profession that involves the design, planning, preservation, and restoration of the landscape by applying art, science, and technology to achieve the best use of our land and water resources.

Landscape architects design and plan parks, plazas, and recreation areas; residential, institutional and commercial developments; transportation facilities, new towns and campus landscapes, and green infrastructure. They are also involved in planning and designing landscapes in coastal areas and inland developments impacted by climate.

The requirements of this curriculum include preparation in the basic arts and sciences. The major includes 63-64 credits of professional core classes (LAR 101, 201, 202, 243, 244, 300, 301, 302, 343, 344, 345, 346, 353, 354, 443, 444, 445, 447, 450); 28-29 credits of supporting requirements (ART 207; GEG 101; PLS 150; CHM 100, 101 or 103 or PHY 109, or GEO 100, or 103; CPL 410, CPL 434, 538; MTH 103; and PLS 200); and 7-8 credits of supporting electives. Students will also take general education classes and 6-7 credits of free electives. Students accepted into landscape architecture are required to maintain a grade point average of at least 2.50 with no landscape architecture grades below a letter C. Students failing to maintain this minimum may be removed from the program and required to reapply once this requirement is satisfied. Students are required to own a P.C. laptop computer by the time they enter the program. Specifications are available from the Landscape Architecture Program Office or from the URI Bookstore (Ramtech).

URI's Landscape Architecture Program (LAR) is competitive. Accreditation standards regarding staff and facilities limit the number of students accepted into the major to 20 per year. While enrolled in the program, students will be reviewed

twice during their course of studies: first for admission into the lower-division design sequence and again for acceptance into the upper-division B.L.A. major.

Admission into the lower-division design sequence courses (LAR 243 and 244) requires department approval. Approximately 50 percent of the openings are filled by students who enter as incoming freshmen and who maintain a minimum 2.50 grade point average with no grades in LAR courses below a C. The remaining openings are filled by matriculated students wishing to transfer into landscape architecture from other majors. These students are required to apply to the program and to submit an essay and transcript of grades. Applications and transcripts are evaluated in March each year for acceptance into the lower-division (LAR 243) design sequence for the following fall.

Acceptance into the upper division (junior design sequence) is based on submission and review of a portfolio of lower-division work, a current academic transcript, and written essay. A maximum of 20 students per year are accepted into the upper-division B.L.A. curriculum. Eligible applicants for upper division are students enrolled in LAR 244/returning applicants, and students wishing to transfer directly into the upper division from other accredited landscape architecture programs. Only students who have completed comparable lower-division courses will be allowed to compete for these upper-division positions. Such transfer applicants must first be accepted into the University by the Office of Admission and have their application package submitted to the Landscape Architecture Department Chair before the last week in February preceding the fall semester in which they wish to enroll. Students will be notified of their acceptance following a department review.

Students are eligible to transfer from University College for Academic Success to the College of Environment and Life Sciences after they have earned 24 credits with a 2.50 or higher GPA and with permission of the department chair.

Interested students should contact the program advisor or department chair. uri.edu/lar

MARINE AFFAIRS

URI's Department of Marine Affairs offers the following degrees: B.A., B.S., M.A., M.M.A. (Master of Marine Affairs), and Ph.D.

The B.A. and B.S. in marine affairs focus on coastal and ocean areas and examine environmental resources, human uses, and governance from a variety of perspectives. Both degrees qualify for New England Regional Tuition. Topics include conservation, ocean policy and law, climate adaptation and resilience, tourism and recreation, environmental communication, environmental justice, ocean energy resources, coastal and island communities, ports and shipping, fisheries and marine ecosystems, spatial planning and management, and international development.

A marine affairs major establishes a background for careers in the public or private sectors in a wide variety of marine-related fields. Typical areas of employment include positions in government concerned with coastal zone, environmental, or fishery management, and marine transportation. In the private sectors, students have secured positions in environmental consulting firms, marine insurance, public interest nongovernmental organizations, marinas, ports, and companies involved in shipping. The major serves well as an educational background for continued study in law, especially environmental, fishery, coastal zone, admiralty, and ocean law. Students have also entered graduate and professional programs in environmental management, public administration, community planning, marine affairs, and related fields.

Students in the Department of Marine Affairs who participate in the New England Regional Student Program must maintain a 2.80 G.P.A. and take at least one MAF course per year to retain their New England regional tuition status. Failure to meet these objectives will result in suspension of the reduced tuition privilege. Reinstatement may occur if the student meets these requirements for one year after the time of the suspension.

Bachelor of Arts in Marine Affairs. Students selecting this field are required to complete the following required MAF courses (12 credits): MAF 100, 120, 220, and 410 [capstone]. Three of the following courses in social sciences and humanities (at least two must be in MAF): MAF 300, 310*, 312*, 340, 350*, 373 (370), 412G*, 413*, 445, 450*, 465*, 471*, 472*, 482, 499*, APG 203, EEC 105, HIS 130, PSC 113, PSC 116G, SOC 100, or SOC 204. In addition, three of the following courses in coastal and marine policy and management: MAF 213G, 310*, 312*, 320, 330, 350*, 412G*, 413*, 415, 450*, 461, 465*, 471*, 472*, 475, 490, 499*. Asterisk indicates a class that could count in either category, but can only be counted once.

Students must also take STA 220 or 308 and OCG 108G, 110, 111, 123G or 301. STA 308 requires MTH 103, 107, 131 or permission of instructor.

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

Bachelor of Science in Marine Affairs. Students selecting this field must complete the following required MAF courses (15 credits): MAF 100, 120, 220, 410 [capstone], and 482. Three of the following courses in social sciences and humanities (two must be in MAF): MAF 300, 310*, 312*, 340, 350*, 373 (370), 412G*, 413*, 445, 450*, 465*, 471*, 472*, 499*; APG 203, EEC 105, HIS 130, PSC 113, PSC 116G, SOC 100, or SOC 204. In addition, three of the following courses in coastal and marine policy and management: MAF 213G, 310*, 312*, 320, 330, 350*, 412G*, 413*, 415, 450*, 461, 465*, 471*, 472*, 475, 490, 499*. Asterisk indicates a class that could count in either category, but can only be counted once.

In addition to the above requirements, students must take OCG 108G, 110, 111, 123G or 301; STA 308 or 409. STA 308 requires MTH 103, 107, 131 or permission of instructor. STA 409 requires MTH 131.

Students must also select a total of 18 credits from classes with the following prefix, of which nine must be at the 300 level or above: AFS, BIO, CHM, EEC, GEO, NRS, OCE, OCG, PHY, STA.

A total of 120 credits is required for graduation.

International Development Minor. Please see Interdepartmental Minors for detailed information.

MEDICAL LABORATORY SCIENCE

This major, offered by the Department of Cell and Molecular Biology, is designed to prepare students for applied careers in the medical laboratory and biomedical sciences, as well as to prepare students for graduate or professional school.

Students are required to take the following courses as part of the curriculum: BIO 101, 102, 103, 104, 220, 221, 222, 223; CHM 101, 102, 112, 114, 124, 126; CMB 201 or 211, 311, 333, 352; MLS 102, 360, 405, 406, 409, 410, 411, 412, 413, 414, 415, 416, 451, 483; MTH 111 or 131 or 141; PHY 111, 185; STA 307 or 308; and two of the following professional electives: BIO 341, CMB 320, 334, 432, 435, 437. A total of 120 credits is required for graduation.

During the first three years of the program, emphasis is on general education and on basic courses in the biological, chemical, and quantitative sciences. The courses of the senior year are taught off campus by clinical instructors from the schools of medical technology at affiliated hospitals. These schools are accredited by the National Accreditation Agency for Clinical Laboratory Sciences. The senior year is an 11-month clinical internship that begins in mid-June. It is taken at one or more of the following clinical agencies: Rhode Island Hospital, Miriam Hospital, Fatima Hospital, and the Rhode Island Blood Center. The clinical program includes lecture and laboratory instruction in clinical chemistry, clinical microbiology, hematology, immunology, immunohematology, and molecular pathology, and prepares the student for national certification examinations and state licensure.

Applicants to this curriculum should have completed 60 credits and taken most of the required courses by the end of the sophomore year. Students apply for acceptance into the clinical internship during their junior year and candidates are selected by the departmental curriculum committee and by program officials of the hospital schools. Since the number of student placements in the clinical internship is limited, interested students should consult with the program director early in their college career, so they will be familiar with the requirements and application procedures. Flexibility in the curriculum permits students who are not admitted to the program to fulfill requirements for other degrees in the college. Students with a degree in a health profession, life science, or related field may apply to the clinical internship as a fifth year of study.

Freshman Year First semester: 14-15 credits

CHM 101, 102 (4); BIO 101, 103 or 102, 104 (4); MTH 111 or 131 (3) or 141 (4); and general education requirements (3).

Second semester: 16 credits

CHM 112, 114 (4); BIO 101, 103 or 102, 104 (4); MLS 102 (1); STA 307 or 308 (4); and general education requirements (3).

Sophomore Year First semester: 15 credits
BIO 220, 221 (4); CHM 124, 126 (4); PHY 111, 185 (4); and general education requirements (3).

Second semester: 14 credits

BIO 222, 223 (4); CMB 201 or 211 (4); MLS 360 (3); and general education requirements (3).

Junior Year First semester: 15 credits

CMB 333 (3); MLS 483 (3); professional elective (3); and general education requirements (6).

Second semester: 16 credits

CMB 311 (3); CMB 352 (4); professional elective (3); and general education requirements (6).

Senior Year First semester: 17 credits

MLS 405 (2), 409 (4), 411 (4), 413 (2), 415 (3), and 451 (2).

Second semester: 15 credits

MLS 406 (2), 410 (4), 412 (4), 414 (2), and 416 (3).

Biotechnology Manufacturing Option.

As of fall 2019, admission to the biotechnology manufacturing option has been suspended. Students may choose the Biotechnology B.S.

PLANT SCIENCES

The major in Plant Sciences, offered by the Department of Plant Sciences and Entomology, prepares undergraduates for professional careers in the many public and private sectors of horticulture. After successful completion of the major, students are awarded a degree in Plant Sciences in one of three options: turfgrass management, ornamental horticulture and sustainable crop production. Graduates of this program pursue careers ranging from landscape contractor, golf course superintendent, director of parks, botanical gardens or arboreta, garden center or floral shop proprietor, plant propagator, nursery production manager, vegetable or fruit grower, lawn service manager or technical representative for seed, equipment, and chemical companies, to name just a few of the opportunities available. Other graduates enter graduate school and pursue careers in research and education at public and private institutions. The unifying theme of the major is the development of sustainable culture and use of plants for amenity or food.

Graduates can meet the standards of several certification organizations. Students in the ornamental horticulture option qualify for certification with the Rhode Island Nursery and Landscape Association and the International Society for Arboriculture. Graduates of the turfgrass management option qualify for certification as turfgrass managers or turfgrass specialists with the American Registry of Certified Professionals in Agronomy, Crops, and Soils, Ltd. of the American Society of Agronomy. These same graduates also meet the requirements for registration with the Golf Course Superintendents Association of America.

The department manages over 50 acres of turfgrass, horticulture, and agronomy farms for teaching, research, and outreach. The C. Richard Skogley Turfgrass Center is the oldest turfgrass research/teaching program in the U.S. The department also maintains a 15,000 square foot controlled environment greenhouse complex for hands-on learning and research. These facilities are closely allied with the URI Botanical Gardens and E.P. Christopher Arboretum.

The Plant Sciences degree requires a total of 120 credits: 29-30 credits of pre-professional natural sciences that all majors must take including PLS 150, PLS 200, PLS 215, PLS 216, 250, PLS 255, BIO 101, BIO 103, BIO 102, BIO 104, CHM 103, CHM 105 (or CHM 101 and CHM 102) or their equivalent; 30 credits in concentration courses; and 15 credits of supporting elec-

tives approved by a faculty advisor which are specific to the interests of the student.

Turfgrass Management Option. The turfgrass management option is intended primarily for students who are interested in managing golf courses, athletic fields, commercial turf properties, sod farms or any other facilities comprised primarily of turf. Students in this option will gain competencies in all aspects of turf production and management, with a focus on sustainable practices and integrated pest management systems. Additionally, students interested in landscape management may also fall under this option but may take slightly different concentration courses which will address some of the other aspects of managing large, heterogeneous landscape properties. These students may also take a number of classes in the Landscape Architecture program, which can fulfill their supporting electives.

Turfgrass Management students are also required to take 30 credits of concentration courses and it is suggested that in earning those credits, they take PLS 306, PLS 322, PLS 341, PLS 361, PLS 390, PLS 440, PLS 442, ENT 387 and ENT 411.

Ornamental Horticulture Option. The ornamental horticulture option is intended primarily for students who are interested in nursery management, greenhouse production, the floral industry and the production and management of woody and herbaceous materials for landscapes and urban areas. Students in this option will develop a wide set of skills allowing them to work in a diverse number of industries where ornamental plant production and management are practiced. Students interested in landscape management can also select this option, instead of the turfgrass management option, if their interests are focused more on trees than on turf. As with the turfgrass management option, these students may also take Landscape Architecture classes to fulfill supporting electives.

Ornamental Horticulture students are also required to take 30 credits of concentration courses and it is suggested that in earning those credits, they take PLS 306, PLS 331, PLS 350, PLS 353, PLS 354, ENT 385 or ENT 387 and ENT 411.

Sustainable Crop Production Option. The sustainable crop production option is intended for students with an interest in growing plants for food, managing food systems and developing sustainable approaches that minimize farming impacts on the environment while maintaining or improving the quality of food and the environment, where possible. Students in this option will learn techniques and strategies for managing small, sustainable farming systems in addition to incorporating food production into the urban environment.

Sustainable Crop Production students are also required to take 30 credits of concentration courses and it is suggested that in earning those credits, they take PLS 275, PLS 311, PLS 312, PLS 321, PLS 324, PLS 325, PLS 332, NRS 212, ENT 385 and ENT 411.

SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS (SAFS)

Students completing this interdisciplinary program will graduate with the skills and knowledge needed to contribute to the sustainable development, production, harvesting, management, and utilization of terrestrial and aquatic microorganisms, plants and animals by society worldwide. The major will allow participants to explore the food chain, from farm to plate to waste and back, emphasizing sustainability, impacts on human health, and resilience from economic, environmental, and societal viewpoints. Core values of this interdisciplinary program that distinguish it from more traditional agriculture programs include an emphasis on the intrinsic value of heterogeneous scales of production (from small farms that sell directly to consumers to large scale producers), preserving local food cultures and biodiversity while understanding the way other cultures produce and use food (from local to global), using an ecosystem-based approach to agriculture (also integrating the contributions of aquaculture and fisheries), and the greening of urban landscapes. By the time of degree completion students will be uniquely poised to enter the workforce in the growing field of sustainable food systems or pursue management (through governmental and non-governmental agencies) and graduate education/research opportunities addressing the challenges of securing access to safe and affordable food for a growing population.

SAFS students will pursue a curriculum that combines depth in a specialization area chosen from three options within the program (Sustainable Agriculture, Nutrition and Food, and Food and Society) with breadth across the natural and social sciences, engineering, and the arts and humanities. The program entails a total of 120 credits including:

A common introductory core sequence emphasizing the interdisciplinary and systems-approach to sustainability. As part of this core sequence, students are required to take a set of interdisciplinary general education courses including AFS/AVS/PLS 132G, COM/SUS 108G, EEC 105, HSS/PSY 130G, NFS 210 and the basic science courses BIO 101/103, BIO 102/104, and CHM 101/102 or CHM 103/105. Students are also required to take APG/SOC/GWS 308.

An intermediate-level framework of courses providing depth in the area of specialization (options) while reinforcing the interdisciplinary, systems-thinking focus of the major. The options are:

Sustainable Agriculture Option: Students in this option will specialize in the harvesting and production of either terrestrial or aquatic plants and animals for human uses. They will understand the integrated components of fisheries and agriculture/aquaculture systems (soils, microbes, plants, animals), and the impacts of agriculture and food harvesting on the environment. Students are required to take two introductory food production courses (to choose from AFS 105G/106, AVS 101/102, PLS 150, PLS 255), two agriculture management courses (to choose from AFS 201, AFS 202, AFS 215, AFS 321/322, AVS 304, PLS 311, PLS 312, PLS 321, PLS 324, and PLS 325), and other relevant courses in AFS, AVS, or PLS), two environment-related courses (to choose from AVS/PLS 275, CHE 212, ENT 411, and NRS 212). They are also required to take two courses from each of the two other options (Nutrition and Food, Food and Society).

Nutrition and Food Option: Students in this option will learn the basic principles of food science and nutrition. Students are required to take NFS 212G, NFS/CMB 245, 336, 337, 375, 376 and two courses from each of the two other options (Sustainable Agriculture, Food and Society).

Food and Society Option: Students in this option will specialize in the social, political, economic, and marketing aspects of

food production. Students are required to take two courses on the cultural aspects of food (to choose from APG 203, APG/SOC 329, APG/SOC 415 and other relevant courses in APG, GWS, SOC), two courses on policy (to choose from MAF 100, APG/MAF 413, MAF 330, and other relevant courses in APG, MAF), two courses on economics (to choose from EEC 205, 310, 325, 355, 440), and two courses from each of the two other options (Sustainable Agriculture, Nutrition and Food).

A robust capstone experience in which students will master the ability to address the complex challenges in the area of sustainable agriculture and food systems through experiential learning in interdisciplinary teams. Students are required to take a total of 13 credits, including 4 credits of internship or special project and an additional 9 credits in courses to choose from NRS 300, PLS 320, PLS 385, AVS/NFS 404, or SAF 400G.

Accelerated Bachelor in Science to Master's Degree (ABM) Program. The Environmental Science and Management ABM Sustainable Food Systems option (the SFS ABM) offers qualified students in the Sustainable Agriculture and Food Systems (SAF) B.S. program the opportunity to complete the requirements for their B.S. and the Masters in Environmental Science and Management (M.E.S.M) non-thesis professional degree in five years. For additional information please see Environmental Science and Management (M.E.S.M.) ABM (Sustainable Food Systems) in the ABM section of this catalog and the Master of Environmental Science and Management in the Graduate section of this catalog.

WILDLIFE AND CONSERVATION BIOLOGY

The major in wildlife and conservation biology, offered through the Department of Natural Resources Science (NRS), prepares students for professional careers in the public and private sectors of wildlife biology. In addition, the major provides a solid background for graduate study. Wildlife biologists are professionals concerned with the scientific management of the earth's wildlife species and their habitats. They work in the areas of preservation, conservation, and management of wildlife species. Wildlife majors meet the educational requirements for state and federal employment in the wildlife profession, and can apply to become Certified Wildlife Biologists (CWBs) who are recognized by The Wildlife Society.

The major requires professional courses (19 credits) including introductory ecology (BIO 262; 4 credits), introduction to resource economics (EEC 105; 3 credits), natural resource conservation (NRS 100; 3 credits), a seminar in natural resources (NRS 200; 1 credit), introductory soil science (NRS 212; 4 credits), and conservation biology (NRS 223; 4 credits). Basic science requirements (22-23 credits) include eight credits of biological sciences (BIO 101/103 & BIO 102/104); four credits of introductory or general chemistry (CHM 103/105 or CHM 101/102) and four credits of organic chemistry (CHM 124/126); three credits applied calculus (MTH 131); and three to four credits of statistics (STA 308 or 409). At least 22 credits of required concentration courses must be taken, including principles of wildlife ecology and management (NRS 305; 3 credits); wildlife field techniques (NRS 309; 3 credits); field botany and taxonomy (NRS/BIO 323; 4 credits); wetland wildlife (NRS 406; 4 credits) or endangered species conservation (NRS 407; 3 credits); and 9-11 additional credits from an approved list of concentration courses that are recommended to include either field ornithology (NRS 304, 3 credits); mammalogy (NRS 324; 4 credits); vertebrate biology (BIO 366; 3 credits); herpetology (NRS 417; 4 credits); animal behavior (BIO 467; 3 credits); or wildlife biometrics (NRS 402; 3 credits). At least 24 credits of supporting electives must be selected from the approved list or from concentration electives or from other 300 or 400 level natural resources science courses. Students may complete specific course work to apply to become a certified wildlife biologist that includes the following supporting electives: three credits in botany; six credits in zoology; six credits in resources policy; and six credits in communications. Up to 12 credits of experiential learning courses may be taken. A maximum of 10 credits of experiential learning courses may be taken toward satisfying concentration credit (letter grade courses only) and up to 12 credits of experiential learning courses may be used as supporting electives (letter grade or S/U courses). At least 12 credits of natural resources science courses must be completed in concentration and at least 6 more in supporting electives. A total of 120 credits is required for graduation.

In order to transfer from University College for Academic Success to the College of the Environment and Life Sciences as a Wildlife and Conservation Biology major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101/103, 102/104, and NRS 100 with grades of C or better.

Accelerated Bachelor's to Master's Program (ABM)

ABM Program in Natural Resources Science: The accelerated B.S. to M.E.S.M. Program (ABM) in Natural Resources Science will offer qualified students the opportunity to complete both the B.S. (Wildlife and Conservation Biology, or Environmental Science and Management) and the Masters of Environmental Science and Management (M.E.S.M.), non-thesis professional degree, in five years. Students will typically complete their B.S. degree requirements by the end of the fourth year, and then complete the M.E.S.M. degree requirements by the end of their fifth year. The students accepted into the ABM in Natural Resources Science program will be able to double count approved course credits towards both degrees, constituting up to one-third (12 credits) of the total credits required for the M.E.S.M. degree (36 credits total).

Admission Requirements to the Accelerated Bachelor's to Master's Program: Students shall apply for the ABM in Natural Resources Science program through the URI Graduate School admission system and are eligible to apply once they have earned at least 75 credits. Students will be enrolled in the ABM in Natural Resources Science program after they have met all Graduate School admission requirements and completed a minimum of 90 undergraduate credits.

The program is open to undergraduates in the Natural Resources Sciences degree program who have completed 75 credits with a minimum cumulative GPA of 3.2 and have earned a grade of "B" or better in the following courses (or equivalent or AP credit): BIO 102, NRS 212, NRS 223, and MTH 131 or STA 308 or equivalent.

A letter of support for admission from the student's undergraduate advisor or the student's future major professor must be included as part of the application process. Students will be admitted to the M.E.S.M. degree program contingent on meeting all the admission requirements for the URI Graduate School. The GRE is not required for the M.E.S.M. program.

Additional information can be obtained by contacting the ABM in Natural Resources Science Program Coordinator Dr. Brett Still (bstill@uri.edu).

Minors in Natural Resources Science

The following minors are University-approved. Students may also design their own minors; see Minor Fields of Study.

GIS and Remote Sensing. Please see Environmental Science and Management for detailed information.

Global Water Resources. Please see Interdepartmental Minors for detailed information.

International Development. Please see Interdepartmental Minors for detailed information.

Restoration Science and Management: Please see Interdepartmental Minors for additional information.

Soil Environmental Science. Please see Environmental Science and Management for detailed information.

Wildlife and Conservation Biology. This minor field of specialization provides students in-depth training in the principles of managing wildlife populations and their habitats. Students who declare a minor in wildlife and conservation biology must complete at least 18 credits of NRS courses within the WCB major curriculum, at least 12 of these 18 credits must be at the 200 level or higher, and all courses in the minor must be taken for a letter grade. Students minoring in wildlife and conservation biology are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application. For information about the major in this program see above.

Health Sciences

INTRODUCTION

Gary Liguori, *Dean*

Deborah Riebe, *Associate Dean*

Brian Quilliam, *Associate Dean*

Cynthia Cruger, *Assistant Dean*

The College of Health Sciences, part of URI's Academic Health Collaborative, offers a broad and diverse range of majors and programs connected by a common theme – making a positive and lasting impact on the health and well-being of people of all ages. Our programs prepare students for careers in both clinical and non-clinical health fields, and provide ample opportunities for hands-on and interdisciplinary experiences. We focus on providing education and professional development to prepare students to meet today's needs and tomorrow's challenges in the field of health and wellness.

Degrees offered include a Bachelor of Science degree with majors in communicative disorders, health studies, human development and family science, kinesiology, nutrition and dietetics, and psychology; and a Bachelor of Arts degree in psychology. The College also offers Master of Sciences Degrees, including traditional and Accelerated Bachelors to Master Degree (ABM) options, and Ph.D. Degrees (in Health Sciences and Psychology).

For details on specific graduate program offerings in the College, see the Graduate School section of this catalog.

The college sponsors a number of organizations and activities that provide special opportunities for students, including two childhood development centers, a center for health and human performance, a family therapy clinic, a physical therapy clinic, a speech and hearing clinic, a psychological consultation center, and a supplemental nutrition assistance education program.

Minors.

Students can declare a minor, which will appear on the transcripts as a category separate from their major. See minor fields of study.

The college participates in the following interdisciplinary minors: gerontology, hunger studies, leadership studies, special populations, and thanatology (see interdepartmental minors section of minor fields of study). Details on minors offered within the college can be found later in this section.

For more information, visit uri.edu/chs

In case of discrepancies between this catalog and the departmental materials, this URI catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

FACULTY

Communicative Disorders:

Professor Kovarsky, chairperson. Professors Kovarsky and Mahler; Associate Professor Kim;

Assistant Professors Baron, Flippin, and Harwood; Clinical Assistant Professors Connors, Federman, and Smith; Teaching Professor Milner. Professor Emeriti Singer and Weiss.

Health Studies:

Associate Professor Greaney, chairperson. Associate Professors Cohen, Greaney and Sabik; Lecturer Nash.

Human Development and Family Sciences:

Professor S. Adams, chairperson. Professors S. Adams, Clark, McCurdy, Sparks, and Xiao; Associate Professors Branch, Brasher, Cadely, Kisler, Leedahl, and Porto; Assistant Professor Spivak; Lecturer Gruebel; Senior Lecturers Golas and Penhallow. Professors Emeriti J. Adams, Anderson, Maynard, Newman, and Schaffran.

Kinesiology:

Associate Professor Hatfield, chairperson. Professors Blissmer, Delmonico, Lamont, Liguori, and Riebe; Associate Professor Ward-Ritacco; Assistant Professors Adami, Chapman, D’Andrea, and Hartman; Teaching Professor Harper; Senior Lecturers Armstrong and Steen; Lecturer Crawford.

Nutrition and Food Sciences:

Professor Lofgren, chairperson. Professors Greene, Lofgren, and Melanson; Associate Professor Tovar; Assistant Professors Amin, Oaks, and Vadiveloo; Clinical Associate Professor Arts; Clinical Assistant Professor Missimer; Adjunct Professor Sebelia; Adjunct Associate Professor Pivarnik; Senior Lecturer Larson; Lecturer Koness. Professors Emeriti Caldwell, English, Fey-Yensan, Gerber, Lee, Patnoad, and Rand.

Psychology:

Professor Robbins, chairperson. Professors Boatright, Faust, Feldstein-Ewing, Flannery-Schroeder, Florin, Gorman, Harlow, Morokoff, Robbins, Robinson, Rogers, Rossi, Stein, Stoner, Walls, Weyandt, and Willis; Research Professor Redding; Associate Professors Harris and Spillane; Research Associate Professor Paiva; Assistant Professors Lopez-Vergara, Stamates, Weiss, and Yang. Research Assistant Professors Fede, Rodrigues-Guzman, and Skierkowski; Lecturer Webster; Professors Emeriti Brady, Bueno de Mesquita, Cohen, Collyer, Grebstein, Gross, Laforge, A. Lott, B. Lott, Prochaska, Quinn, Silverstein, Smith, Stevenson, and Willoughby.

Interdisciplinary Programs:

Gerontology—Professor Clark, director; and Leadership Studies—Melissa Boyd-Colvin, committee chair.

CURRICULUM REQUIREMENTS

General Education.

General education consists of 40 credits.

For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Field Work. Many of the college's academic programs require a supervised field work experience as part of the degree requirements. This experience is designed to provide students with the opportunity to apply classroom knowledge in a career-related setting. Placements are made in a wide variety of settings. Satisfactory completion of a required field experience depends on achievement of basic competencies established by the academic department in cooperation with the external agency. The University supervisor is responsible for determining whether or not the student has attained the required competencies and, in some cases, may extend the time required for the experience until the student's performance is satisfactory. If in the opinion of the University supervisor the performance of the student is unsatisfactory, and particularly if client/patient safety is at risk, the student may be removed from the field experience prior to the end of the semester or term.

Course Load. Approval of the dean is needed for a schedule of more than 19 credits per semester or more than six credits per summer session.

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

Curricular Modifications. In consultation with the advisor, and with approval of the department chairperson, a student will be permitted to modify the normal requirements of the department in which the student is majoring. The decision of the department chair is final. Requirements outside the major may be modified only with the approval of the Scholastic Standing Committee of the College of Health Sciences. Petition forms are available in the Office of the Dean. Minimum grade point average and total credit requirements cannot be petitioned.

Transfer Students. Transfer students should be advised that admission to some programs in the college requires meeting certain prerequisites or separate admission criteria.

Transfer students may be admitted to the University, but are not admitted directly into these programs with the exception of Human Development and Family Studies. Human Development and Family Studies does not require the one semester completion prior to admittance.

The plan for Early Contingent Admission to the Doctor of Physical Therapy Program in Physical Therapy requires careful and timely course planning typically beginning with the freshman year at URI. It is unlikely that transfer students will have the appropriate sequence of courses, including the prerequisites, that will allow them to take advantage of this option.

Students interested in any of the above programs should refer to the specific program descriptions and consult the department for additional information.

Graduation. It is the responsibility of each student to file an Intent to Graduate form and curriculum work sheet approved by his or her advisor in the Dean's Office. The deadline is October 1 for May graduation, November 15 for August graduation, and April 15 for December graduation.

COMMUNICATIVE DISORDERS

This curriculum leads to a Bachelor of Science (B.S.) degree. Students seeking admission to this program must have completed 24 credits, received a grade of C or better in CMD 160, 272, and 273 and maintained a minimum cumulative GPA of 2.50. In addition to general education requirements and appropriate free electives, there are 43 credits of required CMD courses plus nine credits of professional electives.

The required courses are CMD 160, 272, 273, 276, 278, 361, 375, 377, 454, 460, 465, and 493G; and WRT 106 and 201. The remaining nine credits (three courses) must be selected from the following courses: ASL 101, 102; COM 221; CMD 175, 440, 492, 494; EDC 312; HDF 200, 201, 203, 312, 314, 400; HIS 117; LIB 150, 250; LIN 200, 220; PSY 200, 232, 254, 388, 442; SOC 224; STA 220.

With careful early planning, students can use free electives to achieve a double major or explore special-interest areas in depth. Students should anticipate the necessity for graduate study in speech-language pathology or audiology. The typical minimum entry requirement for graduate study is a grade point average of 3.3.

A total of 120 credits is required for graduation.

Accelerated Five Year B. S. – M. S. Program in Speech-Language Pathology. For detailed information about this program see Speech-Language Pathology in the graduate section of this catalog

Doctoral Program in Health Sciences. The department also participates in the PhD in Health Sciences graduate program offering a group specialization in Communicative Disorders (see Doctorate in Health Sciences in the graduate section of this catalog).

HEALTH STUDIES

The interdisciplinary curriculum in health studies leads to a Bachelor of Science (B.S.) degree. The major is designed to prepare students for careers in public health, health promotion, health services management, for-profit companies, not-for-profit organizations, community-based health agencies, and departments of public health.

Students seeking admission to this program from another major or existing students transferring from University College for Academic Success to the College of Health Sciences must have completed 24 credits and have a minimum GPA of 2.50. Students majoring in Health Studies are required to earn a C or higher in HLT 200 and HLT 450. Students earning less than a C in HLT 200 or HLT 450 will be able to take the class one additional time.

Program Requirements. Students are required to complete the following core curriculum (120 credits):

1) At least 40 general education credits.

2) Core courses including BIO 101 and 103, or 105; CHM 100 or 103; COM 100, 202, 208, 210, or 251; HLT 100G, 200 (grade of C or higher required), and 450 (grade of C or higher required); KIN 122 and 123; MTH 103, 107, 108, 111, 131 or 141; PHL 101, 103 or 212 and 314; PHP 405; PSY 113; and STA 307, 308, or PSY 200; URI 100; WRT 104 or 106.

3) 18-24 credits (6 courses) from one of the following specializations: global and environmental health; health promotion; or health services. Specialization courses must be from three different disciples/departments, and four courses must be at the 300 or 400 level.

4) 25-31 credits of free electives. Twelve (12) credits of free electives must be at the 300 or 400 level.

Students select a specialization in one of the following three areas:

Global and Environmental Health. This specialization prepares students to address health concerns that transcend national boundaries. The goals of the curriculum are to foster critical thinking about world health problems and disparities; examine biological, social, economic, political, and environmental factors that influence global health; develop practical strategies and sustainable international partnerships to address major global health and environmental challenges; and inspire a commitment to real world change. Students select six courses from the following list. At least four courses must be at the 300 or 400 level. Courses must be selected from at least three different disciplines/departments: APG 319; AVS/ENT 390; BIO/ENT 286; BPS 201; COM/SUS 315; COM 361, 460, 461, 462; GCH 104; GWS 325; HLT 312; HLT/COM 320; HPR 319, 375; NFS 524; NRS 100, 411; NRS/CPL 300; NUR 160; PHL 454; PHP 201; PSC 113, 402, 403; WRT 303, 332, 388.

Health Promotion. This specialization is designed to prepare students for careers in fields whose primary emphasis is on facilitating individual, family, group, worksite, and community/population behavior change to promote healthy lifestyles and behaviors (e.g., increase exercise, cease smoking, manage stress). It also aims to improve life quality via the prevention and improve management of chronic illness and to help increase the length of life by reducing disease and increasing health-promoting behaviors. Students select six courses from the following list. At least four courses must be at the 300 or 400 level. Courses must be selected from at least three different disciplines/departments: BPS 201; COM 361; GWS 350, 351; HDF 200, 201, 357, 440, 450; HLT 312; HLT/COM 320; HLT/EDC 401; KIN 275, 325, 425; NFS 207, 212G, 276G, 360, 394, 395; PHP 201; PSY 255, 381, 460, 479; WRT 303, 332, 388.

Health Services. This specialization equips students with a range of skills necessary for careers in the health care industry, with an emphasis on preparing students for roles within the health care workforce of tomorrow that do not involve direct patient care. Graduates will: 1) possess foundational knowledge of human health and disease; 2) gain an awareness of and appreciation for how the current health systems serve those in need; 3) understand economic principles and forces that influence the efficiency of health care service delivery and administration; and 4) be capable of effectively communicating within organizations and with other stakeholders, orally and in written form. Students select six courses from the following list. At least four courses must be at the 300 or 400 level. Courses must be selected from at least three different disciplines/departments: BPS 201, 202; COM 351, 361, 402, 450, 461; ECN 201, 360; HLT 312; HLT/COM 320; HSA 360; MGT 341, 342; PHP 201; PSC/HDF 405; PSY 255; SOC 224; WRT 303, 306, 332, 388.

HUMAN DEVELOPMENT AND FAMILY SCIENCE

The curriculum in human development and family science (HDF) leads to a Bachelor of Science degree. HDF also offers a Master of Science degree with the following concentrations: Couple and Family Therapy, and Developmental Science. The M.S. in Developmental Science includes an Accelerated Bachelors to Masters (ABM) option for students enrolled in the Bachelor of Science in HDF degree, described below. The Master of Science program is described in the Graduate Program section of this catalog.

The undergraduate B.S. curriculum provides a general background for work with children, families, and adults with multiple practicum and internship opportunities. Many professions in human development and family science require academic work beyond the bachelor's degree for continuing professional work and advancement. Individuals with a baccalaureate degree are employed as professionals in preschools, early intervention programs, child care centers, senior centers, health institutions and hospitals, and in recreational, child guidance, social service, family financial services, and other community agencies.

Program student learning objectives: Graduates of the program in human development and family science will be able to explain individual and family dynamics using the ecological framework; use acquired knowledge, research skills, and creativity to identify and solve complex human science problems; use critical thinking skills to address complex problems; understand how human development and interactions are influenced by diverse contexts and cultures; and acquire and utilize knowledge and skills necessary for a professional position or graduate/professional training in the human development and family science field. A more detailed description of the student learning objectives can be found at the HDF program website: web.uri.edu/human-development/academics/b-s-program/learning-outcomes/.

Admission Requirements. Students seeking admission to this bachelor's degree program must have completed 24 credits and completed the following courses with an overall grade point average of 2.00 or better: HDF 200 or 201 and courses meeting each of the following general education requirements: A2. Social and Behavioral Sciences and B1. Write effectively.

Program Requirements. Students are required to complete the following core curriculum:

1) 18 credits of core courses: HDF 200, 201, 202, 205G, 230, and 357;

2) choose any two experiential education I courses from the following list (one from each grouping): either HDF 306 or 308; either 310, 312, or 314; all courses are 4 credits, with 1 credit consisting of a three hour weekly practicum.

3) HDF 381 (Pre-internship) to be taken in junior year or the semester before HDF 480/481.

4) at least eight credits of senior-level field experiential education II and seminar (maximum of 14 credits) in HDF 480/481; or, in special circumstances, and with the approval of the Department Chair, the OIEE Internship Program (see Center for Career and Experiential Education).

5) at least 6 credits in one of the following three concentrations:

Child and Family Development: 2 required courses, HDF 432 and 434.

Counseling and Social Services: 2 required courses, HDF 430 and 450.

Health and Aging Service: 2 required courses, HDF 431 and 440.

6) Nine (9) credits of HDF major elective courses. Experiential education I courses (HDF 306, 308, 310, 312, and 314) do not meet this requirement and only 3 credits may be at the 200 or lower level.

7) 24-30 credits of free electives as necessary to reach the 120-credit B.S. degree requirements.

HDF offers general education courses, including HDF 130G, 205G, 208, 225, 318G, 352G, 412, 414, 440, 381, 481, HDF/NUR 150, and PSC/HDF 405.

For information on transferring into this program, see "Transfer Students" earlier in this section.

Certified Family Life Educator (CFLE). Students may be eligible for provisional certification as a family life educator with the completion of the following courses: NUR/HDF 150; HDF 200, 201, 202, 205G, 230, 333, 430, 432, 434, 437, 450, 480/481. Provisional certification is awarded by the National Council on Family Relations, www.ncfr.org.

Accredited Financial Counselor (AFC) Certificate. Accredited Financial Counselor (AFC) is a certification offered by the Association for Financial Counseling and Planning Education (AFCPE). Students in the registered higher education program could have deep discounts in the exam fee. AFCPE also provides many opportunities Annual symposium, monthly webinars, online resources) for networking and career development. At URI's AFC program, students need to take two required courses: HDF418 (Personal Finance) and HDF451 (Financial Counseling and Debt Management). In addition, students need to register for AFC certification through AFCPE and pass the AFC certification exam. They need to acquire 1,000 hours of relevant financial counseling/education experience. They also need to sign and agree to abide by the AFC Code of Ethics. Students have three years to complete all requirements for the AFC certification.

Minor in Family Finance. Students outside the Department of Human Development and Family Science may declare a minor in family finance by completing 18 credits from any of the following: HDF 205G, 225, 318G, 418, 424, 434, 450, and 451. The overall URI minimum requirements for a minor apply (see minor fields of study).

A minimum of 120 credits are required for graduation.

ABM-Developmental Science Program. An accelerated Bachelor's to Master of Science Program is available through a competitive admissions process for students enrolled in the B.S. in Human Development and Family Science. Students who are admitted in the ABM-Developmental Science Program will have earned a Master of Science in Human Development and Family Science with a concentration in Developmental Science within two years; one extra year beyond earning their HDF Bachelor's degree.

Admission Requirements. 1) completion of a minimum of 75 credits towards an HDF Bachelor's degree, 2) having earned a current GPA of a 3.5 or higher, 3) completion of an undergrad-

uate level statistics course taken prior to the beginning of the program or during the first semester of the program, 4) two letters of recommendation each from an academic reference, 5) a current resume, and 6) a personal statement (750 word maximum) detailing why the student is a fit for this program and how can this program contribute to the students' professional development.

Should students be accepted in the ABM-Developmental Science program, they will be enrolled in this program once they have met the Graduate School admission requirements and have completed 90 undergraduate credits. Applications must be received by February 15. Applications received after that date will be reviewed on a space-available basis.

Twelve credits of approved graduate courses will be counted towards students' HDF Bachelor's degree and their Developmental Science Master's degree. With approval from the Graduate Director, students will be eligible to complete other graduate level courses during their undergraduate senior year while completing their undergraduate requirements.

Program Requirements. For both the Master of Science and the ABM-Developmental Science program, a minimum of 36 credits of approved graduate courses that include developmental seminar courses, a course in policy, a course in research methods, and a professional seminar must be completed. For students admitted in the ABM-Developmental Science program, 12 credits of approved graduate courses will be counted towards students' Bachelor's degree as well as their Developmental Science Master's degree. Furthermore, for both programs, students must complete a master's thesis as a requirement for earning their Master's degree. Students will also have the option of including up to three credits of a policy, an administrative, or a research internship as part of their program of study. Policies and requirements required of graduate students apply to students enrolled in ABM Programs. Please see additional requirements for the graduate portion of this degree program here.

Doctoral Program in Health Sciences. The department also participates in the Ph.D. in Health Sciences graduate program offering a group specialization in Human Development and Family Science (see Doctorate in Health Sciences in the graduate section of this catalog).

INTERDISCIPLINARY NEUROSCIENCE

Program Faculty

uri.edu/inp/people

Overview

The B.S. program is designed to provide you with a foundational understanding of the brain and the nervous system. Our interdisciplinary approach will provide you with knowledge in areas such as nervous system diseases and current therapeutic strategies, the cellular molecular biology of the nervous system, cognition and behavior. You'll have the opportunity to gain experience with a multitude of experimental approaches and techniques used to solve unanswered questions in the field of neuroscience.

There are three major options available for the B.S. degree:

a major in Clinical Neuroscience from the College of Health Sciences,

a major in Molecular Neuroscience from the College of Environment and Life Sciences, and

a major in Neuropharmacology from the College of Pharmacy.

The option for different majors is unique and makes URI truly distinct when it comes to undergraduate neuroscience education. The interdisciplinary nature of the program allows you access to a broad range of faculty with expertise in neuroscience research across the campus and the George and Anne Ryan Institute for Neuroscience.

Careers

Students who graduate with a B.S. in interdisciplinary neuroscience have an ever-growing choice of career options. These include graduate school in neuroscience, medical school, graduate programs in allied health professions; research positions in academic, government, biotech or pharmaceutical laboratories; and a variety of professional opportunities in science education, science writing, data science, and health care.

Requirements

The B.S. program requires a minimum of 120 credits for graduation: 40-43 preparation, 31-36 core, 40 general education, and 18 in your chosen major/track (clinical, molecular, or neuropharmacology).

To transfer out of University College for Academic Success and enter your selected degree granting college, you must complete a minimum of 56 credits of the following courses with a 2.0 GPA average: BIO 101/103, BIO 102/104, BIO 220/221, BIO 222/223, CHM 101/102, CHM 112/114, CHM 124 or 227, PHY 111/185, MTH 103/131, PSY 113, COM 100, WRT 104 or 106, URI 101, NEU 101, NEU 110, NEU 210, NEU 262, and NEU 230.

Preparation Courses

Preparation courses ensure that you have the background to be successful in the major and in applying to graduate and professional programs. (40-43 credits)

CHM 101/102: General Chem I/Lab (4)

CHM 112/114: General Chem II/Lab (4)

CHM 124: Introduction to Organic Chemistry OR CHM 227: Organic Chemistry (3)

MTH 131 (+MTH 103 if needed as prereq): Applied Calculus I (3)

BIO 101/103: Biology I/Lab (4)

BIO 102/104: Biology II/Lab (4)

BIO 220/221: Fundamentals of Anatomy and Physiology I/Lab (4)

BIO 222/223: Fundamentals of Anatomy and Physiology II/Lab (4)

WRT 104: Writing to Inform and Explain (3) OR WRT 106: Writing for Research

COM 100: Communication Fundamentals (3)

PSY 113: General Psychology (3)

URI 101: Introduction to URI (1)

Core Courses

The neuroscience core introduces you to the fundamental

concepts of brain and nervous system function, development, and disease. You will learn about research methods used in the field and apply that knowledge in experiential learning opportunities on- or off-campus. (31-36 credits)

NEU 101: Foundations of Neuroscience (3)

NEU 110: Neurosciences Seminar (1)

NEU 210: Neuroethics and Diversity (3)

NEU 262: Neuroscience Research Methods (4)

NEU 230: Neuroscience Professional Development (1)

NEU 301: Cellular and Molecular Neuroscience (3)

NEU 310: Developmental Neurobiology (3)

NEU 320: Clinical Neurosciences (3)

STA 307: Biostatistics (3)

PHY 111/185: General Physics I/Lab (4)

NEU 410: Experimental Neuroscience (1-6) OR ITR 302 & 304 (6)

NEU 460: Neurosciences Journal Club (1)- ITR 302 & 304 will earn students 6 credits. Cannot be taken for less. See advisor for more details.

General Education Courses

All students at URI are required to complete 40 credits of General Education courses, including all 12 outcomes of learning objectives. The following courses are required for the Interdisciplinary Neuroscience degree, and count towards General Education credit:

WRT 104: Writing to Inform and Explain (3) OR WRT 106: Writing for Research

COM 100: Communication Fundamentals (3)

CHM 101: General Chemistry Lecture I (3)

BIO 101: Principles of Biology I (3)

BIO 103: Principles of Biology Lab I (1)

BIO 102: Principles of Biology II (3)

BIO 104: Principles of Biology Lab II (1)

PHY 111: General Physics I (3)

PHY 185: General Physics I Lab (1)

MTH 131: Applied Calculus 1 (3) and MTH 103: Applied Pre-Calculus (3)(only if needed)

Clinical Neuroscience

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include Neuropharmacology in the College of Pharmacy, Molecular Neuroscience in the College of the Environment and Life Sciences, and Clinical Neuroscience in the College of Health Sciences.

INP students enrolled in the Clinical Neuroscience major will continue to take neuroscience courses as outlines in the B.S. in INP degree and will meet all graduation requirements as outlined in the B.S. in INP degree. To meet the requirements for graduation with the Clinical Neuroscience major within INP, students must complete 15 credits from the required Clinical Neuroscience Major Course list and 3 credits from the Clinical Neuroscience Major Electives list. Please see both lists below:

Clinical Neuroscience Major Course List: BPS/PSY 205G; BPS 321; CMD 280G; PSY 232, 254, 301, 381, 384, 385, 434; HDF 357; KIN 300.

Clinical Neuroscience Major Electives List: CMB 210; CMD 377, 492, 494; BPS 313, 401; PSY 261, 275, 460; PHP 336G, 405.

To learn more about the Clinical Neuroscience major, please visit the Interdisciplinary Neuroscience Program website here: https://web.uri.edu/inp/academics/b-s-program/clinical-track

Molecular Neuroscience

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include Clinical Neuroscience in the College of Health Sciences, Molecular Neuroscience in the College of the Environment and Life Sciences, and Neuropharmacology in the College of Pharmacy.

INP students enrolled in the Molecular Neuroscience major will continue to take neuroscience courses as outlined in the B.S. in INP degree and will meet all graduation requirements as outlined for the B.S. INP degree. To meet the requirements for graduation with the Molecular Neuroscience major within INP, students must choose 15 credits from the Molecular Neuroscience Major Course list and 3 credits from the Molecular Neuroscience Major Electives list. Please see both lists below.

Molecular Neuroscience Major Course list: CSC/DSP 310, CMB 311, 460, CMB/BIO 352, 341, 437, CHM 227, 226/228, CMB 460, and PHY 112, 186

Molecular Neuroscience Major Electives list: CMB 333, 312 OR 412, 320, 353, 435, 482, and BIO/CMB 452

To learn more about the Molecular Neuroscience major, please visit the Interdisciplinary Neuroscience Program website.

Neuropharmacology

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include neuropharmacology in the College of Pharmacy – Department of Biomedical and Pharmaceutical Science (BPS), molecular neuroscience in the College of the Environment and Life Sciences – Department Cell and Molecular Biology (CMB), and clinical neuroscience in the College of Health – Department of Psychology.

INP students enrolled in the neuropharmacology major will continue to take neuroscience courses as outlined in the B.S. in INP degree and will meet all graduation requirements as outlined for the B.S. INP degree. To meet the requirements for graduation with the neuropharmacology major within INP, students must complete 15 credits from the Neuropharmacology Major Course list and 3 credits from the Neuropharmacology Major Electives list. Please see both lists below.

Neuropharmacology Major Course List: BPS 313, 321, 345, 401, 432, 442; BPS/CMB 450; CHM 226 & 228, CMB 311, 426; BIO/CMB 437, and CMB 460.

Neuropharmacology Major Electives List: BIO 482G; BME 281, 307, 360; BPS 201, 402; BPS/PSY 205G, 436; CMB 464, 482; CMD 280G; NEU 502, 503; PSY/NEU 381; PHP 336G, 405, and 555.

To learn more about the Neuropharmacology major, please visit the Interdisciplinary Neuroscience Program website here: https://web.uri.edu/inp/academics/b-s-program/neuropharmacology-track

KINESIOLOGY

This curriculum leads to a Bachelor of Science (B.S.) degree. The major is designed for students who plan to pursue careers in exercise science or can be used to fulfill the prerequisites for students considering graduate degrees in other health care professions such as Physical Therapy, Occupational Therapy, Physician's Assistant, and other medical fields. The department offers a Master of Science degree in Kinesiology, including an Accelerated Bachelors to Masters (ABM) option, described below and in the Graduate Programs section of this catalog. Further, the department participates in the Ph.D. in Health Sciences graduate program offering a specialization in Kinesiology. Please see the graduate section of the catalog for more information.

The Department of Kinesiology offers up-to-date research and teaching facilities including laboratories for human performance, biomechanics and gait, metabolism, body composition, resistance training, plethysmography, bone density, health fitness, biochemistry, and youth fitness.

Students seeking admission to this program must have completed 24 credits, passed BIO 101 and have a minimum GPA of 2.0. Internal and external transfers may have additional requirements, and should consult with an advisor (internal transfer) or admissions (external transfer) for more information.

Kinesiology Options. Students are strongly advised to seek guidance from their advisor in planning their course of study and choosing a focus area in either the Pre-professional Track or Applied Track.

The Pre-Professional Track emphasizes basic sciences courses. This track is for students considering careers that require a strong foundation in the lab sciences. This track is appropriate for students pursuing health care professions such as physical therapy, chiropractic, medical doctor, or physician's assistant. The Applied Exercise Science Track promotes the understanding of the health benefits of physical activity and is designed for students interested in becoming an exercise physiologist, strength and conditioning specialist, occupational therapist or health coach. Career opportunities exist in corporate, community, commercial and hospital-based fitness and wellness centers. The Applied Exercise Science track will also prepare students for graduate study in clinical exercise physiology, cardiac rehabilitation, exercise science, health fitness, health promotion, preventive medicine and related fields.

All exercise science students will be prepared to become a certified professional in specialty areas including, exercise physiology, strength and conditioning and/or personal training. Students in Kinesiology are required to have a cumulative grade point average of 2.50 or higher before completing supervised field work.

Early Contingent Admission to URI Physical Therapy Program Option. This advanced specialization is designed for highly qualified students who have decided on a career in physical therapy and wish to attend the URI D.P.T. program. Students successfully following this track will be allowed to apply for the URI Doctor of Physical Therapy (D.P.T.) program during their junior year. Following acceptance, credits earned the first year in the physical therapy program will be used to complete the B.S. degree in kinesiology. Students admitted through this option to the D.P.T program complete 26 credits of required graduate level courses during their senior year. Early Contingent D.P.T students complete the same minimum of 112 credits applicable to the D.P.T program (26 credits completed as an undergraduate students and 86 credits completed as a graduate student). Students in this track must complete the following requirements to stay in this accelerated program: 1) complete the required course sequence and have a 3.20 or higher GPA at the completion of freshman year; 2) receive a minimum grade of 3.00 in BIO 220 and 221 3) complete the required course sequence and have a 3.30 or higher GPA at the completion of sophomore year; and 4) complete the required course sequence and have a GPA of 3.40 or higher following the first semester of the junior year. Students applying for early contingent admission must also complete all admission requirements set by the D.P.T. program (see Physical Therapy in the Graduate Programs section of this catalog). Admission to the D.P.T program is competitive and completion of this specialization does not guarantee admission into URI's D.P.T. program.

Degree Requirements. The following courses are required of all students in kinesiology: URI 101 (1 credit), 40 credits of general education, BIO 101, 103, 220, 221, 222, and 223; CHM 103; KIN 123, 275, 300, 301, 320, 325, 370, 390, 381, 420, and 484; COM 100; NFS 207; PSY 113; PSY 232, 235, 254, or 255; WRT 106; and one of the following professional electives from KIN 243, 369, 375G, 414; HLT 401; NFS 360; or PSY 255 (or other health related class). A total of 120 credits is required for graduation from exercise science and the early contingent physical therapy options. Specific requirements for the different degree options are listed below.

The pre-professional and applied tracks also require one of PSY 200, State 220, 307, or 308. The pre-professional track also requires CHM 105, 124, 126; CMB 210. Additionally, there are free electives. Students applying for a graduate program in physical therapy must also take the following classes as free electives: PHY 111, 185, 112, 186; and MTH 111. The applied exercise science track also requires KIN 125 and 425; and 2 professional electives (choose from KIN 243, 369, 382, 414, 475, 478, 479; NFS 360; PSY 255). Any student interested in graduate education should check programs of interest for prerequisites. Free electives can be used to satisfy those prerequisites.

The early contingent physical therapy program requires that the following classes be completed during the first five semesters of study: BIO 101, 103, 220, 221, 222, 223; CHM 103, 105, 124, 126; COM 100; KIN 123, 243, 275, 300, 301, 320, 325, 370; MTH 111; PHY 111, 185, 112, 186; PSY 200, STA 307 or STA 308; WRT 106. Other requirements include KIN 381, 420; NFS 207; and free electives. During the 7th and 8th semesters, the first year physical therapy graduate curriculum is followed.

Accelerated Five Year B. S. – M. S. Program in Kinesiology. An accelerated Bachelor's to Master of Science Program is available through a competitive admissions process for students enrolled in the B.S. in Kinesiology. Students who are admitted in the ABM-Kinesiology Program have the ability to earn a Master of Science in Kinesiology in one extra year beyond earning their Kinesiology Bachelor's degree.

Admission Requirements. For admission to the Accelerated Bachelor's to Master's (ABM) program in Kinesiology current undergraduate students in Kinesiology at URI must have 1) earned a minimum of 75 credits toward their Kinesiology

Bachelor's degree 2) have a current 3.2 GPA or higher, 3) two letters of recommendation from Kinesiology faculty and 4) attained 100 hours of experiential learning credits in a clinical, research or professional setting related to their Kinesiology professional goals. Students will be enrolled in the KIN-ABM program only after they have met the Graduate School admission requirements and have completed 90 undergraduate credits.

Program Requirements. Up to nine credits of approved graduate-eligible coursework can be counted toward both the Bachelor's and Master's degrees and the student will be eligible, with approval of the Graduate Director, to take other graduate-level courses during their senior year toward their Master's degree while completing undergraduate requirements. Students in the ABM program must meet the degree requirements for the M.S. degree in Kinesiology (see M.S. in Kinesiology in the graduate section of this catalog) and must also take KIN 592. Policies and requirements required of graduate students apply to students enrolled in ABM Programs. Please see additional requirements for the graduate portion of this degree program here. KIN-ABM students will be eligible to apply for a graduate teaching assistantship but preference will be given to students who are entering the traditional post-bachelor's degree M.S. in Kinesiology Program.

Doctoral Program in Health Sciences. The department also participates in the Ph.D. in Health Sciences graduate program offering a group specialization in Kinesiology (see Doctorate in Health Sciences in the graduate section of this catalog).

NUTRITION AND DIETETICS

This curriculum leads to a Bachelor of Science (B.S.) degree. This major prepares undergraduates for careers in nutrition-related fields. Two options, dietetics and nutrition, are available. The M.S. in Nutrition includes an Accelerated Bachelors to Masters of Science (ABM) option for students enrolled in the B.S. degree, described below.

The major requires 23 credits in sciences (four in general chemistry [CHM 103/105], four in organic chemistry [CHM 124/126], three in biochemistry [CMB 210], eight in biology [BIO 220/221; 222/223], and four in microbiology [CMB 201]), 4 credits in applied general nutrition (NFS 210), 4-7 credits in introductory professional courses (NFS 110 and 212 and/or 276); and 30-38 credits in the concentration including the following courses: NFS 336, 394, 395, 410, 440, 441, and 458 [capstone]. WRT 104, COM 100, and STA 220 are required and may be used to fulfill general education requirements. There are 9-18 credits of supporting electives and 8-11 credits of free electives. A total of 120 credits is required for graduation.

Students will be admitted to the nutrition and dietetics degree program after completing a minimum of 30 credits, including CHM 103/105, 124; BIO 220/221; NFS 210, 212G or 276G; WRT 104; COM 100; and STA 220. Students must have earned a 2.50 average in these classes with no less than a C in any one class to be admitted to the nutrition option, or a 3.00 average in these classes with no less than a C in any one class to be admitted to the dietetics option. Students may repeat NFS courses once. All students meeting the admission requirements for the dietetics option will be accepted.

Dietetics Option. This option is required of all students planning to become registered dietitians. URI's dietetics program is accredited by the Commission on Accreditation Council for Education in Nutrition and Dietetics (ACEND), 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606, 800.877.1600, ext. 5400; https://www.eatrightpro.org/acend/. Please see the department website for complete program information (https://web.uri.edu/nfs/). In addition to the core courses specified for the major, the following courses are required: NFS 337, 375, 376, 443, 444, and MGT 341. SOC 100 and PSY 113 are also required and may be used to fulfill general education requirements. Students must maintain a 3.00 average in all required courses (NFS courses, science courses, and the remaining degree courses), with no less than a C in any one class, in order to graduate. Students are encouraged to use supporting elective and free elective courses to study disciplines related to the field.

After completing their B.S. requirements, students can qualify for the professional title of Registered Dietitian by completing supervised practice requirements and passing a national exam. The supervised practice requirement is met by completing an ACEND-accredited dietetic internship program available to students on a competitive basis nationwide. Admission to internship programs is highly competitive; students are encouraged to review the latest admission information on the Academy of Nutrition and Dietetics website (https://www.eatrightpro.org/acend/students-and-advancing-education/information-for-students). Internships may be combined with graduate programs in universities leading to an advanced degree. Students who complete the academic and supervised practice requirements are eligible to take the national registration examination.

Nutrition Option. This option is for students who want to study nutrition but do not plan to become registered dietitians. There are three tracks available which provide focused training in specific areas of nutrition:

Nutrition Science—designed for students who want to study the science of nutrition and use this background for advanced study in the field or admission to professional health programs. In addition to the core, students will complete NFS 337, 491, and one additional NFS course based on their area of interest.

Health Promotion—designed for students who want to work with the public in preventative health education programs. In addition to the core, students will complete NFS 360, 443, and 444.

Foods—designed for students who want to work in food service management, food safety, or food sustainability. In addition to the core, students will complete NFS 337, 375, and 376.

Students must maintain a 2.50 average in all required courses (NFS courses, science courses, and the remaining degree courses) in order to graduate. Students are encouraged to use supporting elective and free elective courses to study disciplines related to the field.

Accelerated Five Year B. S. – M. S. Program in Nutrition and Food Science. The Accelerated B.S. to M.S. Program in Nutrition allows students to complete a bachelors degree and a masters degree in 5 years. Students will complete the B.S. degree by the end of their senior year, and then complete the M.S. degree requirements in the fifth year. The B.S. degree requirements are the same as for the students completing

the degree over 4 years with the exception that they can take NFS 553 (Nutrient Metabolism I) and NFS 554 (Nutrient Metabolism II) in place of NFS 440 (Macronutrient Metabolism) and NFS 441 (Micronutrient Nutrient); the M.S. degree requirements are the same as for students completing the M.S. degree over two years.

Admission Requirements. B.S. in Nutrition students can competitively apply for program admission in the fall semester of the junior year, and will be notified of acceptance in the spring of that year. To apply, students must have completed the following (with no grade in any one class less than a C) by the Fall semester of the junior year: CHM 103/105, 124/126; BIO 220/221 (BIO 121), 222/223 (BIO 242); CMB 210; and NFS 210, 212G, 394, 395. To apply students must have a minimum of a 3.0 GPA in required science courses (BIO, CHM and CMB) and must also have a minimum 3.2 GPA in the required NFS courses. A letter of support for admission from the identified future major professor must be included as part of the application process. In addition, students will be admitted to the M.S. degree contingent on meeting the M.S. in Nutrition admission requirements

Program Requirements. Students in the ABM program may double count up to 10 credits for the B.S. and M.S. degrees. The M.S. program includes a thesis that allows students to gain experience in the research process. Policies and requirements required of graduate students apply to students enrolled in ABM programs. For detailed information about the M.S. requirements of this program see Nutrition and Food Sciences in the graduate section of this catalog.

Doctoral Degree in Health Sciences. The department also participates in the Ph.D. in Health Sciences graduate program offering a group specialization in Nutrition and Food Sciences (see Doctorate in Health Sciences in the graduate section of this catalog).

PSYCHOLOGY

The Department of Psychology offers a Bachelor of Arts (B.A.) degree, a Bachelor of Science (B.S.) degree, and a minor in psychology. The department also offers the Master of Science Degree in School Psychology (M.S.)* and provides three doctoral programs in Behavioral Science, Clinical Psychology, and School Psychology* (Ph.D. degrees). For details on these programs of study, see the Graduate School section of this catalog.

*As of Fall 2018, admission to the M.S. School Psychology Specialization and the Ph.D. School Psychology Specialization has been suspended.

Students majoring in psychology typically go on either to pursue a career at the bachelor's level or study for an advanced degree. In both cases, students should consult the department's web site (uri.edu/psychology) and their academic advisor to select the appropriate degree option and the appropriate courses for their interests and goals.

Program Requirements. Students who must repeat a course to meet the minimum grade requirements may use only three credits of that particular course toward graduation.

For either the B.A. or the B.S. degrees, a total of 120 credits is required for graduation.

The Major

BACHELOR OF ARTS

The B.A. degree in Psychology provides students with a solid academic preparation through an overview of the current areas in the field of Psychology. Student gain a better understanding of human behavior and an enhanced awareness of themselves and society, as well as skills for analyzing and evaluating information and data. Students in this program must complete a minimum of 32 credits (maximum 47) in Psychology.

In order to transfer from University College for Academic Success to Health Sciences as a psychology major (or to be coded as such in the College of Health Sciences), a student must have completed 24 credits, have a C or better in PSY 113; a C average in two of the following courses: PSY 232, 235, and 254; and a C in PSY 200.

Psychology majors are required to complete a minimum of 32 (maximum 47) credits in psychology courses to be distributed as follows: PSY 113 (with a grade of C or better); a minimum of two courses from PSY 232, 235, and 254 (with a C average); both PSY 200 (300) and PSY 301 (with a grade of C or better in each); a minimum of three topics courses (9 credits) from PSY 255, 310, 324, 335, 361, 381, 384, 385, 399, 425, 432, 434, 436, 442, 460, 464, 470, 479, and 480 (the average in the three courses must be C or better); a minimum of one course (3 credits) in the applied knowledge area to be selected from PSY 103, 261, 275, 324, 334, 340,399, 465, 466, 471, and 478 (with a C or better); a minimum of one course (at least three credits) from the experiential practice and/or internships area selected from PSY 305, 473, 488, 489, 499; EDC 484; ITR 301, 302; CSV 302, with a C or better in graded courses or a satisfactory in S/U courses. A particular course can only be used to satisfy one required program area (topics courses or the applied knowledge area). A minimum of 32 graded psychology (PSY) credits (not S/U) are required for the psychology major. Once 47 credits in psychology courses are taken, additional psychology credits will not count toward the 120 total credits required for graduation. Students pursuing the B.A. degree must complete 42 of the 120 credits required for graduation at the 300-level or higher.

BACHELOR OF SCIENCE

The B.S. degree in Psychology requires additional credits in natural science and mathematics, more of a focus on research and statistics, and an area of specialization to more adequately prepare students for advanced work in graduate school. Students in this degree program must complete a minimum of 38 credits for the psychology major. In order to transfer from University College for Academic Success, a student must have completed 24 credits; and PSY 113, PSY 232, and PSY 200 (or STA 307 or 308) with grades of C or better.

Furthermore, students must take two math classes (choosing from the following: MTH 103, 107, 111, 131, 132, 141, 142, or 215). MTH 131 and MTH 141 are recommended for students pursuing graduate degrees requiring advanced math. Students must take a research writing class (WRT 106, WRT 104, or WRT 332), and must take BIO 101 with lab (concurrent enrollment in BIO 103) or BIO 105.

In the area of research methods, students must take PSY 200 (or STA 308), PSY 301, PSY 434, and a special section of STA 412 (or PSY 435) offered for Psychology majors. They must

also take PSY 489 to gain research experience. A minimum grade of C is required for each of the research methods and research experience courses. In addition, students must choose at least three courses from a selected focus area. Child Psychology/School Psychology Focus: PSY 432, 442 466, 471, 340 (Introduction to School Psychology); PSY/SOC 430. Cognitive/Neuroscience Focus: PSY 361, 384, 385, 432 (cognitive topic), 479 (cognitive topic). Health/Clinical Psychology Focus: (note that two of the three courses must be at the 300+ level) PSY 254, 255, 275, 334, 335, 436, 460, 479 (Health Promotion Topic). Social/Multicultural Psychology Focus: PSY 324, 335, 399, 425, 470, 480. For the courses in the focus area, a minimum of a C average is required. Students also must take Physiological Psychology (PSY 381) with a required minimum grade of C and one course from a focus area other than the main focus area selected by the student, also with a required minimum grade of C. Overall, a grade point average of 2.5 is required for all Psychology courses.

The Minor. The minor in psychology requires completion of 18 or more credits in psychology courses. These credits must include PSY 113. Only three credits in experiential courses for letter grades (i.e. PSY 305, 473, 488, or 489) may count towards the minor. The quality point average in psychology courses must be at least 2.00 or above. At least 9 of the 18 credits (three courses) must be taken at URI. General Education credits may be used for the minor, but no course may be used for both the major and minor field of study. Courses for the minor cannot be taken pass/fail or S/U.

Nursing

INTRODUCTION

Barbara Wolfe, Dean

M. Katherine Hutchinson, Associate Dean for Graduate Programs and Research

Mary Leveillee, Associate Dean for Undergraduate Programs

Jessica Boisclair, Assistant Dean

The College of Nursing, part of URI's Academic Health Collaborative, offers a curriculum leading to the Bachelor of Science (B.S.) degree. The College also offers the Master of Science (M.S.), Doctor of Nursing Practice (D.N.P.), and Doctor of Philosophy (Ph.D.) degrees, as well as a Post-Master's Certificate.

The College of Nursing also offers a Minor in Thanatology. * *As of Fall 2021, admission to this program has been suspended*. For information on this interdisciplinary minor dealing with loss, death, and grief, see Thanatology in the interdepartmental minors section of "Minor Fields of Study."

The Baccalaureate degree in Nursing, Master's degree in Nursing, Doctor of Nursing Practice, and/or post-graduate APRN certificate at the University of Rhode Island is accredited by the Commission on Collegiate Nursing Education: aacnnursing.org/CCNE.

In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

FACULTY

Professors Burbank, Dufault, Hutchinson, Martins, Rambur, Sullivan and Wolfe; Associate Professors Coppa, DeSanto-Madeya, DiTomasso; Assistant Professors D'Agata, Jennings, Lee, Lieberman, Lopez, Magan, Mammen and Wojeck; Clinical Associate Professors Carley, Dugas, Lavin, Leveillee, and Stout; Clinical Assistant Professors Basley, Berry, Cloud, Dassie, Ellis, Fuvich, Hutson, McGrane, Palmer and Sackett; Research

Professor Arcoleo; Research Assistant Professor Maestri; Professor Emerita Ferszt, Joseph, Kim, McGrath, Miller and Schwartz-Barcott; Associate Professors Emeriti Feather, Erickson-Owens and Godfrey-Brown, Hames, Viau, and Yeaw; Clinical Professor Emerita Mercer;

Clinical Associate Professor Doyle-Moss; Clinical Assistant Professor Emerita, Evans, and Palm.

For more information, visit uri.edu/nursing or call 401.874.2766.

NURSING (4-YEAR B.S.)

URI's baccalaureate nursing program is designed to prepare students academically and personally to become professional nurses. It aims to develop knowledgeable, compassionate, and insightful graduates who are poised to become leaders in healthcare delivery. As future clinicians and scholars, the URI Baccalaureate nursing student will be vested in foundational

theory and contemporary practice while being given the opportunity for clinical experiences with individuals, families, and communities, across populations, both locally and globally.

Nursing is the largest discipline in healthcare delivery and our program prepares students for collaborative, interdisciplinary, practice. Working with faculty who are expert clinicians, scholars, and innovators, students will be challenged to have a deep appreciation of factors that impact patient wellbeing and forward creative, contemporary approaches in patient-centered care.

Prelicensure graduates are eligible for examination for professional licensure as a registered nurse (R.N.).

First-Year Students, with no previous college study, are admitted to University College for Academic Success with a major in nursing. After completion of the pre-requisite courses (BIO 220, 221, 222, 223, CHM 103, 124, NUR 100, WRT 104 or 106) with a minimum grade of C or higher in each course and 3.00 overall grade point average, students will be considered for transfer into the College of Nursing and the clinical course sequence. Seats are limited and competitively granted based on GPA. Please see the College of Nursing Student Handbook for a full description of the entry process: uri.edu/nursing.

Progression and Graduation Requirements

Students are required to achieve a C or higher in all NUR courses and all prerequisite courses. In addition, students must maintain a minimum GPA of 2.2 to progress through and graduate from the College of Nursing.

Students who achieve less than a grade of C must repeat the course, obtaining a C grade or higher, before progressing in the nursing curriculum. Permission to retake the course will be granted on a space-available basis only. Even if successfully repeated, the initial grade remains on record as the first unsuccessful attempt. There are no further allowances for repeating a NUR course, and any subsequent NUR coursework of C- or below will result in dismissal. If the student should achieve a C- or less in two NUR courses in a single semester, he or she will be immediately dismissed from the College of Nursing. Refer to the College of Nursing Student Handbook for detailed policies.

A total of 120 credits is required to earn a B.S. in Nursing. This includes program specific courses as well as general education requirements.

Curriculum Requirements

Required Nursing Courses. The following 64 credits are required: NUR 100, 203, 208, 213, 233, 234, 243, 253, 313, 314, 333, 334, 353, 354, 412, 413, 415, 417, 443 and 444. A grade of C or higher is required in each of these courses.

Other Required Courses: CMB 201 (4); NFS 207 (3); STA 220 (3) are required for future nursing courses. A grade of C or higher is required in each course.

General expenses are approximately the same as for other University students. On-campus Nursing students pay a professional fee which covers special items such as academic achievement testing, and lab fees for each clinical course. The use of an automobile or funds to meet public transportation costs is required for clinical experiences. Students must maintain car insurance as required by state law.

General Education Requirements

All College of Nursing students must meet the University's General Education Program requirements.

General Education. General education consists of 40 credits. For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

NURSING (R.N. TO B.S.)

The University of Rhode Island College of Nursing's R.N. to B.S. program is dedicated to providing an education that will broaden your view of the world and create opportunities to transform healthcare in your own community. Building upon your clinical experience, the R.N. to B.S. program expands your scientific knowledge base, giving you a set of skills that allows you to integrate clinical practice, scientific inquiry and critical, creative thinking. You'll graduate fully prepared for a whole new world of healthcare opportunities.

The College of Nursing offers both online and on-campus options. The on-campus option is in collaboration with The Office of Strategic Initiatives only.

A) R.N.–B.S. On–Campus: Admission requires students to complete a diploma or associate degree nursing program with a 2.6 GPA and have an active Rhode Island R.N. license. Once admitted, a criminal background check and up-to-date health records will be required. All continuing students must have and maintain an active Rhode Island nursing license and malpractice insurance in order to complete clinical courses.

B) R.N.-B.S ONLINE:Admission requires students to complete a diploma or associate degree nursing program with a 2.6 GPA and have an active R.N. license, which must be maintained for the duration of the program.

Progression and Graduation Requirements

Students are expected to achieve a C or higher in all required courses. In addition, students must maintain a minimum GPA of 2.2 to progress through and graduate from the College of Nursing.

Students who achieve less than a grade of C must repeat the course, obtaining a C grade or higher, before progressing in the nursing curriculum. Permission to retake the course will be granted on a space-available basis only. Even if successfully repeated, the initial grade remains on record as the first unsuccessful attempt. There are no further allowances for repeating a NUR course, and any subsequent NUR coursework of C- or below will result in dismissal. If the student should achieve a C- or less in two NUR courses in a single session or semester, he or she will be immediately dismissed from the College of Nursing.

A total of 120 credits is required to earn a B.S. in Nursing. This includes program specific courses as well as general education requirements.

R.N. TO B.S. DEGREE

On-Campus required courses: BIO 220 (3), 221 (1), 222 (3), 223 (1); BPS 333 (3); CMB 201 (4); STA 220 and WRT 104 or 106 (3); as well as 18-19 credits of nursing courses as follows: NUR 246, 253, 346, 443, 444, and 446 or 503, (with permission of instructor). A grade of C or higher is required in each of these courses.

Online required courses: BIO 220 (3), 221 (1), 222 (3), 223 (1); BPS 333 (3); CMB 201 (4); STA 220 and WRT 104 or 106 (3); as well as 18 credits of nursing courses as follows: NUR 247, 253, 347, 443, 444, 447. A grade of C or higher is required in each of these courses.

GENERAL EDUCATION REQUIREMENTS

All College of Nursing students must meet the University's General Education Program requirements.

General Education. General education consists of 40 credits. For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

Pharmacy

INTRODUCTION

E. Paul Larrat, *Dean*

Katherine K. Orr, *Associate Dean*

Denise Gorenski, *Assistant Dean*

Entering freshmen are admitted to URI's six-year entry-level Doctor of Pharmacy (Pharm.D.) degree or the 4-year Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) degree. The college, part of URI's Academic Health Collaborative, also awards two graduate degrees: the Master of Science (M.S.) and the Doctor of Philosophy (Ph.D.) in pharmaceutical sciences, offered by both departments: Biomedical and Pharmaceutical Sciences and Pharmacy Practice.

For more information, visit uri.edu/pharmacy or call 401.874.5888.

In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

FACULTY

Biomedical and Pharmaceutical Sciences: Professor Seeram, chairperson. Professors Akhlaghi, Chichester, Cho, Deng, King, Robinson, Rowley, Slitt, Snyder, Van Nostrand, and Zawia; Associate Professors Chen, Kovoor, Li, and Meenach; Research Professor Katz; Assistant Professors Achour, Bertin, Clements, Fallini, Ghonem, Manuel, Menon, Quinlan, Ramsey, Ross, and Shen; Research Assistant Professors Alber, Coppotelli, and Hemme; Lecturers Allababidi and Forschner-Dancause; Professors Emeriti Kislalioglu, Lausier, Rodgers, Rosenbaum, Shaikh, Swonger, and Zia.

Pharmacy Practice: Professor LaPlante, chairperson. Professors Barbour, Cohen, Dufresne, Hume, Kogut, Larrat, Quilliam, Taveira; Clinical Professors Bratberg, Charpentier, Estus, Feret, Jacobson, MacDonnell, Marcoux, Matson, Orr, Pawasauskas, and Ward; Research Professor Taylor; Associate Professor Caffrey; Clinical Associate Professors Asal, Eisenhower, and Lemay; Assistant Professors Buchanan, Vyas, and Wen; Clinical Assistant Professors Brothers and Brown; Senior Lecturers Chichester and Kelly; Professor Emeritus Owens.

ADMISSION REQUIREMENTS

Each admission candidate is given individual consideration. However, a minimum of 18 units of college (secondary school) preparatory work are expected:

4 in English

3 in algebra and plane geometry

2 in a physical or natural science

2 in history or social science

2 in the same foreign language

5 additional units to total 18

Successful candidates typically have high grades in science and mathematics, do well in SATs or ACTs, and often have earned advanced placement or college credit while in high school.

READMISSION REQUIREMENTS

Students who have been dismissed, have withdrawn, or taken a Leave of Absence for longer than 2 consecutive semesters from the College of Pharmacy can seek readmission following University policies and procedures (web.uri.edu/enrollment/readmission/). All students requests for readmission will be evaluated by the Dean of the College of Pharmacy whose decision shall be final. The Dean may consult with the Scholastic Standing committee when students were dismissed for academic reasons and/or the Professionalism Committee when dismissal is related to misconduct. All students seeking readmission will be required to provide an application, all academic transcripts from other institutions since last enrollment at URI, and a personal statement outlining the reason for requesting readmission. The personal statement should address changes made to address previous academic performance and/or the resolution of disciplinary actions since dismissal/withdrawal from the College. Students applying for readmission to the Pharm.D. program may be asked to provide documentation of their ability to meet program Technical Standards (uri.edu/catalog/doctor-of-pharmacy-pharm-d) and eligibility for licensure as a pharmacy intern in the state of Rhode Island. Non-native English speakers must re-sit for the TOEFL or IELTS before applying (within 90 days) for readmission and meet program specific minimum requirements.

International students who do not meet this requirement at the time of readmission will be denied. Readmission is not guaranteed. Students readmitted may be conditionally readmitted and may be placed on probation for at least two consecutive semesters.

GENERAL EDUCATION REQUIREMENTS

General Education. General education consists of 40 credits. For more details regarding General Education, please go to the Academic Requirements and Policies section of this catalog.

STUDY ABROAD AND INTERNATIONAL EXPERIENCES

The College of Pharmacy encourages students to take advantage of academic related experiences that allow for international travel and exposure to global opportunities. These opportunities can occur during the J-term, summer sessions or during the regular academic year (fall or spring semesters). Study abroad opportunities will be limited to one semester and require careful planning by students in conjunction with academic advisors. Students may need to take summer coursework to allow for a study abroad opportunity during the academic year.

In the Pharm.D. program, study abroad during the regular academic year is restricted to the pre-professional curriculum and requires all pre-requisite coursework to be successfully completed prior to the experience. J-term course experiences provide more flexibility and the 1-term limit does not apply to these course opportunities. Students requesting longer study abroad experiences (e.g. 1 year) must submit a written request to the Dean of the College of Pharmacy requesting an exemption from the 1 semester limit; waivers are not guaranteed.

Further, all students wishing to study abroad or participate in a J-term experience must comply with all University policies and secure the necessary approvals before participating in such experiences. Non-native English speakers who study abroad for more than 1 semester must re-sit for the TOEFL or IELTS (within 90 days of the semester of return) and meet program specific minimum requirements.

B.S. IN PHARMACEUTICAL SCIENCES (B.S.P.S.)

The four-year program offers students a solid foundation in the basic sciences and expertise within the pharmaceutical and biomedical sciences. It is designed to provide educational and training experiences that prepare students for careers in the pharmaceutical, consumer product, and biomedical industries. Graduates of the B.S.P.S. program will be qualified to seek a diverse range of career options that include: research and development, manufacturing, product marketing, sales, quality, and administrative positions within the pharmaceutical industry; research and regulatory oversight careers within government agencies; and research and teaching positions in academia. As a prelude to many of these career opportunities, the program prepares students for graduate studies in the expanding fields of pharmaceutical and biomedical sciences.

The science component of the curriculum is consistent with the admission requirements of many basic science graduate programs and professional schools. Pharmaceutical Sciences courses offered in the third and fourth year are taught by Department of Biomedical and Pharmaceutical Sciences (BPS) and Department of Pharmacy Practice (PHP) faculty. They provide solid, fundamental training in the pharmaceutical sciences. Students have the option to tailor their academic program to prepare them for the specific career paths that they choose by substituting up to 12 credits of B.S.P.S. courses with pre-approved Professional Electives toward the 120 credits required for the degree. At least 6 of the 12 credits of Professional Electives must be under BPS, PHP, or PHC course codes. The Associate Dean, in consultation with the BPS Department Chair and the B.S.P.S. Program Director, will maintain a list of approved Professional Electives so that the list can be updated regularly to reflect new and obsolete courses. The four-year curriculum provides education and training comparable to that offered by similar B.S.P.S. programs, and conforms to University credit requirements for four-year degree programs.

Curriculum Requirements

A total of 120 credits is required for graduation. The curriculum can be described in three distinct components. One component consists of University General Education which is required of all University graduates. The second component consists of science and mathematics pre-requisite courses that will deliver a firm foundation in the life and physical sciences, and satisfy admission requirement for many basic science graduate programs and professional schools. The third component is the B.S.P.S. upper level courses and labs in the major offering students a strong, basic, and applied understanding of the pharmaceutical and biomedical scienc-

es. Within the third component, students have the option to tailor their academic program to prepare them for the specific career paths that they choose by applying up to 12 credits of pre-approved Professional Electives toward the 120 credits required for the degree. At least 6 of the 12 credits of Professional Elective credits must be under the BPS, PHP, or PHC course codes.

First Year

First Semester: 15-16 credits

CHM 101 (3), 102 (1); BIO 101 (3), 103 (1); COM 100 (3); URI 101 (1); and MTH 103 or 111 (3) OR general education course (3-4).

Second semester: 14 credits

CHM 112 (3), 114 (1); BIO 220 (3), 221 (1); MTH 131 (3); and WRT 106 (3).

Second Year

First Semester: 15 credits

BPS 250 (1); CHM 227 (3); CMB 201 (4); BIO 222 (3), 223 (1); and ECN 201 (3).

Second semester: 16-17 credits

CHM 228 (3); CMB 311 (3); STA 307 OR 308 (4); one general education course (3-4); and BPS 345 (3).

Third Year

First Semester: 16-17 credits

BPS 301 (2); 315 (4); 313 (2); 401 (3); CHM 226 (2); and one general education course (3-4).

Second semester: 15-16 credits

BPS 306 (2); BPS 325 (2); 402 (3); 425 (3); 443 (2). BPS 498 (3); or one Professional Elective (3-4); or one general education course (3-4).

Fourth Year

First Semester: 15-18 credits

BPS 442 (2); 451 (4); two Professional Electives (6-8); and one general education course (3-4)

Second semester: 12-17 credits

BPS 445 (3) or Professional Elective (3); BPS 446 (3) or Professional Elective (3); Professional Elective (3); and one to two general education course (3-8)

Progression, Retention, and Graduation Requirements

B.S.P.S. students request transfer from University College for Academic Success to the College of Pharmacy during the semester in which they are enrolled to complete all science and mathematics pre-requisite courses (BIO 101, 103, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, and 228; CMB 201 and 311; MTH 131 or 141; and STA 308 or 307). Transfer requests will be reviewed and acted upon after grades are posted for the enrolled courses.

Only those students having an equal or greater than 2.30 grade point average in the required pre-requisite courses (BIO 101, 103, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, and 228; CMB 201 and 311; MTH 131 or 141; and STA 308or 307), and an overall cumulative grade point average of 2.00 or above will be admitted to the College of Pharmacy for the B.S. Pharmaceutical Sciences degree. Applicants not meeting the criteria will not be considered for admission to the college.

Professional Electives

B.S.P.S students must complete 12 credits of Professional Electives that allow for more focused knowledge and improved skills in an area of interest to the student. At least 6 credits must be from a BPS, PHC, or PHP course code.

The following specific courses in the College may be used to meet the Professional Elective requirement for the B.S.P.S. degree: BPS 311, 436, 445, 446, 450, 455, 530, 533, 542, and 546; PHC 502, 520; PHP 405, 422, 540, 550. 580, and 685. Students may also take special problems, independent study, and study abroad courses (a maximum of 6 credits) by enrolling in BPS 497/498 or ITR 301/302/303 and HPR 401/402.

The following specific courses outside of the College (up to a maximum of 6 credits) may be used to meet the Professional Elective requirement for the B.S.P.S. degree: BIO 341, 352; BUS 315, 341, 342, 365; CHM 425, 427; CMB 320, 333, 334, 352, 437, 482, 435.

Other 300-level courses may be counted toward the 12 credits of Professional Electives with prior approval from the Dean of Student and Academic Affairs.

COMBINED DEGREES

Working in collaboration with the College of Arts and Sciences, B.S.P.S. students can earn a second degree (B.A.) in a foreign language while in the College of Pharmacy. Earning the two degrees extends the program of study from 4 years to 5 years and includes an international year of study abroad where the student takes general education, language, and field experience courses in the pharmaceutical sciences. Upon graduation, students are able to compete in the global marketplace and are fluent in a second language. Present opportunities exist for experiences in Italy and Germany.

Accelerated B.S. to M.S. non-thesis Program in Pharmaceutical Sciences (ABM non-thesis Pharm Sci)

The Accelerated B.S. to M.S. Program in Pharmaceutical Sciences (ABM non-thesis Pharm Sci) offers qualified, focused students the opportunity to complete both a bachelor's degree and a master's (non-thesis) degree in 5 years. Students will apply for the ABM non-thesis Pharm Sci during Fall semester of their 3rd year of study. Students will first complete the B.S. degree requirements with conferral of the B.S. degree after 3.5 – 4 years of study, and then must complete the M.S. degree requirements by the end of the 5th year of study. It is expected that at least one summer prior to the 4th or 5th year of study will entail full-time research, internship or other work to support the Capstone project.

Degree Requirements

The B.S. degree requirements are the same as for students completing the degree over four years; the non-thesis M.S. degree requirements are outlined in the graduate section of this catalog. The ABM program allows students to double count up to 10 credits towards both the bachelor's and master's degrees. Only 500-level courses and 400-level courses designated for graduate credit are eligible to be double-counted. The non-thesis M.S. degree program includes a Capstone Project in order to gain experience in the research process or in a pharmaceutical company. The M.S. Capstone Project (e.g. major paper, written technical report, review article) must be

evaluated and approved by the same criteria in place for the non-thesis M.S. Please see the 5-year advising plan for course selection.

ABM Admission and Progression Requirements

Students will apply for the program during the fall semester of the 3rd year, and will be notified of acceptance in the spring of that year with the following requirements:

Completion of a minimum of 60 credits including all of the College of Pharmacy prerequisite courses and requirements to transfer to the Degree Granting College, with a minimum 3.0 GPA in the science and math pre-requisite courses, by the beginning of the 3rd year of study (Fall of Junior year).

Be enrolled in all of the B.S. required courses for Fall of the 3rd year of study: BPS 301, BPS 313, BPS 315, BPS 345, BPS 401.

Submit a letter of support for admission from a member of the Graduate Faculty within the College.

Submit a letter of interest from the applicant.

Students will be admitted to the ABM (non-thesis) contingent on meeting the requirements listed above and on a space-available basis. Meeting the minimum requirements for admission does not guarantee acceptance into the ABM.

CANNABIS STUDIES UNDERGRADUATE CERTIFICATE

Faculty

Professor Seeram, Assistant Professor Bertin, Lecturer Allababidi; Lecturer and Program Director Forschner-Dancause

The rapidly expanding cannabis industry requires a specialized knowledge base. Cannabis job growth is outpacing the healthcare and tech sectors. With the growth in this industry, regulations to protect consumer safety increase along with the demand for highly skilled professionals. The online Certificate in Cannabis Studies is designed to meet the needs of students who are participating in this rapidly evolving industry. This certificate program encourages participation of individuals who may not have a background in science. The 7-week online nature of the program is flexible to accommodate students nationwide as well as working professionals.

The online Certificate in Cannabis Studies will consist of 4 three-credit courses. The first course provides foundational knowledge to help students in the subsequent classes by providing key chemical and pharmacological principles. The remaining three courses develop core competencies in natural product separation and analysis, safe product development and manufacturing, and evaluation of therapeutic uses for cannabis.

Students who complete the Certificate in Cannabis Studies will have the skills and knowledge for employment in sales, dispensary management, laboratory technician roles, quality compliance, and product development and manufacturing. This certificate program will also help clinicians and caregivers who counsel patients as well as investors, entrepreneurs, and policy makers who have a need to better understand the science and technology of cannabis. For more information please see the web site https://web.uri.edu/online/programs/certificate/certificate-in-cannabis-studies/

Admission

Potential students who are not current or past students at the University should contact The Student Contact Support Center for admission. Previous students from URI should submit an application to the Office of Student and Academic Affairs at pharmacol@etal.uri.edu. This application should include a curriculum vitae, copy of unofficial transcripts, and a personal statement describing their interest in the certificate program.

Program of Study

BPS 206 (3), 312 (3), 314 (3), and 316 (3).

Students must enroll in BPS 206 as the first foundational course. The remaining 3 courses may be taken in any order. Students must complete the listed 12 credits to earn the Certificate in Cannabis Studies. If the courses are taken over 4 consecutive accelerated 7-week online sessions, the time to certificate completion will be 2 semesters or 8 months.

DOCTOR OF PHARMACY (PHARM.D.)

The six-year Doctor of Pharmacy curriculum is patterned on accepted programs of study recommended by the American Association of Colleges of Pharmacy, the Accreditation Council for Pharmacy Education, and other interested organizations. The Doctor of Pharmacy is fully accredited by the Accreditation Council for Pharmacy Education (135 S. LaSalle Street, Suite 4100, Chicago, Illinois, 60603; https://acpe-accredit.org/).

Medication therapy management is the responsible provision of drug therapy to achieve specific outcomes that improve a patient's quality of life. A pharmacist, in cooperation with a patient and other health care professionals, designs, implements, and monitors a plan of care that will produce desired patient outcomes. A key element in medication therapy management is that the pharmacist accepts personal responsibility in achieving the desired outcomes. In learning to provide medication therapy management, pharmacy students must exhibit the highest level of ethical behavior and moral values in all of their decision-making, as well as in their actions both in and outside of the college. Furthermore, students must acknowledge that the profession and medication therapy management are based foremost on caring, trust, and communication for the benefit of patients and society in general. All students must be committed to maintaining these standards, to fostering the professional development of other pharmacy students, and to responding appropriately when the ethical and moral standards of the profession have been breached.

Graduates of our program have a strong record of passing the national licensing examination (NAPLEX). Over the past 5 years, the annual (January through December) passage rates have ranged from 89-95% for graduates who are taking the NAPLEX exam for the first time. National annual passage rates for the past 5 years were 85-94%. The Pharm.D. program provides preparation for community, institutional and other areas of pharmacy practice. Students have the opportunity to take professional electives that will advance their knowledge in different areas of pharmacy, including hospital, clinical, manufacturing, managed care, natural products, drug analysis, special populations (e.g. geriatrics), administration, and research.

A recent survey of graduates of the Class of 2020 (AACP) indicates that 23% work in a community practice setting, while 35% work in hospitals. Other areas of pharmacy employment included managed care, clinics, industry, long-term care, government, and academics. Forty percent of graduates in the class of 2020 were pursuing advanced training in residencies and fellowships. Job responsibilities vary from staff pharmacists, manager, clinical specialist, consultant, executive, to professor. Ninety-seven percent of graduates indicate that they would select the URI College of Pharmacy if they were starting their pharmacy programs over again.

Technical Standards

In addition to the academic requirements for admission, applicants must also meet the technical standards that the college deems essential for training and practice in the profession of pharmacy. Upon admission, students in the Pharm.D. program will affirm that they have reviewed the technical standards and further acknowledge that they are capable of meeting the program's technical standards with or without accommodations. Students who have concerns about their ability to meet these standards should contact the associate dean of the college. When requested, the college will provide reasonable accommodation to otherwise qualified students with disabilities. Disabled students must work with and be approved by URI's Disability Services for Students.

These functions include, but are not limited to:

Observation: A candidate with or without accommodations must be able to observe demonstrations and experiments in the basic sciences. A candidate must be able to observe a patient accurately at a distance and close at hand. The candidate must be able to visually observe and interpret presented information. This will necessitate the functional use of vision, hearing, and somatic senses.

Communication: A candidate with or without accommodations must be able to communicate effectively and sensitively with patients, caregivers, faculty/staff, and all members of the healthcare team. The focus of this communication is to elicit information, describe changes in mood, activity, and posture, and perceive nonverbal communication. An applicant must be able to communicate effectively and efficiently in oral and written English.

Sensory/Motor: The candidate with or without accommodations must have sufficient motor function and skills necessary to perform basic tasks in the practice of pharmacy. Examples of such tasks may include the compounding of medicinals, physical assessment, the administration of drugs, and the provision of basic cardiac life support. Such actions require the coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses.

Intellectual: A candidate must have the ability to measure, calculate, reason, analyze, synthesize, and integrate information that is essential to fully develop these skills. A candidate must be fully alert and attentive at all times in clinical settings.

Behavioral/Social: A candidate must be of sufficient emotional health to utilize fully his or her intellectual abilities, the exercise of good judgment, and the prompt completion of all patient care responsibilities. A candidate must possess the ability to develop mature, sensitive, and effective relationships with patients. A candidate must be able to tolerate physically and emotionally taxing workloads and to function effectively under stress. A candidate must be able to adapt to changing environments, to display flexibility and learn to function in the face of uncertainties inherent in the clinical problems of many patients. A candidate must possess compassion, integrity, interpersonal skills, and motivation to excel in pharmacy practice.

Health: Certain illnesses impair a student's performance. These include, but are not limited to, active drug and/or alcohol addiction, severe depression, and other psychiatric illnesses. It is not permissible for students to interact with patients while impaired by these conditions. It is the policy of the College of Pharmacy to encourage recognition of these conditions and to support treatment so that the student may resume his or her studies in the college.

The term "candidate" means candidates for admission into the Pharm.D. program and students enrolled in the Pharm.D. program who are candidates for promotion and graduation.

Selection Factors

Due to the large number of applications received for a limited number of spaces, admission to URI's College of Pharmacy is highly selective. The Admission Office carefully evaluates each candidate's strength in the following areas:

High School Transcript including the rigor of the high school curriculum and academic performance.

Standardized Test Scores (only SAT or ACT results are reviewed).

Personal Essay (including an additional paragraph required of all Pharmacy applicants—details are available on the application).

Letters of Recommendation (two letters are required: one from a science or math teacher and one from a guidance counselor or a teacher from another subject area). These letters of recommendation should comment on your personal motivation, initiative and interpersonal skills.

Extracurricular Activities (including employment experiences) and unique talents.

Doctor of Pharmacy applicants are strongly encouraged to submit all of their application materials by the Early Action deadline.

Professional Standards of Behavior

The College of Pharmacy demands that its students adhere to the highest standards of professional behavior. Specific requirements include the following:

Pledge of Professionalism: The College of Pharmacy expects all Pharm.D. students to sign a pledge of professionalism when they enter the professional program.

Honesty and Academic Integrity: Students are expected to abide by the University of Rhode Island's Community Standards of Behavior as outlined in the University of Rhode Island Student Handbook. Pharmacy students are expected to adhere to the highest standard of academic integrity in both the pre-professional and professional programs. Any evidence of cheating or plagiarism may be grounds for dismissal from the program (see URI Student Handbook for definitions of cheating and plagiarism).

Ethical Values: Students must demonstrate the highest level of professional demeanor and behavior, and must perform

in an ethical manner in all dealings with peers, faculty, staff, preceptors, and patients.

Alleged violations of professional standards of behavior will be evaluated by the college's Professionalism Committee in coordination with the Office of Student and Academic Affairs. Students who violate these standards of behavior may be given a reprimand, placed on probation, suspended for a period of time, required to acquire professional evaluation and counseling or other medical care, required to complete community service, or dismissed from the program. Incidents including, but not limited to, academic dishonesty, violation of HIPPA or privacy regulations, chemical impairment, violation of state and federal laws, sexual harassment, may delay or permanently prohibit progression in the Pharm.D. curriculum and may result in dismissal from the program.

Requirements for Progression to the Professional Program

Pharm.D. students must request transfer from University College for Academic Success to the College of Pharmacy at the end of three semesters. There are three requirements for successful progression.

During their sophomore year, all students are required to have a formal interview. The student's progression to the professional program will be contingent upon a successful interview. The interview is designed to assess students' commitment to the profession of pharmacy, knowledge of the profession, and ability to communicate with patients. Interviews will follow University policies for excused absences (University Manual Sections 8.51.11-8.51-13). If a student fails to attend the scheduled interview for reasons outside of Sections 8.51.11-8.51.13, the student will receive an automatic failure for their first interview and be allowed only one other opportunity to successfully interview. Otherwise, all students will be allowed a maximum of two interviews to successfully complete this program requirement. Students unsuccessful in completing the interview by the second attempt will be dismissed from the Pharm.D. program.

After three semesters, only those pharmacy students having a 2.70 grade point average or better in 13 of the 17 required preprofessional courses (CMB 201 and 311; BIO 101, 103, 220, 221, 222, and 223; CHM 101, 102, 112, 114, 226, 227, and 228; MTH 131; and STA 307) with no grade less than C- in any of these courses.

An overall grade point average of 3.00

Pharmacy students who have met the three criteria above must maintain a grade point average of 2.70 in the remaining four prerequisite courses with no grade less than C-. Students who lose their seat at the end of three semesters will be considered for admission on a competitive basis along with other URI undergraduate students seeking transfer into the program at the end of four semesters. Applicants with a grade point average of less than 2.70 for the designated preprofessional courses will not be considered for admission to the college.

For purposes of admission among transfer students (both internal and external), all of the preprofessional courses listed above (or equivalent courses) must be completed. All applicants must have a 2.70 in these courses, and successful candidates will be competitively selected from the applicant pool. They must also successfully complete a formal interview. Work experience and letters of recommendation are required for all transfer applicants. Bachelors of Science in Pharmaceutical Science (BSPS) majors who transfer into the Pharm.D. program cannot major in the BSPS degree while they are in the Pharm.D. program.

In addition, all students must complete WRT 106, ECN 201, COM 100, and PHL 212 as a specific component of their general education prior to admission to the professional curriculum. Please note that it is a competitive program and seats are limited. For a more detailed description of these requirements, see the Admission website.

Beginning in the professional curriculum third year (P1) students must have their own laptop computer that is capable of running the electronic exam software used at the College of Pharmacy. These devices must run on Windows, macOS, or IOS operations systems with sufficient RAM and hard drive capacity to effectively run software. Please contact the Office of Student and Academic Affairs for the most current system requirements. There are lease and purchase options at the University Bookstore for interested students.

Unless otherwise indicated, courses offered within the Pharm.D. program are restricted to Pharm.D. majors. All courses within the Pharm.D. program may hold evening exams in conjunction with University policies.

Retention and Graduation Requirements

Starting with the first professional year (P1), the College of Pharmacy calculates its own grade point average (GPA), an average which differs from the GPA calculated by the University. The grade point average calculated by the College includes only required didactic pharmacy courses and is called the quality point average (QPA). Good academic standing requires a QPA of 2.3 or higher, a semester QPA of 2.30 or higher, and a grade of at least C- in each required pharmacy course.

A student will automatically be placed on probation when they do not meet one or more of the good standing requirements. Furthermore, a student whose cumulative QPA falls below a 2.20 at the end of any semester will be dismissed from the program. A student on probation for two consecutive semesters without returning to good standing also will be dismissed from the program.

A student who receives a grade below C- in any required pharmacy course or whose QPA falls between 2.20 and 2.30 at the end of a semester will be reviewed by the Scholastic Standing Committee and presented with a remediation plan that must be successfully completed in order to progress in the curriculum. Remediation plans will be designed to meet program standards (QPA and minimum grade requirements) and may include repeating courses, additional self study and or faculty assessment of proficiency through assignments and examinations. Remediation plans will be developed by the Scholastic Standing Committee taking into account the student's QPA, length of time enrolled in the program(i.e., P1, P2, or P3 status), the number and types of deficiencies, and trends in academic performance. A student who is not successful in completing the remediation plan developed by the Scholastic Standing Committee will be dismissed from the Pharm.D. program. The assessment of successful completion of remediation plans by the Scholastic Standing Committee shall be final.

Repeating courses to improve academic standing: A student who is not meeting the required pharmacy QPA of 2.30 may

repeat those courses in which they received a C or less, up to 6 credits a semester, and up to a total of 15 credits. A specific course may be repeated only one time. If the 15 credit maximum of repeat credits is reached without achieving the 2.30 QPA and minimally acceptable grades (at least a C- or demonstrated proficiency) in each required course, the student will be dismissed from the program.

A student notified of dismissal for failing to remain in good standing and not meeting retention requirements shall have the right to appeal. The appeal must be made in writing and received by the Associate Dean of Student and Academic Affairs of the College of Pharmacy within five days of the date of dismissal notice. The appeal will be reviewed by the Scholastic Standing Committee of the College of Pharmacy. The Committee's decision to confirm the dismissal or continue the student on probation shall be final.

Entry into Advanced Practice Rotations: In order to proceed into Advanced Pharmacy Practice Experiences (APPEs) in the P4 year of the program, a student must have a minimum QPA of 2.30, a grade of at least a C- in all required pharmacy courses (or demonstrated proficiency through remediation), and successfully complete all other required courses, professional elective courses, co-curricular portfolio requirements, and Introductory Pharmacy Practice Experiences. P3 students must take the Pharmacy Curriculum Outcomes Assessment (PCOA) examination prior to beginning APPE rotations. Students must earn a C- or better in every APPE rotation.

Graduation requirements: Earn a minimum quality point average of 2.30, a grade of at least a C- (or demonstrated proficiency through remediation) in all required professional courses, successfully complete all other required courses, professional elective courses, Introductory and Advanced Pharmacy Practice Experiences, and earn at least 209 credits.

Professional and/or legal exigencies arise from time to time which may necessitate changes in a pharmacy course, progression, and/or graduation requirements. Students should review their status with academic advisors on a timely basis and refer to current publications for updated information.

Six-year Entry Level Curriculum Requirements

A total of 209 credits is required for graduation. Proficiency in community CPR is also expected of each student prior to initiating advanced pharmacy practice experiences.

Experiential Rotations. Introductory and advanced pharmacy practice experiential rotations may be scheduled at a distance from the Kingston campus. These rotations contribute importantly to the depth and breadth of the experiential program. While the college makes every effort to accommodate student requests regarding rotations, students should anticipate having some rotations assigned at a distance. For these rotations, students are responsible for their costs of transportation and housing if needed.

Criminal Background Checks. All students must undergo a criminal background check annually during the professional (P1 to P4) years of the program using the College's approved vendor. The criminal background check must be completed prior to the fall semester of each professional year and before any Introductory Pharmacy Practice Experience (IPPE) is initiated. Many hospitals, clinical facilities, and other professional sites that participate in both the IPPE and advanced pharmacy practice experience (APPE) programs require certification that students have a clear criminal record (or a criminal record which, due to the timing or nature of the criminal behavior, or the relevant circumstances, does not, in the judgment of the site preclude the student's participation in the practicum experience at their site) prior to initiating pharmacy practice experiences. Students with criminal records, therefore, should be aware that their criminal record may preclude their participation in clinical experiences at some sites, and as a result, their progression to meet the degree requirements may be impeded.

Drug Testing. Many hospitals, clinical facilities, and other professional sites that participate in both the introductory practice experiences (IPPE) and advanced practice experiences (APPE) require students to undergo a drug test. Students who test positive for an illegal drug will be denied positions at these sites. As a result, their progression to meet the degree requirements will be impeded.

Intern License Requirement. Registration as an intern pharmacist is a requirement of the program; therefore all students in the professional Pharm.D. program must hold a valid Rhode Island intern license when they enter the fall semester of their first professional year and before any Introductory Pharmacy Practice Experience (IPPE) is initiated. The Rhode Island intern license must be maintained throughout the professional program (P1 to P4 years). Students completing IPPE or APPE experiences in other states must obtain an intern license through the board of pharmacy of the state(s) in which they have those practice experiences. Intern licensure in Massachusetts is recommended for all students, but not required.

To be eligible for an intern license, students must be currently enrolled in a pharmacy program. Intern licenses must be returned to the board if a student withdraws or takes a leave of absence from the college.

Applications for an intern license also normally require the applicant to disclose, and provide an explanation of, any criminal conviction (or any plea or other form of admission or acceptance of responsibility for criminal conduct, including driving under the influence), as well as any state disciplinary action involving or affecting the applicant's license to practice, any other pending state charges or investigations relating to the applicant, and any adverse proceeding or action relating to the applicant's membership in a professional society.

Pre-Professional Curriculum

First Year

First semester: 15-16 credits

CHM 101 (3), 102 (1); COM 100 or WRT 106 (3); BIO 101 (3), 103 (1); one general education course (3-4) or PHL 212 (3); and URI 101 (1).

Second semester: 17-18 credits

CHM 112 (3), 114 (1); MTH 131 (3); COM 100 or WRT 106 (3); BIO 220 (3), 221 (1) and one general education course (3-4) or PHL 212 (3).

Second Year

First semester: 17-18 credits

CHM 227 (3); ECN 201 (3); CMB 201 (4); BIO 222 (3), 223 (1), and one general education course (3-4).

Second semester: 18-19 credits

CMB 311 (3); CHM 228 (3), 226 (2); STA 307 (4), and two general education courses (6-7).

Professional Curriculum

First Professional Year (P1)

First semester: 19 credits

BPS 318 (2), 319 (3), 337 (4); PHP 307 (3), 315 (3), 327 (3) and either PHP 340 or 350 (1).

Second semester: 15 credits

BPS 338 (3); PHP 308 (3), 328 (4) and 303 (1); FSN 444 (3)PHC 316 (1)*.

Second Professional Year (P2)

First semester: 19 credits

PHP/BPS 415 (3); BPS 320 (3) and 437 (3); PHP 407 (3), 427 (4), 450 (2); PHC 415 (1)*.

Second semester: 17 credits

BPS 438 (3); PHP 408 (3), 418 (3), 428 (4); one professional elective (3); PHC 416 (1)*.

Third Professional Year (P3)

First semester: 19 credits

PHP/BPS 547 (3); BPS 537 (3); PHP 509 (3), 527 (4), 451 (1); one professional elective (3); PHC 515 (2)*.

Second semester: 16 credits

BPS 538 (2); PHP 508 (3), 528 (4), 548 (4); one professional elective (3).

Fourth Professional Year (P4)

Combined summer, first, and second semester: 36 credits

To complete the curriculum, students must complete six 6-week advanced pharmacy practice experiences in community (PHP 591), ambulatory care (PHP 595), inpatient (PHP 592), institutional (PHP 594), and two different elective areas (PHP 593) for a total of 36 credits. The rotations will take place over summer, fall, and spring semesters in any order and are all capstone requirements in the program.

The two-year preprofessional courses and the four-year professional coursework combine to equal a minimum of 208 credits. Students also receive 1 credit for CPR training to reach the 209 total credit value needed for graduation.

* Integrated laboratory courses will be shared by PHP and BPS under the code of PHC.

Professional Electives

As part of the College's professional curriculum, students must complete two courses (minimum of 3 credits each) to improve their knowledge and understanding in a variety of practice areas. Students must complete a minimum of one of the two courses within the College of Pharmacy (BPS, PHC or PHP designation at the 300 level or higher; excluding BPS 497, BPS 498, PHP 497, and PHP 498). Students may use a 3-credit independent study (BPS 497, BPS 498, PHP 497 or PHP 498) or an approved course outside of the college for one required elective. All requests for non-approved courses as professional electives must be reviewed and approved by the Associate Dean for Student and Academic Affairs.

Students desiring to expand their understanding in biomedical, pharmaceutical, and pharmacy research may select professional electives that focus learning on the theory and practice of laboratory research techniques, the evaluation and quantification of results, and on the understanding and interpreting of scientific literature. They will develop skills for oral and written communication of hypotheses, methods, and interpretations, and will carry out basic scientific research in one of the following four areas of specialization: medicinal chemistry and pharmacognosy, pharmaceutics and pharmacokinetics, pharmacoepidemiology and pharmacoeconomics, or pharmacology and toxicology. Students focusing their elective professional courses in this manner may also be able to apply and work toward an M.S. degree with a focus in one of the following areas:

Medicinal Chemistry and Pharmacognosy: Molecular mechanisms of chemical carcinogenesis; combinatorial chemistry; solid-phase peptide synthesis; screening, isolation, and structure elucidation of physiologically-active natural products; biosynthesis of microbial and plant natural products; herbal medicine.

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.

Health Outcomes: Health and economic outcomes research pertaining to pharmacotherapy as used in human populations. Specializations include medication adherence, decision and cost-effectiveness analyses, post-marketing surveillance, epidemiologic methods, and quality improvement and measurement.

Pharmacology and Toxicology: Research projects explore the mechanisms involved in various disease states and their pharmacological intervention, and mechanisms of toxicity of various environmental agents. Ongoing topics include the effects of hormonal imbalances and antihypertensive agents on cardiac function and metabolism in hypertension, diagnosis and treatment of arthritis, effect of septic shock on drug metabolism, developmental neurotoxicity of environmental agents, hepatoxicity and nephrotoxicity of heavy metals, interindividual variation in metabolism of heterocyclic amine carcinogens, regulation and genetic heterogeneity of enzymes involved in drug and xenobiotic metabolism, calcium- and non-calcium mediated pathways of cell death, and the development of inhibitors to cell signaling events.

Combined Degrees

Pharm.D. and French/Spanish. Qualified students can graduate in six years with both a Pharm.D. degree and a B.A. degree in French or Spanish. It is recommended that students wishing to double major come to URI with four years of high school language and advanced placement credits.

Pharm.D. and MBA. Qualified and select students can apply to the Master of Business Administration program at the University while enrolled in the Pharm.D. program and after completion of their second professional year. Interested students should seek guidance from the College of Business for entrance and curricular requirements.

INTERDISCIPLINARY NEUROSCIENCE

Program Faculty

uri.edu/inp/people

Overview

The B.S. program is designed to provide you with a foundational understanding of the brain and the nervous system. Our interdisciplinary approach will provide you with knowledge in areas such as nervous system diseases and current therapeutic strategies, the cellular molecular biology of the nervous system, cognition and behavior. You'll have the opportunity to gain experience with a multitude of experimental approaches and techniques used to solve unanswered questions in the field of neuroscience.

There are three major options available for the B.S. degree:

- a major in Clinical Neuroscience from the College of Health Sciences,
- a major in Molecular Neuroscience from the College of Environment and Life Sciences, and
- a major in Neuropharmacology from the College of Pharmacy.

The option for different majors is unique and makes URI truly distinct when it comes to undergraduate neuroscience education. The interdisciplinary nature of the program allows you access to a broad range of faculty with expertise in neuroscience research across the campus and the George and Anne Ryan Institute for Neuroscience.

Careers

Students who graduate with a B.S. in interdisciplinary neuroscience have an ever-growing choice of career options. These include graduate school in neuroscience, medical school, graduate programs in allied health professions; research positions in academic, government, biotech or pharmaceutical laboratories; and a variety of professional opportunities in science education, science writing, data science, and health care.

Requirements

The B.S. program requires a minimum of 120 credits for graduation: 40-43 preparation, 31-36 core, 40 general education, and 18 in your chosen major/track (clinical, molecular, or neuropharmacology).

To transfer out of University College for Academic Success and enter your selected degree granting college, you must complete a minimum of 56 credits of the following courses with a 2.0 GPA average: BIO 101/103, BIO 102/104, BIO 220/221, BIO 222/223, CHM 101/102, CHM 112/114, CHM 124 or 227, PHY 111/185, MTH 103/131, PSY 113, COM 100, WRT 104 or 106, URI 101, NEU 101, NEU 110, NEU 210, NEU 262, and NEU 230.

Preparation Courses

Preparation courses ensure that you have the background to be successful in the major and in applying to graduate and professional programs. (40-43 credits)

CHM 101/102: General Chem I/Lab (4)

CHM 112/114: General Chem II/Lab (4)

CHM 124: Introduction to Organic Chemistry OR CHM 227: Organic Chemistry (3)

MTH 131 (+MTH 103 if needed as prereq): Applied Calculus I (3)

BIO 101/103: Biology I/Lab (4)

BIO 102/104: Biology II/Lab (4)

BIO 220/221: Fundamentals of Anatomy and Physiology I/Lab (4)

BIO 222/223: Fundamentals of Anatomy and Physiology II/Lab (4)

WRT 104: Writing to Inform and Explain (3) OR WRT 106: Writing for Research

COM 100: Communication Fundamentals (3)

PSY 113: General Psychology (3)

URI 101: Introduction to URI (1)

Core Courses

The neuroscience core introduces you to the fundamental concepts of brain and nervous system function, development, and disease. You will learn about research methods used in the field and apply that knowledge in experiential learning opportunities on- or off-campus. (31-36 credits)

NEU 101: Foundations of Neuroscience (3)

NEU 110: Neurosciences Seminar (1)

NEU 210: Neuroethics and Diversity (3)

NEU 262: Neuroscience Research Methods (4)

NEU 230: Neuroscience Professional Development (1)

NEU 301: Cellular and Molecular Neuroscience (3)

NEU 310: Developmental Neurobiology (3)

NEU 320: Clinical Neurosciences (3)

STA 307: Biostatistics (3)

PHY 111/185: General Physics I/Lab (4)

NEU 410: Experimental Neuroscience (1-6) OR ITR 302 & 304 (6)

NEU 460: Neurosciences Journal Club (1)- ITR 302 & 304 will earn students 6 credits. Cannot be taken for less. See advisor for more details.

General Education Courses

All students at URI are required to complete 40 credits of General Education courses, including all 12 outcomes of learning objectives. The following courses are required for the Interdisciplinary Neuroscience degree, and count towards General Education credit:

WRT 104: Writing to Inform and Explain (3) OR WRT 106: Writing for Research

COM 100: Communication Fundamentals (3)

CHM 101: General Chemistry Lecture I (3)

BIO 101: Principles of Biology I (3)

BIO 103: Principles of Biology Lab I (1)

BIO 102: Principles of Biology II (3)

BIO 104: Principles of Biology Lab II (1)

PHY 111: General Physics I (3)

PHY 185: General Physics I Lab (1)

MTH 131: Applied Calculus 1 (3) and MTH 103: Applied Pre-Calculus (3)(only if needed)

Clinical Neuroscience

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include Neuropharmacology in the College of Pharmacy, Molecular Neuroscience in the College of the Environment and Life Sciences, and Clinical Neuroscience in the College of Health Sciences.

INP students enrolled in the Clinical Neuroscience major will continue to take neuroscience courses as outlines in the B.S. in INP degree and will meet all graduation requirements as outlined in the B.S. in INP degree. To meet the requirements for graduation with the Clinical Neuroscience major within INP, students must complete 15 credits from the required Clinical Neuroscience Major Course list and 3 credits from the Clinical Neuroscience Major Electives list. Please see both lists below:

Clinical Neuroscience Major Course List: BPS/PSY 205G; BPS 321; CMD 280G; PSY 232, 254, 301, 381, 384, 385, 434; HDF 357; KIN 300.

Clinical Neuroscience Major Electives List: CMB 210; CMD 377, 492, 494; BPS 313, 401; PSY 261, 275, 460; PHP 336G, 405.

To learn more about the Clinical Neuroscience major, please visit the Interdisciplinary Neuroscience Program website here: https://web.uri.edu/inp/academics/b-s-program/clinical-track

Molecular Neuroscience

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include Clinical Neuroscience in the College of Health Sciences, Molecular Neuroscience in the College of the Environment and Life Sciences, and Neuropharmacology in the College of Pharmacy.

INP students enrolled in the Molecular Neuroscience major will continue to take neuroscience courses as outlined in the B.S. in INP degree and will meet all graduation requirements as outlined for the B.S. INP degree. To meet the requirements for graduation with the Molecular Neuroscience major within INP, students must choose 15 credits from the Molecular Neuroscience Major Course list and 3 credits from the Molecular Neuroscience Major Electives list. Please see both lists below.

Molecular Neuroscience Major Course list: CSC/DSP 310, CMB 311, 460, CMB/BIO 352, 341, 437, CHM 227, 226/228, CMB 460, and PHY 112, 186

Molecular Neuroscience Major Electives list: CMB 333, 312 OR 412, 320, 353, 435, 482, and BIO/CMB 452

To learn more about the Molecular Neuroscience major, please visit the Interdisciplinary Neuroscience Program website.

Neuropharmacology

Students enrolled in the B.S. in Interdisciplinary Neuroscience degree will select a major area of study during their sophomore year. The major areas include neuropharmacology in the College of Pharmacy – Department of Biomedical and Pharmaceutical Science (BPS), molecular neuroscience in the College of the Environment and Life Sciences – Department Cell and Molecular Biology (CMB), and clinical neuroscience in the College of Health – Department of Psychology.

INP students enrolled in the neuropharmacology major will continue to take neuroscience courses as outlined in the B.S. in INP degree and will meet all graduation requirements as outlined for the B.S. INP degree. To meet the requirements for graduation with the neuropharmacology major within INP, students must complete 15 credits from the Neuropharmacology Major Course list and 3 credits from the Neuropharmacology Major Electives list. Please see both lists below.

Neuropharmacology Major Course List: BPS 313, 321, 345, 401, 432, 442; BPS/CMB 450; CHM 226 & 228, CMB 311, 426; BIO/CMB 437, and CMB 460.

Neuropharmacology Major Electives List: BIO 482G; BME 281, 307, 360; BPS 201, 402; BPS/PSY 205G, 436; CMB 464, 482; CMD 280G; NEU 502, 503; PSY/NEU 381; PHP 336G, 405, and 555.

To learn more about the Neuropharmacology major, please visit the Interdisciplinary Neuroscience Program website here: uri.edu/inp/academics/b-s-program/neuropharmacology-track

Minor Fields of Study

Undergraduate students may declare a "minor" field of study. A minor is a secondary concentration of courses. Requirements may be satisfied by: (1) completion of 18 or more credits of any of the approved interdepartmental minors; or (2) completion of 18 or more credits of related studies offered by one or more departments or programs and sponsored by a faculty member competent in the minor field of study.

Requirements for Choosing and Declaring a Minor

To declare a minor, a student must have the approval of the department chairperson of the minor field of study (or faculty sponsor in option 2 of the paragraph above) and the student's academic dean. Application for the minor must be filed in the academic dean's office no later than the beginning of the student's final semester or term, but may be filed as early as the first semester of the junior year. Filing for a minor earlier than the junior year is subject to approval by the student's degree-granting college. Non-business students wishing to obtain a departmental minor in the College of Business should expect to take the six courses required for that minor over a period of two years. Admission to the minor in Business is on a space-available basis and therefore not guaranteed.

Requirements for Completing a Minor

To complete a minor, a minimum grade point average of 2.00 must be earned in the minor courses, and at least 12 of the 18 credits must be at the 200 level or above. At least eight of the credits required for the minor must be earned at the University of Rhode Island. Courses used to fulfill General education requirements may also be used for the minor. Up to two courses required in a major program may be used to apply to both the major and minor fields of study. Minor courses may not be taken on a pass-fail basis. The requirements for the minor must be completed prior to graduation. Upon graduation, successful completion of a minor is noted on the student's official transcript. Graduates who have earned an undergraduate degree with a minor from URI and who are then readmitted to the University to pursue an alternate major or degree, may apply for that purpose all credits earned in pursuit of the previous minor field of study.

Descriptions of approved **departmental minors** and their specific requirements may be found in the departmental sections of this catalog.

Descriptions of approved **interdepartmental minors** may be found below. For more information about minors available within each field of study, visit the website or contact the dean's office of the relevant college.

Interdepartmental Minors

Africana Studies
American Studies
Arabic Language and Culture
Asian Studies
Business Analytics and Intelligence Minor
Business of Digital Media
Community Planning
Comparative Literature Studies
Film Media
Forensic Science
Gender and Women's Studies
Geography
Gerontology
Global Water Resources
Hunger Studies
Innovation Management and Entrepreneurship
International Development
International Relations
Japanese Language and Culture
Justice, Law, and Society
Latin American, Caribbean and Latinx Studies
Leadership Studies
Linguistics
Medieval Studies
New England Studies
Nonviolence and Peace Studies
Oceanography
Public Relations
Restoration Science and Management
Social Justice and Civic Responsibilities
Special Populations
Sports Media and Communication
Statistical Science
Sustainability
Thanatology (Death, Dying, Bereavement and Loss)*
Underwater Archaeology
Work, Labor, and Social Justice*
Writing

** Program is not accepting applicants.* Search uri.edu/programs to learn if the field of study is available under a different program.

Africana Studies

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare Africana studies as a minor are required to take two core courses: AAF 201 and 202 (six credits). In addition, students select four electives (12 credits) from the following: AAF 360, 390, 410; APG 313; COM 333; ECN 386; ENG 247, 248, 362, 363, 364, 474; HIS 150, 384, 388; and PSC 408. Students who want to use other courses that have as their central focus some aspect of the black experience may do so with permission from the program director.

For a description of the degree program for the major, see Africana Studies in the College of Arts and Sciences section.

American Studies

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare American Studies must complete 1 required course, AME 204: Introduction to American Studies, a methods course with particular emphasis given to the interdisciplinary and multicultural orientation of the field (4 credits) and in accordance to the minor's interdisciplinary nature, a minimum of 5 additional elective courses (15 credits) relating to American Studies and representing at least three different program codes other than AME.

Students choose their elective courses a from an approved list of courses that satisfy program requirements. The list, which is wide-ranging and annually updated, allows students to articulate their own specialized programs of study within the American Studies Minor to reflect, for example, their individual interests in comparative U.S. race and ethnic studies, science and medicine, environmentalism, early American and U.S. culture and politics, and/or, public humanities to name only a few curricular possibilities. Because course content can change on a semester by semester basis, students may petition the Minor's Director to have coursework counted toward their American Studies requirements. No grades below "C" will be counted toward the 6 course, 19 credit minimum requirement.

Students interested in the minor should contact Professor Martha Elena Rojas in the English Department. A member of the American Studies Advisory Committee will then be assigned as the advisor for the minor and will assist the student to fulfill its requirements.

The following list represents the electives currently approved for application toward the Minor:

AAF 352 (or ENG 352), 355, 356, 359; AFS 120, 121; APG 315, 316, 329;ARH 330, 331, 364, 380 (when appropriate), 480; AVS 101; BCH 190, 242; BIO 105, 286; COM 409, 441; CSC 101, 106, 110, 320; MIC 201 ; ECN 333, 381; EEC 105, 110, 350; ENG 241, 242, 317, 337, 338, 345, 347, 348, 352, 362, 363, 364, 396, 450, 482, 484, 485; GWS 317 (or ENG 317), 365, 386, 387, 401/501, 430; HIS 141, 142, 145, 146, 150, 160, 335, 336, 337, 339, 340, 341, 342, 344, 346, 349, 352, 354, 355 (or AAF 355), 356 (or AAF 356), 357, 358, 359 (or AAF 359), 360, 361 (or GWS 361), 362, 363, 364, 365, 366 (or AAF 366), 381, 382, 384, 385, 387 (or GWS 387), 389, 390; HDF 434, 437 (or SOC 437); HPR 325; JOR 210, 310, 311, 313,410, 445; KIN 475, 478; MAF 220, 300; NES 400; PHL 325; PSC 113, 274, PSY 103, 113, 255; SOC 230, 240, 242, 274 (or PSC 274), 437; THE 384; TMD 240, 440; URB 310, 494.

ARABIC LANGUAGE AND CULTURE

The Department of Modern and Classical Languages and Literatures offers a minor in Arabic Language and Culture. Students interested in an Arabic major should declare the Global Language and Area Studies major.

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students taking the Arabic Language and Culture minor must complete 18 credits in Arabic Language or Arabo-Islamic culture. Students must take 12 credits at the 200 level or above (ARB 211, 212, 311, 312, 325, 497; PSC 312, 482; HIS 376, 379; PSC/RLS 221), of which at least 8 credits must be Arabic classes. The remaining credits may be from 100 level or higher classes in Arabic language (ARB 111, 112) or Arabo-Islamic culture (HIS 176, 178; HPR 107). Students must earn a minimum of 18 credits in these courses for the minor. For any course which is a topics course, the students must have advisor approval for that course to count toward the minor. Students interested in pursuing this minor should contact Alexander Magidow in the the Department of Modern and Classical Languages.

ASIAN STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in Asian studies are required to complete 18 credits including at least two courses (6 credits) from the following: HIS 171, 172, 374, 375; JPN 310; PHL 331; PSC 377; RLS 131. The remaining 12 credits may be selected from the preceding group or from the following: ACC 491*, 492*; BAI 491*, 492*; CHN 101, 102, 103, 104, 111, 112, 121, 122, 123, 124, 211, 212, 205, 206, 211, 212, 305, 306, 311, 312, 350, 401, 411, 412, 413 (cross-listed as EGR), 421, 422, 485, 486, 497*, 498*; COM 461, 491*, 492*; FIN 491*, 492*; HIS 391*, 481*, 495*; INE 491*, 492*; JPN 101, 102, 201, 202, 301, 302, 310, 401, 402, 497*; LAN 191*, 192*, 193*, 194*, 205*, 206*, 220*, 420*; MGT 491*, 492*; MKT 491*, 492*; PSC 303, 455*, 456*; SCA 491*, 492*. At least 12 of the 18 credits must be taken at the 200 level or above. Students interested in the minor should contact the coordinator of the minor, Professors Bing Mu in the Department of Modern and Classical Languages. *NOTE: LAN courses, directed study/research courses, and HIS capstone courses may be used for the Asian Studies minor only when focused on Asia or an Asian language, as confirmed by the coordinator of the minor.

BUSINESS ANALYTICS AND INTELLIGENCE MINOR

The minor in Business Analytics and Intelligence is designed to augment any other major on campus. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), this minor consists of six (6) courses that prepares students for a career that uses data analytics and intelligence. While it is called Business Analytics and Intelligence, the techniques and technology taught in the program can apply to any field that uses quantitative data.

Students select four courses from this list (must fulfill all prerequisites):

BAI 356* Business Applications Programming

BAI 358 Business Data Communications and Networking

BAI 405* End-User Development for Business Analytics

BAI 454 Working with Messy Data

BAI 455* Business Applications Programming II

BAI 456 Management of Databases

BAI 457* Design for Management Information Systems

And two from this list (must fulfill all prerequisites):

BAI 357 Information Technology in Business Organizations

BAI 458 Seminar in Management Information Systems

MKT 467* Customer Analytics

BAI 476* Machine Learning for Business Intelligence

MGT 461* Management Data Analysis and Communication

For more information regarding the BAI minor, please contact

Dr. Seung Shin at shin@uri.edu

*Course has a prerequisite

BUSINESS OF DIGITAL MEDIA

Non-business students wishing to obtain a minor in the College of Business in either General Business, Innovation Management and Entrepreneurship, or Business of Digital

Media must take six courses. Admission is on a space-available basis only, and therefore not guaranteed. Interested students should complete an application form for the minor, all of which are available on the College of Business website.

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare Business of Digital Media as a minor are required to take MKT 265 and one of the following: MKT 465, MKT 467 or MKT 475.

In addition, students select four electives (12 credits) from the following: COM246, COM271, COM340, COM346, COM354, COM372, COM445, COM442, COM446, COM447, FLM351, FLM352, or FLM445.

COMMUNITY PLANNING

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in community planning must complete the requirements:

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

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

Successful completion of nine credits of elective courses from the following list is required in consultation with the community planning minor advisor, Professor Farhad Atash: AAF/PSC 410, 466; CPL/GEG 202; CPL 391, 392, 397; CVE 346; ECN 402; GEG 101, 104, 200, 202; HDF 418, 424, 434, 440; LAR 201, 202; MAF 350 (formerly NRS 300), 465, 475, 484; NRS 415, 450; PHL 318; PSC 221, 402; and SOC 214, 240. A maximum of two courses required in a major program may be used to apply to both the major and minor fields of study.

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

COMPARATIVE LITERATURE STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare comparative literature studies as a minor must earn 18 credits distributed as follows: six credits in comparative literature studies at the 200 level or above; 12 credits from literature courses in comparative literature, English, or languages, of which six credits must be in one national literature either in the original language or in translation. Students majoring in English or languages may not count courses in their major toward this minor.

FILM MEDIA

See Film Media in Arts and Sciences.

FORENSIC SCIENCE

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in Forensic Science must complete the following requirements:

The Forensic Science Minor is intended for students wishing to work in an active forensic laboratory. A forensic science minor requires 18 credits beyond a student's major.

The 18 credits must include two credits of CHM 391, three credits of CHM 392 (Introduction to Criminalistics), and three credits of research or a practicum related to forensic science. The practicum can be in the form of participating in a research project or internship on or off campus. Once the student has an advisor for his/her major, contact Dr. Oxley for specific program approval (joxley@chm.uri.edu).

Science Track: Chemistry, Biology, Clinical Lab, Microbiology, Chemical Engineering majors must take 2 classes from list A and 1 class from list B as long as these classes are not required for the major nor counted toward the major.

Non-Science: Nursing, Psychology, Textiles, Criminal Justice, Archeology majors must take CHM 105L* and CHM 126L*; General & Organic Chem labs and two classes from list A, B, or C as long as these classes are not required for the major nor counted toward the major.

List A

BCH 311 & 312L; BCH 342; BIO 242*& 244L*; BIO 341*; BIO or BCH 352; BIO 454 or BCH 454*; BIO or BCH 437*; BCH 481*; BCH 482*; BMS 530; BCH 403 & 405L (4); MIC 403 & 405L; CHM 101 & 102L; CHM 112 & 114L; CHM 191, CHM192; CHM 227 & 229L; CHM 228 & 230L; CHM 291; CHM 292; CHM 393 ; CHM 431; CHM 432; CHM 412; 414L; CHM 441; CHE 539; CHM 691; STA 308*; STA 409*; MIC 333*; MIC 432*; MIC 211*; STA 308*; STA 409*; MTC 483*; BMS 322; BMS 544.

List B

APG 411*; CCJ 370; ENT 385/BIO 381; ENT 411; SOC/CCJ 230; SOC 420*; PSY 254*; TMD303

List C

STA 220; MIC APS or NUR 440*; BIO 121; BIO 242*& 244L*

*Courses marked with an asterisk have prerequisites outside of this program. Students are responsible for meeting all course prerequisites.

GENDER AND WOMEN'S STUDIES

See Gender and Women's Studies in Arts and Sciences.

GEOGRAPHY

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in geography must meet the following requirements:

The minor in geography is designed to enhance student spatial skills. Global awareness is a fundamental component

of many programs of study here at URI. It is a critical element in developing spatial literacy. The required courses for the minor include GEG 101 (3 credits) and three of the following (9 credits): GEG 104, 200, and 511.

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

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

GERONTOLOGY

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

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in gerontology must take HDF 314, at least two courses from the foundation courses list, and additional courses from the electives list in order to reach the requirements of 18 credits. Students may also enroll in a directed study or special problems course that focuses on a topic relevant to older adults and aging. Other courses may be used in consultation with aging and health faculty in HDF.

Foundation Courses: HDF/PSC 405; HDF/SOC 431; HDF 440; SOC 438.

Elective Courses: BPS 205G; CMD 280G; HDF 201, 421, 450, 480; KIN 375G, 381, 420, 464G; NFS 210, 395; NUR 360; PHP 207G, 505, 509; PSY 232, 432; WRT 306.

Several of the courses have prerequisites not included in this program; students are responsible for completing these prerequisites prior to enrolling in the course. Interested students should contact the director of the Program in Gerontology or affiliated aging and health faculty in HDF.

GLOBAL WATER RESOURCES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in Global Water Resources must complete the following requirements:

The minor in Global Water Resources is an interdisciplinary field of study and focuses on the study of the physico-chemical, social, political, and economic factors of water resources from a global perspective. It provides students with the opportunity to develop knowledge central to the understanding and management of water resources and to develop expertise relevant to the human dimensions of water quality and quantity at the global scale. Students are trained in the fundamental background and key practical skills required to address the emerging water problems in a world faced with changing climates and population growth. Opportunities exist for students to explore ecosystem interactions of water, remediation strategies of polluted water, policy and economics of water, and to better understand the linkages between water, landscape and climate. The curriculum is attractive to students from a wide range of co-curricular programs within the College of the Environment and Life Sciences and other colleges.

Students who declare a minor in Global Water Resources are required to complete a minimum of 18 credits, including three required course (GEO/NRS/EEC 234G Introduction to Water Resources, EEC 430 Water Resource Economics, and one course from a list of three hydrology courses (NRS 461 Watershed Hydrology and Management, GEO 482/ 582 Innovative Subsurface Remediation Technologies, GEO 484/ 584 Environmental Hydrogeology). The remaining credits must be taken from a list of approved elective courses: GEG101, GCH103, NRS100, NRS300, NRS461, NRS496, BIO/NRS563, GEO/OCG110, GEO491, GEO562, GEO/NRS/CVE535, GEO482/582, GEO483, GEO484/584, GEO586, CVE471, CVE475, OCG200, OCG480, CPL/LAR434, CPL485, EEC310, EEC440, PSC422. Students accepted into the minor may have prerequisites waived in consultation with instructor.

Students interested in this minor should contact the Global Water Resources minor coordinators, Dr. Pradhanang (spradhanang@uri.edu) or Dr. Guilfoos (guilfoos@uri.edu).

HUNGER STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in hunger studies must complete the following requirements:

This minor intends to prepare students for leadership roles in understanding and eradicating hunger. Requirements include 18 credits (at least 12 at the 200-level or above), nine of which will be core courses, including the introductory course HSS/PSY 130G; up to three 1-3-credit internships; and a 3-credit capstone course, HDF 434, which will include one credit for portfolio development. No course may be used for both the major and minor. Courses in general education may be used for the minor.

All courses must be taken for a grade, except for the internship and portfolio credits, and a grade of 2.00 or better must be earned in each graded course. To declare this minor, a student must have the approval of a program advisor and an academic advisor. For more information, contact Professor Kathleen Gorman, Director, Feinstein Center for a Hunger Free America, 201 Tyler Hall.

Core courses: 9 credits; HSS/PSY 130G (3 credits), Internship (total of 3 credits), HDF 434 (3-credit capstone, 1 credit for portfolio development).

Electives: 9 credits; may be focused on a particular theme. Approved electives include: AFS/AVS/PLS 132G or AFS/AVS/PLS 132HG; COM/SUS 108-G; GWS/APG/SOC 308; NFS 212G, 276G, 394, 395; HDF 357, 414; PHL 217; PSC 113; SOC 212.

INNOVATION MANAGEMENT AND ENTREPRENEURSHIP

The minor in innovation management and entrepreneurship is designed for students who want to add this skill set to another major (except INE majors). These students focus in another URI area of study but will one day start and own their own business, join their family's business, be part of a founding team, innovate within a larger firm, or provide advice, goods or services to a small firm. The minor provides students with the tools to identify and evaluate business opportunities, develop and execute a business concept and determine what resources are required to effectively manage a new venture.

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in innovation management and entrepreneurship must complete 18 credits including INE 149, INE 247 and INE 249. The remaining 9 credits can be selected from INE 348, INE 349, INE 449, or MGT 450; and EGR 325 or 326. All pre-requisites for these courses must be met.

The College of Business administers this program; interested students should contact the Dean's Office or their own academic advisor for further information.

INTERNATIONAL DEVELOPMENT

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in international development must complete the following requirements:

The International Development minor is for undergraduate students interested in deepening their knowledge on sustainable development topics such as coastal, marine, and terrestrial systems, economic development, human well-being, public health, education, gender, energy, biodiversity, climate change and resilience, and justice from local to global perspectives. This minor is part of the Marine Affairs department, and thus ocean and coastal issues are important components of the program. However, students from all majors are welcome to participate in the URI minor in International Development or take individual courses.

Students interested in pursuing careers in and outside the US in the broad field of international development including governmental and non-governmental organizations, international agencies, or further their studies of international affairs and global problems are especially encouraged to pursue this minor.

Students choosing this minor must complete 18 credits, with a maximum of six credits at the 100 or 200 level. Students must complete the following:

1) MAF 350/NRS 300 (three credits);

2) language or culture (six to nine credits), to be met by the completion of at least six language credits through the intermediate level (103 or 104) or placement in the conversation and composition level (205 or 206) and completion of at least six credits in the same language or culture cluster (placement for course work is determined by the Educational Testing Service exam as administered by the University's Department of Modern and Classical Languages and Literature in the following languages: French, Spanish, German, and Russian; the University also offers Portuguese and selected other languages that, with permission, could satisfy the requirement; six credits are allowed in the general education requirements for language and culture);

3) an approved internship, research project, or study abroad experience (three to six credits) providing international development experience during the junior or senior year (MAF 450); and

4) 3-6 credits of electives approved by the Coordinator of the International Development Minor. See "Courses of Instruction" later in this catalog for descriptions of MAF 350/NRS 300 and MAF 450.

The Department of Marine Affairs administers this program; interested students should contact Dr. Lisa Hiwasaki at hiwasaki@uri.edu or 401-874-2854.

INTERNATIONAL RELATIONS

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in international relations must complete the following requirements:

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

Students must complete a minimum of 18 credits, drawn from the required courses and options outlined below. Please note that students are responsible for completing any necessary prerequisites before enrolling in these courses. One common prerequisite for the political science courses is PSC 116—Introduction to International Politics. Required courses may not be offered every semester, so please contact your advisor before your senior year. Requirements include PSC 211, ECN 338 or PSC 422, and one of the following capstone courses: PSC 408, 416, 417, 422, 431, 434, 435, 481, 544, 580, 581, and 584. The capstone course cannot be used to meet any other requirement within the minor.

In addition to the required courses, students must take at least one course from each of the following groups, for a total of 18 credits: international relations theory (PSC 300, 350, 417, 431, 434, 435, 544, 546, 580, and 584); international political economy (ECN 305, 338, 344, 363; PSC 402, 403,422, 521, 581, and 595); comparative government (HIS 332, 333, 374, 375, 381, 382, 384, 388; PSC 201, 320, 321, 377, 408, 410, 415, 416, 481, and 584).

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

JAPANESE LANGUAGE AND CULTURE

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students pursuing a Japanese Language and Culture minor must complete a total of 18 credits of Japanese language or Japanese culture or Japanese history. Out of 18 credits, 12 credits must be at least at the 200-level

or above (JPN 205, 206, 305, 306, 310, 497; HIS 375). Also, the credits earned by attending either the Kochi Summer Program in Japan or the J-term winter trip to Japan will be counted toward a minor. Interested students should contact Masako Hoye, section head for Japanese.

JUSTICE, LAW, AND SOCIETY

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in justice, law, and society must complete a minimum of 18 credits from among the courses listed below. At least three credits must be completed in each of the three groups. Several of the courses have prerequisites not included in this program; students are responsible for completing these prerequisites prior to enrolling in the course. Other courses, such as topics courses, may be approved for credit by the program coordinator. Interested students should contact the director of the Criminology and Criminal Justice program.

Criminal Justice: CCJ 330, 331, 332, 370, 403, 410, 450; CCJ/SOC 230;

CCJ/PSC 274(H), 476;HDF/SOC 437; PSY 254(H), 261, 275, 335, 460, 465, 466; SOC 420; GWS 370, 401. Law: AAF 372; ECN 337; ECN/PSC 333; ENG 356; HDF/SOC 437; PSC 369, 371, 388, 472. Social Justice: AAF 201, 230; AAF/PSC 380; AAF/PSC/ECN 415; APG 311; ECN 381(H); ECN/GWS 386; EDC 103G; GWS 150(H), 310, 320, 325, 402, 430; HIS 146, 328(H), 344(H), 346, 349, 352, 385; HIS/AAF 150(H), 355, 356, 359, 366; MAF/HIS/GWS 373; MUS 301; PHL 210, 217, 314, 318(H); PSC 435; PSC/AAF 408(H), 466(H); PSC/GWS 441; PSY 480; PSY/NVP 425; SOC/AAF 240, 428; SOC 242, 413, 438, 452.

LATIN AMERICAN, CARIBBEAN AND LATINX STUDIES

In addition to fulfilling all the basic requirements for the minor (see Minor Fields of Study), students declaring a minor in Latin America, Caribbean and Latinx Studies must complete the following requirements:

LAX 200G is the introductory gateway course for the minor. A capstone course must

be selected from the following list: PSC 419, HIS 481, APG/SOC 415, or PSC/AAF/ECN 415. The remaining 12 credits must be taken from the approved list of electives: AAF 415/PSC 415/ECN 415; APG 303, 315, 316, 470; COM 310, 361; ECN 338, 363, 390; ECN/PSC 344; ENG/GWS 317; FLM 352; FLM/ENG/CLS 451; FRN 101, 102; GWS 350, 490; GWS/HIS 387; HIS 180, 346, 381, 382, 385, 391, 481, 508; LSC 512, 518; PSC 116G, 312, 419, 431; POR 101, 102; SOC 300; SOC/APG 329, 415; SPA 101, 102.

Note that Topics and Directed Study courses must be relevant to Latin America, the Caribbean and/or Latinx Studies in order to receive credit for the minor. Students must receive permission from the instructor to enroll in graduate-level courses. Students interested in the minor should contact Professor Julie Keller in the Department of Sociology and Anthropology: jckeller@uri.edu , (401) 874-2309.

LEADERSHIP STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in leadership studies must fulfill the following requirements:

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

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

To declare a minor in leadership studies, a student must contact the Center for Student Leadership Development (CSLD) and then inform their major academic advisor. A program advisor will facilitate the student's process through the minor, and help assure that class, internship, and portfolio requirements are completed.

Leadership minors must complete 18 or more credits related to leadership offered by more than one department. Requirements include a core of nine credits as follows: 1) a choice of an introductory course (HDF 190 or HDF 290); 2) a choice of a capstone course (MGT 441, COM 402, HDF 412, or HPR 401/402); 3) an internship with specific requirements including conceptual understanding, skill development through experience and feedback, and personal awareness, assessment, and growth; each internship requires 70 hours of fieldwork; the specific internship course will depend on the student's major or depend on the specific supervisor and/or advisor for the internship site; 4) a one-credit portfolio course. The portfolios are multidimensional collections of work that reflect the students' experiences in and out of the classroom as they relate to leadership knowledge, training, and experiences. The student's program advisor will work with the student on the development of the portfolio as an ongoing project.

Students will also choose nine elective credits from approved courses. Other courses may be appropriate and may be added to this list with the approval of the Leadership Studies Advisory Committee: AAF/SOC 240, 336, 428; AAF/HIS 366; AAF/PSC 380; AAF/PSY 399; APG 203; ART 465; CCJ 476; COM 100, 202, 208, 210, 221, 251, 302, 308, 310, 322, 325, 326, 346, 351, 361, 383, 402, 411, 415, 421, 441, 450, 461, 462; CSV 302; ECN 381; ECN/GWS 386; EDC 103G; EGR 316; ENG 248; GWS 150, 301, 305, 310, 315, 320, 360, 365, 386, 430, 431; HDF/NUR 150; HDF 190, 290, 291, 318G, 352G, 357, 412, 413, 414, 415, 416, 417, 418, 430, 437, 450; HDF/SOC 431, 433; HIS 146, 178, 346, 352, 354, 355, 357, 370; HLT 312; HPR 316G, 344G, 401/402, 411/412; INE 316; JOR 215, 313; KIN 278, 475, 478; MAF 373; MGT 341, 342, 345, 346, 441, 443, 446G, 448; ; MSL 101/102, 201, 202, 301; PHL 212, 314; PHP 340/350, 464; PRS 200; PSC

116G, 369, 421, 435, 466, 472; PSY 425, 442; SOC 212, 242, 413, 452; SPC 207, 319G, 325, 401, 420, 450; THE 221, 341; WRT 306.

For more information on this minor, visit http://web.uri.edu/leadership/minor.

LINGUISTICS

The Department of Modern and Classical Languages and Literatures offers a number of undergraduate courses in linguistics. Students may minor in linguistics by completing 18 credits as approved by the department. Overall URI minimum requirements for a minor apply. See minor fields of study.

Faculty: Contact Professor de Bruin, department head.

MEDIEVAL STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in medieval studies must fulfill the following requirements:

The interdisciplinary undergraduate minor in medieval studies offers students the opportunity to acquire an understanding of the historical, cultural, and social forces of the Middle Ages (approximately 500 to 1500 C.E.). The societies of medieval Europe and its Mediterranean neighbors began the first universities, established the nation-state, developed extended fictional narrative and the idea of romantic love, and laid the foundations of modern science, constitutional government, banking, and capitalism. Augustine, Dante, Aquinas, Saladin, Frederick II, Saint Louis, Maimonides, Averroes, Al-Ghazali, Innocent III, Joan of Arc, and Christine de Pizan, amongst many others, have made their mark on modern thought and cultural practice. In many ways, the Middle Ages contributed to the world that today's students have inherited and need to understand.

Undergraduates who contemplate applying for the minor should contact the undergraduate advisor, Professor Joëlle Rollo-Koster, to discuss their interests and needs.

A minor requires a minimum of 18 credits with at least 12 credits at the 200-level or above. A minimum grade point average of 2.00 is required in the minor and at least half the credits in the minor must be taken at URI. Minors require approval of the department chair.

MINOR REQUIREMENTS

STRONGLY RECOMMENDED: HIS 112 Medieval Europe and LAT 101 (6 credits); the remaining 12 credits can be chosen amongst the following courses:

ART 251 Introduction to Art History: Ancient-Medieval

ART 356 Medieval Art

ENG 478 Medieval Authors

ENG 381 Topics in Medieval and Renaissance Literature (can be repeated once with change of topic)

ENG 382 Medieval and Renaissance Authors (can be repeated once with change of topic)

ENG 535 Old English

HIS 112 Medieval Europe

HIS 176 Islamic History to 1492

HIS 304 Western Europe

HIS 305 The Renaissance

HIS 308 Medieval Women

HIS 379 The Jews of Islamic Lands

HIS 401 Advanced Topics in European History (with medieval focus)

HIS 495 Seminar in European History (with medieval focus)

ITL 395 Dante in English

ITL 301 Civilization of Italy (from the Middle Ages to the Renaissance)

ITL 325 Introduction to Italian Literature

ITL 455 Selected Italian Authors (with medieval focus)

ITL 481 Dante in Italian

PHL 322 Medieval Philosophy

LAT 101-102-301-310 (310 is a one credit course attached to another 3-credit course in which the student reads part of the reading list in Latin)

Students will also have the possibility to choose a Directed Study: 3 credits, in one of the proposed fields: Art History, English, French, History, Italian, Latin, and Philosophy, with the approval of the appropriate instructor. For example, if taken with the history department it would be HIS 391.

NEW ENGLAND STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in New England Studies must fulfill the following requirements:

New England Studies is an 18 credit minor. Students must take either NES 200 or 300 and elect at least one course from each of the following four categories. Aesthetic Dimensions: ENG 347. Cultural Patterns: APG 317; ENG 337; PSC 221. Historical Dimensions: HIS 335, 346, 362. Physical Dimensions: BIO 323, BIO 418; GEO 101; NRS 301, 302. Permission can be obtained from the Committee for New England Studies to use any rotating topics course, seminar, etc., whose focus is on some aspect of New England as a substitute for any of the above courses. The minor in New England Studies is coordinated by the Art Department. Interested students should contact Professor Ron Onorato at 401.874.2769 or ronorato@uri.edu.

NONVIOLENCE AND PEACE STUDIES

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in nonviolence and peace studies should complete a minimum of 18 credits, as follows: 1) NVP 200, a one-credit colloquium course on Nonviolence and Peace Studies; 2) a nonviolence training experience such as one of the two-day workshops offered by URI's Center for Nonviolence and Peace Studies (or training offered by the American Friends Service Committee, Fellowship of Reconciliation, or similar organization), combined with three credits of directed reading/independent study focused on the history, theory, and application of nonviolence. Credits may be earned in HDF 498, HIS 391, HPR 401 or 402, PHL 499, PSC 455 or 456, PSY 489, SOC 498 or 499, and

should be chosen in consultation with the student's advisor for the minor and other faculty; 3) a minimum of one of the following three-credit courses in individual/interpersonal peace processes: COM 221, 422; HDF 450; HPR 107, 110; PSY 479Y, 479H; or SOC 408; 4) a minimum of one of the following three-credit courses in societal/global peace processes: AAF/PSC 380; COM 310, 361; ECN 386; HPR 411; PHL 217; SOC 318; and 5) additional related courses totaling a minimum of 18 credits for the minor, such as AAF/SOC 240, 336; AAF/HIS 359, 366; AAF/SOC 428; COM 310, 322, 421, 461; ECN 381; GWS (WMS) 150, 310, 350, and 351; HDF 230; HIS 328, 349; PSY 103, 334, 335; PSY/SOC 430; SOC 216, 230, 274, 330, 331, 370, 413, 420, 452. Students are responsible for meeting applicable prerequisites for courses in the minor, or for obtaining the instructor's permission to take a course.

Interested students should contact Professor Paul Bueno de Mesquita in the Department of Psychology (401.874.4216 or pauldem@uri.edu).

OCEANOGRAPHY

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in oceanography must fulfill the following requirements:

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

Students choosing this minor must complete 18 credits, at least 9 of which must be from OCG courses. Courses may not be taken on a pass-fail basis (except for OCG 493/494). The following course requirements must be met: 1) One OCG course and up to one other course from the following 100-level course list: CHM 100; GEO 103; MAF 100, 120; OCG 106G, 108G, 110, 123G, 131, 200G. 2) One of these three general oceanography courses: OCG 123, 301, 451. 3) The remaining 7-12 credits from the following courses: APG 413; BIO 345, 360, 418, 455, 457, 469, 475, 495; EVS 366; GEO 277, 450, 465; MAF 330, 415, 461, 465, 471, 482, 484, 490, 511; MCE 354; OCE 301, 307, 310, 311, 471; OCG 420, 440, 480, 493/494, 501, 506, 517, 521, 540, 561. Permission of the program administrator is needed if OCG 493 or 494 is used to satisfy requirement 3 (above). Other courses may be substituted, at the request of the student and with permission of the program administrator. The Graduate School of Oceanography (GSO) administers this program. Interested students should contact GSO Associate Dean David Smith at 401.874.6172 or dcsmith@uri.edu.

PUBLIC RELATIONS

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students minor in public relations by completing 18 course credits from the following courses: PRS 100, COM 100, PRS 200 or 300, PRS 340, COM 200-level or COM 300-level, WRT 200-level, and PRS 491.

Interested students should contact Regina Bell, rbell@uri.edu.

RESTORATION SCIENCE AND MANAGEMENT

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in restoration science and management must fulfill the following requirements:

This interdepartmental minor provides students in-depth, interdisciplinary training in the principles and application of restoration science and management to solve environmental problems and issues. Students who declare a minor in restoration science and management are required to complete 18 credits, including 4 credits from NRS 401, 3 credits from NRS 543, 3-6 credits from one or more experiential learning project courses (NRS 395, NRS 397, GEO 397, NRS 491, NRS 492 NRS 495, NRS 497), and 4-8 credits from one or more of the following courses: BIO 262, GEO 103, GEO 320, NRS 223, NRS 445, NRS 475. Students minoring in restoration science and management are encouraged to take a capstone course that allows them to apply their analytical skills in a real-world application and to engage with NGO, state, federal agencies on projects and internships.

SOCIAL JUSTICE AND CIVIC RESPONSIBILITIES

In addition to fulfilling all the basic requirements for a minor (See Minor Fields of Study), students who declare a minor in Social Justice & Civic Responsibilities are required to take at least one course from each of three categories of courses (peoples, social and institutional contexts, and methods and skills) and not more than three from each category for a total of 18 credits. Students are encouraged to meet with someone from the minor advisory committee or the minor director, Dr. Judy A. Van Wyk in the Department of Sociology & Anthropology before they begin to plan which courses best suit their career and academic goals. With at least 68 courses to choose from, students will gain knowledge and skills that are necessary for our diverse and changing world that are applicable to any career.

Courses for the minor are available from African American Studies, Business, Criminology & Criminal Justice, Communications, Economics, Education, English, Gender & Women's Studies, Human Development and Family Studies, History, Latin American Studies, Labor Relations and Human Resources, Marine Affairs, Nursing, Music, Philosophy, Political Science, Psychology, Sociology & Anthropology, and Writing.

Course Options

PEOPLES

1-3 (3+ credit) courses from this category for the minor

AAF 230: Black Lives Matter Movement

AAF/ENG 248: African-American Literature from 1900 to the Present

AAF/HIS 366: Twentieth-Century Black Politics and Protest

AAF/PSC 380: Civil Rights Movement

AAF/PSC/ECN 415: Dynamics of Social Change in the Caribbean

APG 316: U.S. Latinas/Latinos/Latinxs: Anthropological Approaches

COM 322: Gender and Communication

GWS 210G: Queer Studies: Identities, Perspectives and Social Justice

GWS 325: International Women's Issues

GWS 360: Men and Masculinities

GWS 430: Women and Human Rights Policy

HIS 328: The Holocaust

HIS 344: History of the North American Indian

HIS/AAF 356: Black Urban History: Late 19th and 20th Centuries

HIS 382: History of Modern Latin America

HIS 385: Revolution and Unrest in Central America and the Caribbean

LAX 200G: Latin American, Caribbean, and Latinx Issues

PSC/AAF 408: African Governments and Politics

SOC/APG 329: Contemporary Mexican Society

SOC/AAF 336: Social Inequality

SOC/APG 415: Migration in the Americas

SOC 475G: Global Perspectives on Reproduction

SOCIAL INSTITUTIONS AND CONTEXTS

1-3 (3+ credit) courses from this category for the minor

APG/SOC/GWS 308: (301) Sustainable Agriculture and Food Cultures

APG 328: Gender and Culture

CCJ 333: Ethics in Criminal Justice

CCJ 410: Race, Crime, and Criminal Justice

CCJ/PSC 476: Policy Issues In Criminal Justice

COM 455: Science and Communication in a Century of Limits

COM/SUS 460: Environmental Communication: Local & Global

ECN/GWS 386: The Economics of Race, Gender, and Class

EDC 103G: Education and Social Justice

GWS 310: Race, Class and Sexuality

GWS/HIS/MAF 373: Environmental Injustice

HDF 357: Family and Community Health

HDF/SOC 437: Law and Families in the United States

HIS 145: Women in the North American Colonies and the United States, 1500-1890

HIS 146: Women in the United States, 1890-Present

HIS 346: Immigration, Ethnicity, and Race in America

HIS 349: History of American Labor

HIS/AAF 359: History of Slavery in America

HIS 364: U.S. Environmental History

MAF 300: This course is an introduction to science and technology studies with an emphasis on the study of ecology and ecologists. (course description is currently under revision)

MGT/GWS 346 Gender in Organizations: Analysis of sex-role behavior in the workplace

NUR 280G: Social Determinants of Health

PHL 212: Ethics

PHL 217: Social Philosophy

PHL 314: Ethical Problems in Society and Medicine

PHL 318: Power/Justice: Contemporary Critical Philosophies

PSC/AAF 466: Urban Problems

PSC 472: Civil Liberties

PSY 399/AAF 399: Introduction to Multicultural Psychology

SOC 212: Families in Society

SOC 224: Health, Illness, and Medical Care

SOC/AAF 240: Race and Ethnic Relations

SOC/MAF 340: Environmental Sociology

SOC 413: Gender Inequality

SOC/AAF 428: Institutional Racism

SOC/LHR 432: Work, Employment, and Society

SOC 438: Aging In Society

SOC 452: Class and Power

METHODS AND SKILLS

1-3 (3+ credit) courses from this category for the minor

ENG 121: Outrage! Literature of Protest and Dissent

GWS 320: Feminist Thought into Action

HDF 414: Leadership for Activism and Social Change

MUS 301: Music as a Form of Social Protest

PSY 425: Peace Psychology

PSY 479: Topics in Psychology: Nonviolence Conflict Reconciliation Training

PSY 499/PSY 670: Psychology Practicum: Violence Prevention in the Schools

SOC 250 Social Movements & Change

SOC 303 Immersion in Juvenile Social and Legal Justice

WRT 304: Writing for Community Service

For a list of the minor's advisory committee members, visit the Department of Sociology & Anthropology.

SPECIAL POPULATIONS

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in special populations must fulfill the following requirements:

This interdepartmental minor gives students the opportunity to explore theory and gain practical experience through working with people who have special needs. This includes people who have disabilities (physical, emotional, mental, or educational) or are different socioeconomically, behaviorally, or culturally. A minimum of 18 credits may be earned by taking the required courses (HDF 200 or PSY 232; PSY 442), a minimum of three credits in supervised field experience, and a minimum of nine credits of selected electives.

Courses are chosen in consultation with an advisor from one of the participating departments: Communication Studies;

Education; Nutrition and Food Sciences; Human Development and Family Studies; Nursing; Kinesiology; Psychology; Sociology and Anthropology; Textiles, Fashion Merchandising, and Design; or Theatre. The College of Health Sciences administers the program.

SPORTS MEDIA AND COMMUNICATION

This interdisciplinary minor in Sports Media and Communication exposes students to historical, critical, analytical, practical, and professional approaches to sports media and communication. Students who complete the program understand how to critically and effectively evaluate, analyze, and produce sports media and communication products using a variety of technologies and media, from their voice for broadcasting to social media platforms for advertising. With a focus on the interdisciplinary nature of the sports media and communication industry, students will complete a wide variety of courses that will all develop and harness their skills and help launch their sports media and communication career. In order to bridge academic instruction with the professional world, students are expected to complete an internship or experiential learning opportunity on or off campus. Many of these internships can be had on campus and have already been developed. Students will also have ample opportunities to meet with distinguished alumni working in the sports industry as broadcasters, anchors, advertisers, public relations specialists, announcers, film producers, and more.

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students are advised to take the general education pre-requirements for the included courses, and in particular COM 100. Students are required to complete 18 hours of coursework from the following, at least three credits must be from an internship in Com 477, FLM 401, or JOR 345:

COM 202 Public Speaking (Special Section Devoted to Sports)

COM 246 New Media and Society

COM 203 Introduction to Sports Media and Communication

COM 204 Introduction to Sports Casting

COM 302 Advanced Public Speaking (Special Section Devoted to Sports)

COM 307 Audio Communication in the Media

COM 340 Electronic Media Programming

COM 341 Documentary Pre-production

COM 342 Documentary Production

COM 344 Short Docs: The Athlete (FLM 344)

COM 346 Social and Cultural Aspects of Media

COM 414 Rhetoric of Sports in Film

COM 441 Race, Class and Gender in the Media

COM 455 Media Advertising

COM 447 Entertainment Media Research

COM 477 Internship in Communication Studies

FLM 110 Introduction to Film Media Production Technologies

FLM 477 Field Experience in Film Media

JOR 220 Media Writing

JOR 221 Multimedia Reporting

JOR 430 Advanced TV News

JOR 345 Journalism Internship (soon to be JOR 477)

KIN 278 Physical Activity, Cultural Diversity and Society

PRS 300 Social Media Strategies for PR Professional

PRS 320 Strategic Media Relations

PRS 340 Public Relations (assessed fall 2017)

PRS 360 Strategic Sport Communication and Media

PRS 370 Sports Branding in the Digital Age

PRS 477 Internship in Public Relations

Interested students should contact Kevin McClure, krmcclure@uri.edu.

STATISTICAL SCIENCE

The department of Computer Science and Statistics offers a minor in Statistics.

Faculty: Associate Professors Katenka and Puggioni; Assistant Professors Wu, Zhang, and Zhu; Lecturers Allotey and Kouider; Professor Emeritus Gonzalez.

Minor in Statistics. In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who wish to declare a minor in statistics must complete 6 courses and earn at least 18 credits including STA 307 (4) or STA 308 (4) or STA 409 (3); STA 411 (3) or STA 412 (3); MTH 451 (3), STA 441 (4), and two additional statistics courses at the 300-level or above.

SUSTAINABILITY

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students declaring a minor in sustainability complete the following four requirements:

(1) A "synthesis course" selected from a series of courses that focus on principles of sustainability (AFS/NRS/PLS 190; BIO 262; EGR 213G; GEO 100G; HPR 411; ISE/SUS 261G, 461G; LAR 350; MAF 100, 220, 330, 465; NRS 100; GEO/OCG 110, OCG 123G; TMD 103G 3 credits).

(2) An internship that includes hands-on sustainability experience on campus or in the community (e.g. ITR 301/302; CSV 301/302/303). Course can include research, service learning, and/or leadership. Minimum of 3 credits. Course can be repeated for up to 6 credits. Students may elect to take an internship offered from within a given major. Some majors have generic internship courses in which students may seek approval for 3-6 credits (e.g. COM 471/472; NRS 487); others would need to use the Center for Career and Experiential Education to arrange for an appropriate internship of from 3-12 credits, only 3 of which would be required for the minor. (For more information, visit uri.edu/career/job-internship-search/). Use of the internship activity to fulfill requirements of the minor requires approval by the sustainability minor coordinator(s).

(3) Elective courses selected from the following approved lists, with at least one course from each of the three core areas (9

credits): ECONOMICS: EEC 105, 205, 310, 345, 440, 441; ECN 201, 202; ISE 304. SOCIAL EQUITY/JUSTICE: APG 203; COM 410, 415, 462; HPR 319; NFS 207; SOC 242, 350, 413, 438, 452, SOC/AAF 240, 336, 428. ENVIRONMENT: AFS 102, 120; BIO 101/103, 467; CHM 100; GEO 103; ISE 460; LAR 444, 445; NFS 276G; NRS 223, 300, 401/501, 445/545, 514; OCG 131; PLS 306, 311, 324; TMD 226.

(4) A capstone course requiring submission of a brief proposal describing the intended work and how it relates to sustainability, the associated course, and the faculty sponsor. The faculty member may well be simply signing off on a course that s/he teaches as part of a regular workload (COM/SUS 315; COM 455; HPR319; MAF 472, 475; NRS 496; NRS/MAF 527; OCG 480/580; PSC 402), or may be agreeing to sponsor the student's work in a special studies arrangement, which could be an add-on to the internship or could stand alone. The sustainability minor coordinator(s) must approve the proposed capstone course.

The Sustainability Minor Committee is consulted on the appropriateness of capstone courses, internships, and the addition of any new courses to the minor. Substitutions may be approved by sustainability minor coordinators in each college. For more information, contact Associate Professor Valerie Maier-Speredelozzi.

THANATOLOGY (DEATH, DYING, BEREAVEMENT AND LOSS)*

*As of Fall 2021, admission to this program has been suspended.

The interdisciplinary minor in Thanatology is the study of death and dying, grief and bereavement caused by both death and non-death losses. URI's Thanatology program is supported in part by the Weyker Endowment which was given by Dr. Lawrence Weyker in memory of his wife Miriam. The purpose of the endowment is to improve the care of the dying and bereaved through education, service and research.

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students who declare a minor in Thanatology must fulfill the following requirements:

Students are required to take 18 credits (12 of which are at the 200 level or above) in the following core areas: Thanatology (minimum of 9 credits); communications, counseling, gerontology and psychology (3 credits); ethics, philosophy and religion (3 credits); and 3 credits in any category, preferably a Thanatology course.

Courses may be selected from the following approved list:

Thanatology: HPR topics by approval, THN/NUR 260, 270, 364G, 365G, 425, 429, THN/HDF 421 and 471, THN 422, PHP 460.

Communications, Counseling, Gerontology, and Psychology: COM 100, 221, 251, 324, 325, 361, 422; HDF 314, 430, 450, 535; PSY 113, 232, 399.

Ethics, Philosophy, and Religion: PHL 103, 212, 314, 328, 346, 401 (when related to Thanatology); RLS 111, 125, 126, 131, 151, 226(126).

For additional information, see web.uri.edu/nursing/thanatology. For academic advisement and course approvals, and to declare a Thanatology minor, contact The College of Nursing.

UNDERWATER ARCHAEOLOGY

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), to obtain a minor in underwater archaeology students must take 18 credits in history, historical archaeology, anthropology, classical archaeology, oceanography, and marine policy, at least 12 of which must be at the 200 level or above. The required courses and options are outlined below.

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

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

WORK, LABOR, AND SOCIAL JUSTICE*

The Schmidt Labor Research Center administers an interdisciplinary undergraduate minor: Work, Labor, and Social Justice.

*Effective January 2020 this program is no longer accepting applicants.

The minor aims to expand awareness of current issues facing workplaces and working people, and offers students an integrated 21st century understanding of employment and labor. The minor combines academic study with internships to prepare students for a variety of relevant careers and/or graduate study.

In addition to fulfilling all the basic requirements for a minor (see Minor Fields of Study), students in the labor studies minor are required to complete a total of 18 credits. Students must take LRS 480, Seminar in Labor Studies, and choose the remaining fifteen credits from the following classes: APG 310, 319, 328, 413; COM 422; ECN 305, 363, 368, 381; HDF 225, 414, 430, 434, 437; HIS 339, 346, 349; JOR 210, 310, 311, 410; PSC 113, 402, 466, 472; SOC 212, 240, 242, 320, 336, 350, 428, 432, 497. Any pre-requisites for these courses must be met.

Interested students should contact Professor Aimee Phelps, Labor Research Center.

WRITING

See Writing and Rhetoric in Arts and Sciences.

Graduate School

GRADUATE PROGRAMS

Persons holding the baccalaureate degree and wishing to take graduate-level courses at the University may do so through admission to the Graduate School.

Brenton DeBoef, Dean

For more information, visit uri.edu/graduate-school or call 401.874.2262. In case of discrepancies between this Catalog and the departmental materials, this URI Catalog is considered definitive. Departmental websites and departmental curricular and course materials are maintained independently and do not necessarily reflect University-approved curricular and course information.

GRADUATE ADMISSION AND REGISTRATION

Admission

Students may be admitted to URI's Graduate School to pursue a specific graduate degree or they may pursue postbaccalaureate work in nonmatriculating status (see below). Admission to the Graduate School is based on academic qualifications and potential without regard to race, gender, religion, age, color, creed, national origin, disability, or sexual orientation, and without discrimination against disabled and Vietnam era veterans.

Prospective students can find information on application procedures as well as a link to the application at the Graduate School website at uri.edu/graduate-school. Inquiries concerning particular degree programs or courses of instruction should be addressed to the appropriate department chair or graduate program director, as listed in the Graduate Degree Programs section of this catalog and on the Graduate School website.

Applications are initially reviewed by the department or program to which admission is sought. Final decisions rest with the Graduate School, which, after considering the recommendation of the department concerned, will notify the applicant of the decision.

While admission to a doctoral program is possible for those holding the bachelor's degree and meeting other requirements, the Graduate School reserves the right to offer admission only to the master's program while postponing a decision on admission to the doctoral program until at least a substantial portion of the master's work has been completed.

Applications must be accompanied by a $65 nonrefundable application fee plus a Centralized Application System (CAS) Fee. Simultaneous application to more than one department requires duplicate applications and credentials and separate application fees.

The completed application and all supporting documents must be received by April 1 for summer admission, July 15 for fall admission, and November 15 for spring admission (dates for international applicants are below). The application must be received by February 1 for consideration for financial aid for the following year. As indicated in the

section in this catalog, certain programs admit students only for the fall semester or have earlier deadlines. There is no assurance that applications completed after specified deadlines will be processed in time for enrollment in the desired semester. Admission is valid only for the term offered and must be reconsidered if a postponement is subsequently requested.

International Applicants.

Applicants from foreign countries must demonstrate proficiency in the English language. Applicants whose native language is not English must submit an official test report from the Test of English as a Foreign Language (TOEFL), the International English Language Testing System (IELTS), the Pearson Test of English (PTE), or the Common European Framework of Reference (CEFR). Scores are valid for two years. Minimum scores needed to be eligible to be considered for admission are published at uri.edu/graduate-school/apply/international-applicants/. If a higher minimum is required for admission to a specific program, it is listed under that program's admission requirements. Prospective students can find information on application procedures as well as a link to the application at the Graduate School website at uri.edu/graduate-school. Applications not received by February 1 for fall admission and July 15 for spring admission will be considered for the next admission period. Inquiries from international students concerning nonimmigrant visas, transfers, funding, etc., should be sent to the

Office of International Students and Scholars. Inquiries concerning housing should be sent to the Department of Housing and Residential Life (for apartments on campus) or to the Commuter Housing Office (for rooms, apartments, and houses in the nearby community).

Transfer Credit.

Transfer credit can be requested for graduate work taken at other accredited institutions of higher learning. Under usual circumstances, such credits may not exceed 20 percent of the total credits required in the program. The transfer work must have been taken at the graduate level (equivalent to the 500 level or higher in URI's course numbering system) and a passing grade earned at that institution. It must have been completed not more than seven years prior to the date of admission and must have a clear and unquestioned relevance to the student's Program of Study. The request for transfer credit should be accompanied by a proposed Program of Study. If transfer credit is desired for work taken elsewhere after a graduate student is enrolled at the University, prior approval must be obtained from the Graduate School. Doctoral candidates holding a master's degree in the same or a closely related area can request that up to 30 credits from their master's degree be applied to their Program of Study.

Prospective Students.

Applicants must submit a completed application, containing all of the requested materials. Where required, test scores in the appropriate nationally administered tests should be sent to the University directly by the testing service. Tests required for specific programs can be found in the Graduate Degree Programs section and the Graduate School website. Scores (GRE, MAT, or GMAT) earned more than five years prior to the term of application will not be accepted. If test results exceed the five-year limit, applicants must retake the examination.

To be accepted into a degree program, applicants must have

maintained an average of B (3.00 on a 4.00 scale) or better in their undergraduate work. For programs that require standardized tests, students must also have satisfactory scores on the appropriate nationally administered test. Applicants with undergraduate averages below the B level may possibly be admitted with submission of other evidence of academic potential; i.e., satisfactory performance in postbaccalaureate work, professional experience as evidenced by publications or letters of recommendation, and/or high scores in the standardized tests referred to above.

Once accepted into a graduate degree program, students are expected to maintain a cumulative average of B (3.00) or better. Students who do not maintain a cumulative B average will have their status reviewed and may be placed on provisional status or be dismissed. A student placed on provisional status must achieve a cumulative B average within one semester (or nine credits, if part-time) or be subject to dismissal.

Advanced Standing.

Advanced standing refers to credits taken at URI by a nonmatriculating student, or by a student in one degree program before formally beginning another degree program. In instances where a student plans to take a course or courses while in one degree program so as to apply those credits to a more advanced degree at a later date, the student must request and receive written prior approval from the dean of the Graduate School before enrolling in said course(s). Credits earned at the University of Rhode Island by a nonmatriculating student may be applied as advanced standing toward degree requirements only upon the recommendation of the student's major professor and the graduate program director and with the approval of the Graduate School. For the credits to be applied to advanced standing, they must have been earned within a five-year period before the student matriculated into the degree program. For a master's degree program, advanced standing and transfer credit may not total more than 40 percent of the credits required for the degree. For Ph.D. students admitted without a master's degree, advanced standing may not total more than 20 percent of the credits required for the degree. In special cases, Ph.D. students admitted with a master's degree in the same or a closely related area may request up to nine credits of advanced standing. The request should be accompanied by a proposed Program of Study and satisfy the time constraints listed for transfer credit.

In certain cases, applicants who have been denied admission may be advised to take several courses in nonmatriculating status (see following paragraph) to provide a basis for later reconsideration of their applications. In such cases, these courses are usually regarded as if they were entrance deficiencies and are not accepted for advanced standing in minimum-credit Programs of Study.

Nonmatriculating Status.

Individuals holding a bachelor's degree who are not enrolled in a graduate degree program may take courses during the academic year or in the summer in nonmatriculating status. Normally, to take courses for personal satisfaction or professional advancement, postbaccalaureate students enroll in the

Alan Shawn Feinstein College of Education and Professional Studies. Any nonmatriculated student wishing to take courses on the Kingston Campus must file an application with the

Office of Enrollment Services. If nonmatriculated students later wish to be admitted to a degree program, they must complete the regular admission procedure.

Nonmatriculated students do not have the privileges regularly enjoyed by students enrolled in graduate degree programs. For example, on the Kingston Campus they may not register until one week before classes begin and must make payment before accessing the registration system. Their enrollment is subject to the accommodation of matriculated students wishing to take these courses. In addition, there is a limit to the number of courses taken in this status that may be used as advanced standing to satisfy degree requirements. Nonmatriculated students are not eligible for financial aid.

Registration

The responsibility for being properly registered rests with the student. Students must complete their registration within the time period announced by the University at

uri.edu/enrollment/academic-calendars. The director of the student's academic program will assign an advisor to assist the new graduate student in planning a program. In programs that culminate with a thesis or dissertation, the student will then choose a major professor to guide their studies. All students must register for courses through eCampus in order to be properly enrolled.

For information on late registration, course schedule, payment of fees, drop and add, auditing, Veterans Administration educational benefits, transcripts, change of address, and required identification, please see "Registration Policies" in Enrollment Services.

Summer Session.

Although some graduate-level courses are offered during the summer sessions, the University does not guarantee that any particular course will be offered. The availability of individual faculty members to supervise research or to participate in comprehensive examinations and in examinations in defense of theses or dissertations during the summer sessions varies from year to year. During the summer sessions, special arrangements must be made with both the Graduate School and the department for scheduling comprehensive examinations and thesis or dissertation defenses. Students must be registered to be eligible to schedule these exams. Graduate students must make prior individual arrangements for taking directed studies or special problems courses.

Time Limit and Continuous Registration.

Graduate students are required to complete their course work and research within the five-year time limit prescribed for the master's degree and the seven-year time limit for the doctorate. In exceptional circumstances, requests to the Graduate School for an extension of the time limit must be accompanied by an explanation of delay in program progress, a detailed proposed schedule for completing the degree, along with the approval of the major professor and the graduate program director. The dean of the Graduate School will review such requests and determine whether a variance to the time-limit requirement is warranted (see the *Graduate School Manual*, sections 7.42 and 7.51).

Graduate students in programs that culminate in a master's or doctoral degree must remain continuously enrolled—except for summer sessions, which are optional—until they have completed all requirements and have received their

degree. Unless they are on a Leave of Absence approved by the department and the Graduate School, students who wish to maintain graduate status must be enrolled in at least one course/research credit. For students who have completed all degree requirements with the exception of removing grades of Incomplete or submitting the final, formatted copies of a successfully defended thesis/dissertation, enrolling in CRG 999 (continuous registration) will maintain their graduate status.

Continuous registration is not required for nonmatriculated students and students who are only enrolled in certificate programs.

Students who are on a Leave of Absence do not have the privileges of consulting regularly with faculty on research or thesis preparation, nor of using laboratory, computer, or other educational facilities at URI. Students on who are not continuously registered are not eligible for continuation of educational loan deferments based on student status.

A student who does not register for a semester, or obtain approval for a Leave of Absence, will be considered as having voluntarily withdrawn from the University. Students who are later permitted to re-enroll must pay a reinstatement fee, but they will still be required to complete their degrees five (master's) or seven (doctoral) years after their initial enrollment.

Full-Time and Part-Time Students.

Minimum full-time registration is nine credit hours during a regular semester and six credit hours during a summer session. Maximum registration of 15 credit hours during a regular semester and eight credits during each summer term may not be exceeded without prior written permission of the Graduate School, based on extraordinary circumstances. (Students on graduate teaching and research assistantships are limited to a minimum of six and a maximum of 12 credits.) Credits in excess of 15 will be billed at the per-credit rate. Full-time registration is required of all international students and of all students holding fellowships, assistantships, full scholarships, and traineeships administered by the University.

Credits Earned Off Campus.

Students wishing to register for credits to be counted toward a degree, who will be earning these credits through off-campus activities (such as research or independent study at a national laboratory), must obtain prior approval from the Graduate School to have these activities listed as part of their Programs of Study.

Intellectual Opportunity Plan (Pass-Fail Option).

To allow graduate students to venture into new areas of knowledge without fear that their scholastic average will suffer, the Graduate Council has approved the Intellectual Opportunity Plan. (Please note that courses below the 400 level are automatically excluded from the scholastic average.) To be eligible for this option, the student's major professor or advisor must certify that the course or courses are outside the student's major field of study, are not entrance deficiencies, and are not specific requirements of, but are relevant to, the student's program. A maximum of four credits may be taken by the master's degree student and a maximum of eight credits, including any taken as a master's student, by the doctoral student.

GRADUATE SCHOOL CALENDAR

uri.edu/graduate-school/academics/academic-calendar

FALL SEMESTER 2021

September 7, Tuesday. Deadline for Reinstatement and Admission Deferment requests.

September 8, Wednesday. Classes begin, Kingston campus. Deadline to submit Leave of Absence requests for Fall 2021.

September 21, Tuesday. Final date to register for classes. Deadline to submit ABD Status requests for Fall 2021.

October 12, Tuesday. Doctoral Candidates Only– Final date for submission of approved dissertation proposals for potential May 2022 graduates. Dissertation proposals should be submitted before substantial research has been completed, typically during the first or second semester in which the student registers for research credits. The proposal must be submitted during or before the seventh semester in which a doctoral student is enrolled in their program, and at least 6 months before the dissertation is defended.

October 13, Tuesday. Final date for nominations for December 2020 graduation.

November 1, Monday.

Master's Thesis Candidates only

-Final date for applications to be submitted via IRBNet in the Office of Research Integrity for IRB or IACUC approval for potential May 2022 graduates. (IRB= Institutional Review Board – research involving human subjects; IACUC = Institutional Animal Care and Use Committee – research involving vertebrate animals)

November 21, Sunday. Deadline for the submission of applications for graduate programs for Spring 2022 (not accelerated online programs), except for programs with earlier deadlines.

November 19, Friday. Final date for potential December 2021 graduates to submit completed defense copies of theses/dissertations in a form acceptable for examination purposes, along with the request for oral defense of thesis/dissertation. NO EXTENSIONS OF TIME CAN BE GRANTED. *Theses/dissertations must be submitted at least 20 calendar days prior to the date requested for oral defense. Selection of date should allow sufficient time for necessary revisions and retyping before final submission. See December 18 and important note at end of calendar below.*

December 13, Monday. Classes end. Programs of Study due for students admitted for Fall 2020.

December 17, Friday. Final date for potential December 2021 graduates to submit, in final, correctly formatted form, theses/dissertations that have been successfully defended, and fully approved. NO EXTENSIONS OF TIME CAN BE GRANTED.

December 29, Wednesday. Final date for changes of grades, changes to Programs of Study, results of master's examination(s), results of comprehensive examination(s), etc. for potential December 2021 graduates to be received in the Graduate School for certification for December graduation. NO EXTENSIONS OF TIME CAN BE GRANTED.

J-TERM 2021

Degrees cannot be conferred during J-Term

January 3, Monday. Classes begin.

January 10, Monday. *Master's Candidates Only-* Final date for submission of approved thesis proposals for potential May 2022 graduates. Thesis proposals should be submitted before substantial research has been completed, typically during the first or second semester in which the student registers for research credits. The proposal must be submitted at least 1 semester before the semester in which the thesis is to be submitted and defended.

January 10, Monday. *Doctoral*

Candidates Only- Final date for submission of approved dissertation proposals for potential August 2022 graduates. Dissertation proposals must be submitted during or before the seventh semester in which a doctoral student is enrolled in their program, **and**

at least 6 months before the dissertation is defended.

January 21, Friday. Classes end.

SPRING SEMESTER 2022

January 23, Sunday.

Deadline for Reinstatement and Admission Deferment requests.

January 24, Monday. Classes begin, Kingston campus. Deadline to submit Leave of Absence requests for Spring 2022.

January 28, Friday. Final date for nominations for PhD students for May 2022 graduation due.

February 1, Tuesday. Deadline for submission of international applications to graduate programs for Fall 2022.

February 6, Sunday. Final day to register for classes. Deadline to submit ABD Status requests for Spring 2022.

February 11, Friday *Master’s Candidates Only-* Final date for submission of approved thesis proposals for potential August 2022 graduates. Thesis proposals should be submitted before substantial research has been completed, typically during the first or second semester in which the student registers for research credits. The proposal must be submitted at least 1 semester before the semester in which the thesis is to be submitted and defended.

February 18, Friday. Final date for Master’s and Graduate Certificates nominations for May 2022 graduation.

March 4, Friday. *Doctoral Candidates Only*– Final date for submission of approved dissertation proposals for potential December 2022 graduates. Dissertation proposals should be submitted before substantial research has been completed, typically during the first or second semester in which the student registers for research credits. The proposal must be submitted during or before the seventh semester in which a doctoral student is enrolled in their program, ***and***

at least 6 months before the dissertation is defended.

March 25, Friday. Final date for potential May 2022 graduates to submit completed defense copies of theses/dissertations in a form acceptable for examination purposes, along with the request for oral defense of thesis/dissertation. NO EXTENSIONS OF TIME CAN BE GRANTED. *Theses/dissertations must be submitted at least 20 calendar days prior to the date requested for oral defense. Selection of date should allow sufficient time for necessary revisions and retyping before final submission. See April 17 deadline, and important note at the end of calendar below.*

April 15, Friday. CGS mandated date for Assistantship/Fellowship Offers. The CGS resolution states that assistantship and fellowship recipients have complete freedom of choice in accepting their awards until April 15, with the last award accepted on or before that date being the one to which the student is obligated. Graduate programs may make offers in advance of this date, but cannot state or imply that these offers are contingent on acceptance prior to April 15.

April 15, Friday. Students who have completed their coursework, successfully passed their master's examination(s) (if required), successfully passed their comprehensive examination(s) (if required), and successfully defended their theses/dissertations (if required) by this date are eligible to march in the 2022 Graduate Commencement ceremonies. *Results of examinations and defenses must be received in the Graduate School by this date to participate in the 2022 Graduate Commencement*. (For complete listing of eligibility regulations, see the

Graduate Commencement checklist, or see the *Graduate School Manual* Appendix B.).

April 15, Friday. Final date for changes of grades for courses taken in previous semesters, changes to Programs of Study, results of master's examination(s), results of comprehensive examination(s), etc. for potential May 2022 graduates to be received in the Graduate School for certification for May 2022 graduation. NO EXTENSIONS OF TIME CAN BE GRANTED.

April 22, Friday. Final date for potential May 2022 graduates to submit, in final, correctly formatted form, theses/dissertations that have been successfully defended, and fully approved. NO EXTENSIONS OF TIME CAN BE GRANTED.

April 22, Friday. Final date for potential May 2022 graduates to submit comprehensive exam results (if required by the program) and grade changes from prior semesters.

April 25, Sunday. *Master's and PhD Candidates* – Final date for all applications to be submitted via IRBNet in the Office of Research Integrity for IRB or IACUC approval for potential December 2022 graduates. (IRB= Institutional Review Board – research involving human subjects; IACUC = Institutional Animal Care and Use Committee – research involving vertebrate animals)

May 2, Monday. Programs of Study due for students admitted for Spring 2021.

May 18, Wednesday. Final grades due for potential May 2022 graduates.

May 21, Saturday. Graduate Commencement.

2022 SUMMER SESSIONS

Note:

All courses taken by graduate students during summer sessions are subject to the same regulations regarding inclusion

in Programs of Study and calculation of overall academic average, etc., as courses taken during the regular academic year. Students wishing to take directed studies or special problems courses during summer sessions must obtain individual approval for these courses from the Continuing Education office unless the specific offering is listed in the summer Course Schedule for that year. Students wishing to enroll for thesis or dissertation research during summer sessions must first determine that their major professors and/or members of their thesis or dissertation committees will be available and are willing to provide the necessary supervision. See also the important note at the end of this calendar regarding scheduling of examinations, including defense of theses/dissertations, during summer sessions. See the schedule of summer courses available online at uri.edu/summer, or visit the Continuing Education (Summer Session) office in Kingston.

May 16, Monday. Deadline for Reinstatement and Admission Deferment requests.

May 23, Monday. Classes begin. (Sessions 1 and 3)

June 6, Monday. *Master's Candidates Only*- Final date for submission of approved thesis proposals for potential December 2022 graduates. Thesis proposals should be submitted before substantial research has been completed, typically during the first or second semester in which the student registers for research credits. The proposal must be submitted at least 1 semester before the semester in which the thesis is to be submitted and defended.

June 10, Friday. Final date for nominations for August 2022 graduation.

June 27, Monday. Classes begin, Session 2

July 15, Friday. Deadline for submission of Fall 2022 graduate program applications, except for programs with earlier deadlines.

July 21, Thursday. Final date for all potential August 2022 graduates to submit completed defense copies of theses/dissertations in a form acceptable for examination purposes, along with the request for oral defense of the thesis. NO EXTENSIONS OF TIME CAN BE GRANTED. *Theses must be submitted at least 20 calendar days prior to the date requested for the oral defense. Selection of date should allow sufficient time for necessary revisions and retyping before submission in final form. See August 13 deadline.*

August 3, friday. Final date for changes of grades, changes to Programs of Study, results of master's examination(s), results of comprehensive examination(s), etc. to be received in the Graduate School for certification for August 2022 graduation. NO EXTENSIONS OF TIME CAN BE GRANTED.

August 12, Friday. Final date for potential August 2022 graduates to submit, in final, correctly formatted form, theses/dissertations that have been successfully defended, and fully approved. NO EXTENSIONS OF TIME CAN BE GRANTED.

IMPORTANT:

Requests for scheduling exams must be submitted to the Graduate School at least 20 calendar days prior to the date(s) requested. Theses and dissertations must be distributed to members of the examining committee at least 15 days prior to the date of the defense. Oral and written (including qualifying and comprehensive) exams and defenses of theses will be scheduled only at the convenience of the faculty members involved and depending on the availability of the student's program committee and additional qualified examiners. Such exams will not be scheduled during periods when the University is in recess. Students wishing to take any exams should first check the availability of the faculty members. Each faculty member must initial the request to indicate his or her willingness to serve. Faculty should be consulted well in advance for exams being scheduled during the summer sessions. If they are not registered for course work or research during the summer sessions, students must register for one credit of research to defend theses/dissertations.

GRADUATE SCHOOL REQUIREMENTS AND POLICIES

Each advanced degree awarded by the University requires as a minimum the successful completion of a specified number of approved credits of graduate study at the University and the passing of prescribed examinations. Credit hours for a master's or doctoral degree may include formal course work, independent study, research, preparation of a thesis or dissertation, and such other scholarly activities as are approved by the student's program committee and the Graduate School.

It is the student's responsibility to know the calendar, regulations, and pertinent procedures of the Graduate School and to meet its standards and requirements.

These are set forth in this catalog, the *Graduate School Manual,*

the *Statement on Thesis Preparation,* and other publications, all of which are available to graduate students at uri.edu/graduate-school. These documents are also available in some department offices. The manual is available at the library and, for a fee, at commercial centers in Kingston. These documents govern both master's and doctoral degree programs.

The *Graduate School Manual* gives detailed information on responsibilities of major professors and program committees, examination procedures, preparation of theses and dissertations, academic standards, and the Graduate Student Academic Appeals System.

The requirements immediately following are *general requirements* for all graduate students.

Specific requirements for individual programs are itemized in the Graduate Degree Program Descriptions that follow.

Program of Study

The purpose of the Program of Study is to ensure that students, at an early stage in their graduate study, organize coherent, individualized plans for their course work and research activities. It is expected that the successful completion of students' Programs of Study along with collateral readings, research, etc., will enable them to demonstrate that they have achieved the high level of competence required of graduate students in their respective fields.

All students matriculated in a graduate degree program are required to prepare a Program of Study with the guidance of their major professors (for master's degree programs) or of their program committees (for doctoral programs) in accordance with the guidelines in the

Graduate School Manual.

After the program has been approved by the major professor or by the program committee, the Program of Study is submit-

ted for approval to the Graduate School.

Course Numbering System

All regular graduate courses are numbered at the 500 and 600 levels. All 900-level courses are special graduate courses for which no graduate program credit is given. Courses numbered at the 400 level are for advanced undergraduates, but may, with approval and to a limited extent, be accepted toward meeting degree requirements at the master's level. For doctoral students who have completed the master's degree in the same field or one closely related, all program work must be at the 500 or 600 level.

Scholastic Standing

Graduate work is evaluated by letter grades. All grades earned will remain on the student's record, and will be included in calculating the student's scholastic average.

A grade of C+ (2.33) or lower in courses numbered at the 400 level is considered a failing grade. In such cases of failure the course must be either repeated, if it is a required course, or else replaced by another course approved by the student's program committee and the Graduate School.

Grades of C- or lower are failing grades in courses at the 500 and 600 levels and require immediate review of the student's status. Students failing these courses must repeat them, if they are required courses, or else they must replace them with courses approved by the student's program committee and the Graduate School.

The grades S (satisfactory) and U (unsatisfactory) are used for courses of study involving research undertaken for the thesis or dissertation and for certain courses and seminars so designated. The letter I (incomplete) is used for excused unfinished work. Graduate students have one year to make arrangements with the instructor to remove the incomplete. If the grade of I (incomplete) is not removed within three calendar years, it will remain on the transcript. Incomplete grades may not be used for program credit. Grades of S, U, I, and all grades in courses below the 400 level are not included in the academic average.

To qualify for continuation of degree student status and for graduation, a cumulative average of B (3.00 on a 4.00 scale) in all work is required. At any time when the academic record indicates unsatisfactory performance, the student's status is subject to review. A student who fails to maintain a satisfactory grade point average or to make acceptable progress toward the degree may be dismissed as a graduate student.

Degree Requirements

Master's Degree.

There are no major or minor area requirements for the master's degree. However, no degree can be awarded for the accumulation of credits without a planned and approved Program of Study. Courses for the degree are expected to be concentrated in the student's field of interest and related areas to produce a well-developed and coherent program.

The requirements listed here must be met within five years after the date the student is first enrolled as a matriculated graduate student at the University. In exceptional circumstances, requests to the Graduate School for an extension of the time limit must be accompanied by an explanation of delay in program progress, a detailed proposed schedule for completing the degree, along with the approval of the major professor and the graduate program director. The dean of the Graduate School will review such requests and determine whether a variance to the time-limit requirement is warranted (see the

Graduate School Manual,

sections 7.42 and 7.51). The master's degree may be earned through full- or part-time study, or a combination of the two

Some departments offer both a thesis and a nonthesis option, while others offer only one plan. Please refer to the "Graduate Degree Program Descriptions" for specific information on each program. General requirements for these options are as follows.

Thesis Option.

The minimum requirements for a master's degree are 1) the successful completion of 30 credits, including six to nine thesis research credits; 2) at the discretion of the department, the passing of written comprehensive examinations toward the end of the course work; 3) the submission of an acceptable thesis and the passing of an oral examination in defense of the thesis. A statement on the preparation of theses is available from the Graduate School Office.

Nonthesis Option.

Depending on departmental requirements, some master's degrees may be earned without a thesis. The minimum requirements for a nonthesis master's degree program are: 1) the successful completion of a minimum of 30 credits; 2) completion of practicums, internships, or other experiences useful to the student's future professional career; 3) registration in one course that requires a substantial paper involving significant independent study; 4) the passing of a written comprehensive examination toward the end of the course work. Some departments may also require a final oral examination.

Research Competency.

Although not normally required for the master's degree, a student's major professor or thesis committee may require proficiency in a foreign language, statistics, or computer science where appropriate for the subject chosen.

Professional Degrees.

Students should refer to the specific program requirements for professional degrees and consult with the appropriate dean or director.

Doctor of Philosophy Degree.

The Doctor of Philosophy degree must be completed within seven years of the date when the student first enrolled as a matriculated student.

The requirements for the doctoral degree are 1) the completion of a minimum of 72 credits of graduate study beyond the baccalaureate degree, of which a minimum of 42 credits must be taken at the University of Rhode Island; 2) the passing of a qualifying examination or the completion of a master's degree; 3) if required by the department, proficiency in one or more foreign languages and/or in an approved research tool; 4) the passing of a comprehensive examination; 5) the completion of a satisfactory dissertation; 6) the passing of a final oral examination in defense of the dissertation; and 7) fulfillment of the residence requirement by taking a minimum of six credits per semester (specific graduate programs may

require more) for at least two consecutive semesters after satisfying qualifying examination requirements. Residence is interpreted as attendance on campus or in the Alan Shawn Feinstein College of Education and Professional Studies during a regularly scheduled semester. Full-time registration for both terms of a summer session counts as one semester of residence.

The department in which the student studies for the doctoral degree may or may not require a master's degree preliminary to, or as part of, the regular course of study.

Qualifying Examination.

This examination is intended to assess a student's potential to perform satisfactorily at the doctoral level. A student without a master's degree who is accepted as a matriculated doctoral student is expected to take a qualifying examination, usually after 24-30 credits have been completed. A student who holds a master's degree in the same or a closely related field is normally not required to take the examination. If an examination is required, it will be stipulated at the time of admission.

Research Competency.

Each department, in cooperation with the Graduate School, is authorized to formulate and to amend its own requirements and methods of testing for competency in research tools such as foreign language(s), computer science, or statistics. The department may, in turn, delegate this responsibility to the program committee for each individual doctoral student.

Comprehensive Examination.

Each doctoral student will take comprehensive examinations at or near but not later than 12 months after completion of the formal courses stipulated in the Program of Study. The examination is designed to assess the student's intellectual capacity and adequacy of training for scholarly research.

The comprehensive examination consists of two parts: written and oral. The student, with the approval of his or her program committee, applies to the Graduate School to take the examination. The oral examination committee includes the student's committee and two additional members of the graduate faculty appointed by the Graduate School. One of the additional members represents a field of study allied to that of the student's major. The student's major professor arranges for and chairs the examination. Unanimous approval by the examining committee is required for the passing of the comprehensive examination.

A student whose performance fails to receive unanimous approval may, with the committee's recommendation and the approval of the Graduate School, be permitted one re-examination in the part or parts failed, to be taken no sooner than ten weeks, and no later than one year after the initial examinations.

Final Oral Examination.

This examination is a defense of the dissertation and is open to all members of the faculty and, generally, to all students. The examination, usually a maximum of two hours, is conducted by an examining committee made up of the student's program committee and two additional graduate faculty members appointed by the Graduate School. One of the appointed members will be designated by the dean to chair the examination.

Unanimous approval of the examining committee is required for passing. If the student does not perform satisfactorily, the committee may recommend to the Graduate School that the student take one re-examination under stated conditions.

Theses and Dissertations

For the oral defense, a sufficient number of completed copies of the thesis or dissertation, acceptable in form and substance to each member of the examining committee and the Graduate School, is required. At least 20 calendar days prior to the proposed defense, the copies must be submitted to the Graduate School for scheduling of the examination.

Following a successful defense, and after all changes and corrections have been made, copies prepared in accordance with requirements of the Graduate School and the library must be submitted to the Graduate School. Doctoral students must submit an additional abstract, not exceeding 350 words.

Students are advised to consult the *statement on thesis preparation* and *instructions for thesis defense,* both available in the Graduate School (and at uri.edu/graduate-school).

Graduate Degree Program Descriptions

ACCOUNTING

M.S.

401.874.5000

Faculty: Professor Beckman, director of graduate studies. Professors Hazera, Jervis and Blanthorne; Associate Professors Boyle and Jelinek; Assistant Professors Liu, Marquez, and Triki.

Master of Science

The Master of Science in accounting program is designed for students with a variety of educational backgrounds and professional experience who want to enter the field of accounting. The program provides a strong accounting and business foundation for the student with an undergraduate degree in an area other than accounting. These students graduate with a theoretical understanding of accounting along with the necessary technical background. They are equipped to perform exceedingly well as professionals in public and corporate accounting. The objective for students with undergraduate degrees in accounting is to provide a fifth year of conceptual, theoretical, and technical education in accounting, finance, analytics, and other areas where the student can gain the most toward achieving his or her educational objectives. The Master of Science in accounting program has been accredited by the Association to Advance Collegiate Schools of Business International (AACSB) since 1972.

An applicant with a bachelor's degree in accounting from an AACSB accredited institution can complete the program of study in one year. Applicants with no prior education in business will need to spend eighteen months or 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 courses that are 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 or MBA 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 3.2 or above and a score at the 50th percentile or above on the GMAT or GRE examination are expected. Students with a major in accounting and 3.5/4 or better GPA, from an AACSB accredited institution are exempt from the GMAT/GRE requirement. The GMAT/GRE score and the undergraduate grade point average are not the sole criteria for admission. However, those with undergraduate grade point averages of less than 3.2 or with lower than 50th percentile scores on the GMAT have a reduced probability of admission. Applicants for whom English is not the native language will be expected to demonstrate proficiency in written and oral communications. The Master of Science in Accounting program follows the Graduate School Guidelines which can be found at uri.edu/graduate-school/apply/international-applicants/.

Program requirements: From 30 to 60 credits are required depending on undergraduate program. A course requiring a major paper involving independent study is required. All graduate-level courses offered by the College of Business are open to matriculated graduate students only.

APPLIED MATHEMATICAL SCIENCES *

*See applied mathematics track under Mathematics. For a description of the former Ph.D. program in Applied Mathematical Sciences, which is no longer open to incoming students, please refer to the 2010-2011 URI Catalog.

BIOLOGICAL AND ENVIRONMENTAL SCIENCES

M.S., Ph.D. (Interdepartmental)

401.874.2957

The M.S. and Ph.D. in biological and environmental sciences (BES) are interdisciplinary, interdepartmental graduate degrees that involve faculty from a diverse set of departments in URI's College of the Environment and Life Sciences (CELS), including Biological Sciences; Cell and Molecular Biology; Fisheries, Animal and Veterinary Science; Geosciences; Natural Resources Science; and Plant Sciences; as well as faculty from the Graduate School of Oceanography. Contact information and a list of faculty in each of these departments are provided below.

Students accepted into the M.S. and Ph.D. degree programs in BES are organized into graduate specialization groups that include Cell and Molecular Biology (CMB), Evolution and Marine Biology (EMB), Ecology and Ecosystem Sciences (EES), Environmental and Earth Sciences (EVES), and Sustainable Agriculture and Food Systems (SAFS). These graduate specialization groups are described in more detail below, along with the admissions and degree requirements for M.S. and Ph.D. students in BES. When applying to the BES graduate program, prospective students should indicate which of the graduate specialization groups listed below represents their primary area of interest. Prospective students are encouraged to contact individual faculty to learn more about graduate research opportunities.

More information about the BES graduate program can be found here: uri.edu/cels-gradprograms/bes

Departments in CELS that train graduate students in biological and environmental sciences:

Biological Sciences 401.874.2373, uri.edu/bio

Faculty: Professor Preisser, chair; Professor McWilliams, director of graduate studies. Professors Fastovsky, Lane, Preisser, Roberts, and Webb; Associate Professors Irvine, Kolbe, Moseman-Valtierra, Norris; Assistant Professors Couret, Davies, Dewsbury, Prada, Puritz, Putnam, Schwartz; Adjunct Professors Carlton, Deacutis, Fogarty, Henry, Lauder, Sanford, and Schneider; Adjunct Associate Professors Bailey, Cromarty, Ewanchuk, Gemma, Orwig, T. Roberts, and Thursby; Adjunct Assistant Professor Raposa.

Cell and Molecular Biology 401.874.2201, uri.edu/cmb

Faculty: Professor Chandlee, chair; Associate Professor Gregory, director of graduate studies. Professors Chandlee, Howlett, Jenkins, Kausch, Nelson, and Sun; Associate Professors Camberg, Gregory, Martin and Zhang; Assistant Professors Dutta, Fallini, K. Ramsey and M. Ramsey; Research Professors Rothman and Srikiatkhachorn; Research Associate Professor Moise; Professors Emeriti Hufnagel, Laux, Sperry and Tremblay; Associate Professor Emeriti Mottinger.

Fisheries, Animal and Veterinary Science 401.874.2477, uri.edu/favs

Faculty: Professor Gomez-Chiarri, chair; Associate Professor Petersson, graduate coordinator SASF specialization. Professors Bradley, Mallilo, and Rice; Associate Professors Petersson and Sartini; Assistant Professors Hoffman, Humphries, and Suckling; Adjunct Professors Hoey, KleinMacPhee, Musick, Serra, and Smolowitz; Adjunct Associate Professors Colwill and Hare; Adjunct Assistant Professors Baker, Brumbaugh, Castro, Dudzinski, Gleason, Hancock, Jamu, Leavitt, Rheault, Proestou; Professors Emeriti Bengtson, CostaPierce, DeAlteris, McCreight, Nippo, Recksiek, Rhodes, and Wolke.

Geosciences 401.874.2265, uri.edu/geo

Faculty: Associate Professor Savage, chair; Professor McWilliams, director of graduate studies. Professor Boving, and Fastovsky; Associate Professors Cardace, Engelhart, Savage, and Veeger; Assistant Professors Mallik and Pradhanang; Adjunct Professors Burks, Fischer, and Spiegelman.

Natural Resources Science 401.874.2495, uri.edu/nrs

Faculty: Professor Gold, chair; Professor McWilliams, director of graduate studies. Professors Abedon, Amador, August, DeHayes, Gold, McWilliams, Meyerson, Paton, Sheely, Stolt, Thornber, and Wang; Associate Professor Karraker; Assistant Professor Gerber; Research Professor McGreevy, Roman, and Thompson; Clinical Associate Professor Menezes; Visiting Associate Professor Floyd; Adjunct Professors Paul and Perez; Adjunct Associate Professors Cerrato, Daehler, Gorres, Groffman, Nowicki, O'Connell, Reed, and Rockwell; Adjunct Assistant Professors Augeri, Bergondo, Buffum, Dabek, Eisenbies, Eldridge, Farnsworth, Gayaldo, Hollister, Jarecki, Kellogg, Lashcomb, McKinney, Milstead, Mitchell, Peters, Pierce, Rubenstein, Saltonstall, Steele, and Tefft.

Plant Sciences and Entomology 401.874.2791, uri.edu/pse

Faculty: Professor Mitkowski, chair; Professors Alm, LeBrun, Mather, Maynard, Mitkowski, Ruemmele, and Sullivan; Associate Professors Englander and Brown; Assistant Professor Taylor; Professor in Residence Ginsberg; Adjunct Assistant Professor Gettman; Professors Emeriti Cassagrande, Hull and Jackson.

Graduate Specialization Groups

Cell and Molecular Biology (CMB): This graduate research group focuses on the molecular basis of life, offering solid foundations in biochemistry, microbiology, and molecular genetics, with an emphasis on interdisciplinary training. Faculty research interests are diverse and include the molecular basis of microbial colonization and virulence; the biochemistry of cellular signaling; the molecular origins of cancer; the development of vaccines against infectious disease; the roles of microbial consortia in the marine environment; comparative and evolutionary genomics; the control of gene expression by endogenous and environmental signals; the genetics of marine organisms; the molecular biology and genetic modification of plants; agricultural biotechnology; and developmental gene regulation. More information about this BES specialization can be found here: https://web.uri.edu/cels-gradprograms/bes/cmb/

Evolution and Marine Biology (EMB): This graduate group focuses on understanding the diversity of form and function of terrestrial and marine organisms. We draw from evolutionary, developmental, and physiological perspectives, and apply these approaches to biodiversity, the environment, and human health. Areas of specialization include evolutionary genomics and population biology, marine biology, morphology and development, and science education and communication. More information about this BES specialization can be found here: https://web.uri.edu/cels-gradprograms/bes/emb/

Ecology and Ecosystem Sciences (EES): This graduate research group focuses on patterns and processes within and among populations, communities, and ecosystems. Faculty research interests are diverse and include ecological studies across the spectrum of biological organization (molecular, organismal, population, community, ecosystem, and landscapes) that focus on the intra- and interspecific interactions of microbes, algae, plants, insects, invertebrates, and vertebrates that inhabit a variety of terrestrial, coastal, freshwater, and marine ecosystems. Much of this research addresses important environmental issues with implications for public policy such as the ecology of endangered species and habitats, the biological control of algal blooms, invertebrate pests, parasites and disease, anthropogenic nutrient enrichment and bioremediation, ecohydrology of coastal wetlands, landscape change, climate change, invasive species, fisheries, and habitat restoration. More information about this BES specialization can be found here: https://web.uri.edu/cels-gradprograms/bes/ees/

Environmental and Earth Sciences (EVES): This graduate research group focuses on the history, function, and condition of earth's environments from local to global scales. Faculty research interests encompass all aspects of the natural sciences including geology, biogeochemistry, hydrology, soil science, assessment of biodiversity, microbial ecology, and global change. Most of this research uses combinations of geospatial data technologies, computer modeling, state-of-the-art analytical instruments, and field investigations to advance our knowledge of earth processes and the management of water resources, shorelines, wetlands, and terrestrial landscapes to sustain healthy environments and to rehabilitate and restore damaged environments. More information about this BES specialization can be found here: https://web.uri.edu/cels-gradprograms/bes/eves/

Sustainable Agriculture and Food Systems (SAFS): This graduate research group takes a systems-based, interdisciplinary approach to the biological and environmental sciences as applied to agriculture, aquaculture, fisheries, nutrition, and food safety. The diverse group of faculty, with contributors from both the natural and social sciences, uses a broad array of approaches, from molecular to ecosystem-based, to help achieve the economically sustainable production, management, consumption, and utilization of plants and animals for the development of healthy communities. Areas of research include animal science (reproduction, nutrition, management, and health), aquaculture (ecology, physiology, nutrition, and aquatic pathology), horticulture (fruit and vegetable production, environmental horticulture, and turfgrass management), entomology and biocontrol of invasive species, nutrition and food safety, and soil science. More information about this BES specialization can be found here: https://web.uri.edu/cels-gradprograms/bes/safs/

Master of Science in Biological and Environmental Sciences

Admission requirements: A bachelor's degree in a biological or physical science, natural resources science, math, engineering, or other appropriate discipline. Applicants with course deficiencies may be required to take additional 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: a minimum of 30 credits beyond the bachelor's degree. This includes a minimum of six and a maximum of nine thesis credits (599 courses), a minimum of 18 credits of formal course work, and a maximum of six credits in special problems and directed studies courses.

Doctor of Philosophy in Biological and Environmental Sciences

Admission requirements: A bachelor's degree in a biological or physical science, natural resources science, math, engineering, or other appropriate discipline. Applicants with course deficiencies may be required to take additional undergraduate courses for no program credit.

Program requirements: a minimum of 72 credits of graduate study beyond the bachelor's degree (a master's degree may count for up to 30 credits). At least 42 credits must be taken at the University of Rhode Island. Required course work and dissertation credits depend on the preparation and study plan of the individual student. All degree candidates are required to prepare a Program of Study in consultation with their major professor and doctoral committee. Written and oral comprehensive examinations and a defense of dissertation are required. 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.

BUSINESS ADMINISTRATION

M.B.A., Ph.D., D.B.A.

401.874.2337

Faculty: Dean Ebrahimpour, Associate Deans S. Chen and Ashley, Professors Beauvais, Beckman, Blanthorne, Cooper, Creed, Dash, Hales, Hazera, Lin, Mazze, Sheinin, Westin. Associate Professors Ashley, Atlas, Y.W. Chen, Dugal, Dunn, Djurdjevic, Goto, Jelinek, Labrecque, Leonard, Ozpolat, Rogers, Schniederjans, Shin, Strubel, Triki and Xu; and Assistant Professors Y. Chen, Ergene, Flowers, Foster-Holt, Hossain, KaleKouhizadeh,C.Lee, J. Lee, Liu, Marquez Illescas, Samples, , Tsafack Kemassong, Xia, and Yalcin. Teaching Professor Aimee Phelps Wu. Senior Lecturer Gamache-Griffiths, Newell, Lecturer Beliveau.

Specializations

For the M.B.A.: finance, marketing, organizational leadership, and supply chain management.

For the Ph.D.: finance, management (non-active), 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 Education and Professional Studies, School of Professional and Continuing Studies (in Providence).

Master of Business Administration

The Master of Business Administration (M.B.A.) program prepares students for the rapidly changing economy. Businesses expect you to be not only critical thinkers and problem-solvers, but also to possess the practical knowledge and experience necessary to succeed. Our non-thesis M.B.A. programs prepare you to be leaders to rise to those expectations within an environment that fosters knowledge acquisition, retention, and practical learning.

One-Year M.B.A students begin the program in the fall semester only and will complete the program in one calendar year. Evening M.B.A students can begin the program in the fall, spring, or summer semester. The M.B.A. program has been accredited by the Association to Advance Collegiate Schools of Business International (AACSB) since 1972.

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 post-baccalaureate work are required. The GMAT/GRE application requirement will be waived for candidates who meet one of the following criteria listed on our website. Work experience is valued but not required. 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 web.uri.edu/graduate-school/apply/international-applicants/. 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 and the University are welcome. Evening M.B.A. applications are due June 30 for September admission, October 31 for January admission, and March 31 for summer admission. One Year M.B.A. applications are due April 15 for early admission; final deadline of June 30 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 Evening M.B.A. program, based out of the URI Feinstein Providence Campus, requires a maximum of 42 credits. Students are required to take the following eight core courses: ECN 590 , MBA 500, 502 , 503 , 504 , 505, 560, and 565. Students will then complete an additional six electives (18 credits) to complete the program. Two of the six elective courses must be M.B.A. designated courses. The remaining four elective courses can be taken from other URI graduate level courses or pre-approved 400-level URI undergraduate courses for graduate credit, per approval from the MBA Coordinator.

Waiver exams are available for MBA 500, MBA 504 and MBA 505. ECN 590, MBA500, MBA 502, MBA503 and MBA505 may be waived with permission of the program director based on successful completion of recent equivalent college-level courses at an AACSB-accredited institution within the past five years. See our website for details.

The One-Year full-time M.B.A. program, based out of the Kingston Campus, consists of a maximum of 42-credits with a minimum 36 credits if you waive the pre-requisite courses. Prior to starting this cohort program in the fall, students must meet prerequisites in economics and statistics through showing previous coursework in these subjects, taking relevant coursework in the summer, or in the case of statistics through a waiver exam. Students take day classes in Kingston during the fall and spring semesters. During the final summer, they complete their program by participating in an internship, elective courses or directed study. For the One-Year M.B.A., completed application packages must be received by April 15 (early decision) with a final deadline of June 30 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 resume, 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 every other year 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 web.uri.edu/graduate-school/apply/international-applicants/. 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.

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 a major paper of publishable quality. The paper should be 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.

Doctorate in Business Administration (D.B.A.)

The D.B.A degree is designed for working professionals who already have a Master's degree and 10+ years of experience who want to use research skills to solve specific, applied business problems that are typically informed by their extensive work experience. D.B.A. scholars leverage their work experience and, often, their access to data, as they pursue their dissertations part-time for three years. After earning their DBAs, practitioner-scholars typically stay in industry, and may leverage their evidence-based management skills to advance in industry, engage with consulting opportunities, and/or to pursue clinical faculty opportunities that leverage their work experience. D.B.A. scholars continue to work and are self-funded

Admission Requirements: Applicants with a graduate degree and a minimum of ten years of professional experience (with at least seven years in a management capacity) are required to submit a current résumé summarizing their professional experiences and achievements and listing their previous academic experiences and achievements; an essay that identifies why the applicant decided to pursue a DBA, goals associated with pursuit of the D.B.A./future career goals, the research problem the applicant would like to solve, with a description of the data needed and whether or not the applicant currently has access to data; an essay that attests to the applicant's commitment of time and financial resources to successfully complete the program in three years (~15 hours per week) and two letters of recommendation from professionals who can speak to the applicant's ability to thrive in an academically rigorous professional doctoral program and balance the time commitment required in the program

Applications will be reviewed, finalists will be interviewed, and decisions will be made as submissions are received.

Program Requirements: Before joining the practitioner-scholars have an advanced degree, significant work and management experience, a problem they would like to solve using evidence-based management methods, and access to data relevant to the problem

For the first year, D.B.A. students will learn about theory development; conceptual models; qualitative and quantitative methodologies; and the publication process for applied business research and apply what they learn to their project as a step toward becoming practitioner-scholars that will inform their dissertation

In the year two, Practitioner-scholars learn about more advanced methods, ethics, and how to disseminate knowledge. They will work on solving their problem and developing research output during the coursework

During the third year, the last three semesters, D.B.A. candidates will register for a total of 15 additional hours of dissertation work aimed at addressing the business problem. During this period, candidates will be expected to produce a dissertation.

A total of 78 credits is required for graduation.

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. See Pharmaceutical Sciences in the graduate section of this catalog.

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.

CHEMICAL ENGINEERING **

M.S., Ph.D.

401.874.2655

Faculty: Professor Bothun, chair; Associate Professor Greenfield, director of graduate studies. Professors Bose, Brown, Gregory and Lucia,; Associate Professos Meenach; Assistant Professors Poling-Stutvik, Roxbury, and Shen; Professors Emeriti Barnett, Crisman, Gray, Knickle, Rivero-Hudec, Rockett, and Rose.

Specializations

Biochemical engineering: reactors, metal-bacteria interactions, and chemical production.

Bionanotechnology: hybrid bio/nano materials, drug delivery, biomolecular processes, nanocomposite hydrogels and microparticles, sensors and devices.

Energy engineering: energy storage and lithium ion batteries.

Materials engineering: corrosion and erosion, electronic materials processing, ceramic processing, polymer films, conducting polymers, thin film materials and sensors, and flame retardants.

Pharmaceutical engineering: dry powder processing, production of particle-based therapeutics, engineering of therapeutic particles, biomaterial scaffolds for drug delivery and tissue engineering, and treatment of diseases.

Polymer engineering: thermophysical properties of polymers, polymer process modeling and control, molecular modeling, and molecular scale chemo-mechanics.

Process simulation: process design, optimization, and analysis; process control; numerical methods.

Surface, interfacial and colloidal phenomena: soft and hard colloids, nano composites, biomimetic coatings, and imaging techniques.

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. Non-thesis option for part-time students, with permission of the chair, requires master's examination and comprehensive report with oral examination. Attendance in CHE 501 or 502 is required every semester for all on-campus students.

Accelerated B.S./M.S. Degree Program

See Chemical Engineering in the Undergraduate section of this catalog.

Doctor of Philosophy

Admission requirements: B.S. or M.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: 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, and must include at least one course each in CHE dynamics of applications (503), CHE thermodynamics (513, 614),CHE transport (541), and CHE research methods (570) at URI. Students with a masters degree require CHE 501, 502, 699 (25 credits) and fifteen credits of course work beyond the MS. Students with a bachelors degree require a qualifying exam, CHE 501, 502, 699 (37 credits), and 33 credits of course work. A comprehensive examination and an acceptable dissertation are required of all students to complete the program. Attendance in CHE 501 or 502 is required every semester for all on-campus students. Off-campus students can replace 501 and 502 with additional 691, 692, or 699 credits.

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 from CHE 513, 529, 530, 531, and 537.

** Program includes the option of earning dual degrees from URI and from Technische Universität Braunschweig, Germany. For more information, visit uri.edu/iep

CHEMISTRY

M.S., Ph.D.

401.874.2318

Faculty: Professor Smith, chair. Professors DeBoef, Euler, Freeman, Lucht, and Oxley; Associate Professors Dwyer, Kiesewetter, and Levine; Assistant Professors Hayes and Kim; Professors Emeriti Kirschenbaum, Rosen, and Yang.

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:

M.S. Degree (Thesis Option)

Complete CHM 500, 505, 506 and 507. (Students wishing to pursue research through the Biochemistry Division may substitute BCH 581 to fulfill this requirement.) Complete a minimum of nine additional credits of classroom coursework. Graduate-level courses taken in other departments require pre-approval by the Graduate Curriculum Committee. Earn one seminar credit, CHM 642. Complete a total of 30 credit hours of work and write and orally defend the thesis.

M.S. Degree (Non-Thesis Option)

Complete CHM 500, 505, 506 and 507. (Students wishing to pursue research through the Biochemistry Division may substitute BCH 581 to fulfill this requirement.) Complete a minimum of 12-15 additional credits of classroom coursework. Graduate-level courses taken in other departments require pre-approval by the Graduate Curriculum Committee. Earn one seminar credit, CHM 642. Complete five to eight credit hours of directed research (CHM 551 and 552).

Doctor of Philosophy

Admission requirements: same as for master's degree.

Program requirements: Complete CHM 500, 505, 506 and 507. (Students wishing to pursue research through the Biochemistry Division may substitute BCH 581 to fulfill this requirement.) Complete a minimum of six credits of additional coursework. Graduate-level courses taken in other departments require pre-approval by the Graduate Curriculum Committee. Pass Qualifying Exams, complete Thesis Proposal and then pass Comprehensive Exam. Earn three seminar credits as specified in CHM 642, 643, & 644. Complete a total of 72 credit hours of work, complete the residency requirement and write and orally defend the dissertation.

CIVIL AND ENVIRONMENTAL ENGINEERING **

M.S., Ph.D.

401.874.2692

Faculty: Associate Professor Thiem, chair; Assistant Professor Akanda, director of graduate studies. Professors Baxter, Craver, Gindy, Lee, Tsiatas, and Veyera; Associate Professors Bradshaw, Hunter, and Thomas; Assistant Professors Das and Goodwill; Professors Emeriti Marcus, McEwen, Poon, Urish, and Wright.

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: geoacoustic 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 or closely related fields may be accepted with the possibility of additional undergraduate prerequisite courses being required.

Program requirements: thesis or nonthesis option. Thirty credits plus CVE 601and 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.

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, a comprehensive examination, and a dissertation.

Accelerated Five-Year B.S./M.S. Degree Program

See Civil Engineering in the Undergraduate section of this catalog.

** Program includes the option of earning dual degrees from URI and from Technische Universität Braunschweig, Germany. For more information, visit uri.edu/iep

COLLEGE STUDENT PERSONNEL

M.S.

See Education in the Graduate Program descriptions.

COMMUNICATION STUDIES

M.A.

401.874.2552 (uri.edu/communication-studies-graduate-program/)

Faculty: Professor Mundorf, chair; Professor Ye, director of graduate studies. Professors Chen, DiCioccio, Healey-Ja-

miel, Hobbs, McClure, Salazar, Swift, and Torrens; Associate Professors Derbyshire, Leatham, Quainoo, Reyes, and Wyatt; Assistant Professor Diamond, Hodler, Kim, Kushner, and Xiong; Lecturers Chiang, Henderson, Jalette, Morrison, Munksgaard, and Poulakos; Professors Emeritae Anderson, Brownell, Devlin, Doody, Ketrow and Wood.

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, sports media, health communication, science communication, or public relations. Individual specialties can be developed within each of the specialization areas.

Beyond selecting a program of emphasis from one of the above identified content areas, students may choose an additional focus in the area of pedagogy. Students must apply to the pedagogy focus and those selected are required to take three semesters (3 credits total) of COM 503 (Graduate Practicum: Teaching Communication Seminar) and have concurrent teaching experience of at least one section in COM 100, with up to two sections per semester through the Communication Studies Department

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, a 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 are encouraged to apply and 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 https://web.uri.edu/graduate-school/admission/international/. Applications should be completed online (uri.edu/graduate-school). Completed applications, including support materials, must be received by March 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. All students must complete one seminar in each of the four focus areas (12 credits): COM 510-interpersonal communication; COM 520-media studies /COM522-media and the environment; COM 530-organizational communication; and COM 540-public discourse. An additional course in research methods, statistics (e.g., STA 409 Statistical Methods in Research or PSY/STA 532: Experimental Design), 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 students 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 students 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.

Accelerated Bachelor's/Master's in Communication Studies

The accelerated Bachelor's Degree/Master's (ABM) Degree program is a five-year track designed to help you attain a combined Bachelor's and Master's degree. The Master of Arts degree in Communication Studies can be paired with any Bachelor of Arts degree from these undergraduate programs in the Harrington School: Communication Studies, Public Relations, Writing and Rhetoric, Film/media, Journalism or Sports Media Communication.

The Master's degree requires 30 graduate credits. Students will typically apply during their Junior year.

Upon admission to the program, up to 9 of the 400-level undergraduate credits taken toward your B.A. may double count toward the M.A. degree. You will complete the 120 credits needed for the B.A. in your fourth year. In your fifth year, you will take the 21 remaining graduate credits to complete the M.A.

See Communication Studies ABM in the ABM section of this catalog for more information.

Financial Aid

All requests for assistantships must be sent to the director of graduate studies with the application packet. A limited number of graduate positions and occasional COM100 instructor positions 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 March 1; after this deadline, assistantships will be awarded on a space-available basis.

COMMUNITY PLANNING

The URI Graduate Certificate in Community Planning provides students advanced instruction and training in community planning and development to address contemporary planning challenges at different geographical levels in the United States.

Admission Requirements: To apply you will need to provide: (1) college transcripts certifying successful completion of bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a graduate certificate in Community Planning. GRE's are not required. Applications for Fall semester admission should be completed by 15 July and application for Spring semester admission should be completed by 15 November.

Program Requirements: 15 or 16 credits of graduate coursework that consists of CPL 410 (or 501) as well as 6 credits from the following core courses: CPL 434 (or 539), CPL 450, CPL 483, CPL 485, CPL/MAF 516, PSC 505. The remaining 6 or 7 credits are taken from the following courses: CPL 538, CPL 549, LAR 444, LAR 445, MAF 465, MAF 475, MAF 564, PSC 524.

COMPUTER SCIENCE

M.S., Ph.D., P.S.M.

401.874.2701

Faculty: Professor DiPippo, chair. Professors Fay-Wolfe and Lamagna; Associate Professors Hamel and Hervé; Assistant Professors Alvarez, Brown, Daniels, Hendawi and Venkatasubramanian; Adjunct Assistant Professors Dickerman, Encarnação, and Ravenscroft; Professors Emeriti Baudet, Carrano, Kowalski and Peckham.

Specializations

Analysis of algorithms, big data, bioinformatics, computer algebra, computer graphics, computers in education, cryptography, cyber security, data science, databases, digital forensics, distributed computing, implementation and semantics of programming languages, logic-based programming, machine learning, parallel computing, real time systems, simulation, sensor networks, vision, and visualization.

Accelerated Bachelor's to Master's Degrees

Computer Science B.A. to Cyber Security Professional Science Master's Degree

Computer Science B.S. to Cyber Security Professional Science Master's Degree

Students in the Computer Science B.A. and the Computer Science B.S. programs are eligible to apply for an Accelerated Bachelor's to Master's Degree (ABM/PSM) program to earn a Professional Science Master's Degree in Cyber Security.

All courses required by the Computer Science B.A. (or B.S.) and the Professional Science Master's in Cyber Security are required. Additional requirements under the program are listed below.

Prerequisites

Prior to application, students must receive a B or better in CSC 211, CSF 102, CSF 432, or equivalent courses at the discretion of the department.

Applying for the Computer Science and Cyber Security ABM/PSM

To apply for the program, students must have earned a minimum of 75 credits and have a 3.0 GPA. Students will be enrolled in the program only after they have met the Graduate School admission requirements and have completed 90 undergraduate credits.

Admitted to Computer Science and Cyber Security ABM/PSM – Prior to Receiving B.A .(or B.S.)

Once accepted to the program, prior to receiving their B.A. (or B.S.) in Computer Science, students must receive a B or better in two P.S.M required courses. Twelve credits may be double counted for both the Bachelor's and Master's Degrees. Only 500-level courses and 400-level courses designated for graduate credit are eligible to be double counted.

Admitted to Computer Science and Cyber Security ABM/PSM – After Receiving B.A. (or B.A.)

After the B.A. (or B.S.) has been completed, the remaining P.S.M courses must be completed within two years of being encoded as a Computer Science and Cyber Security ABM/PSM student.

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 212, 301, 340/447, 440 and MTH 141 plus one MTH course at the 200 level or above or STA course at the 400 level or above. 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 two tracks: thesis and nonthesis.

Program requirements for thesis option: 4 courses from a list of CSC courses the department maintains; 4 other courses chosen with approval of the major professor; eight credits of thesis.

Program requirements for nonthesis option: 6 courses from a list of CSC courses the department maintains; 4 other courses chosen with approval of the advisor; at least one of the ten courses listed above should include writing a substantial paper based on significant independent research; passing a written comprehensive examination.

A program of study can include at most 3 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.

Professional Science Masters in Cyber Security

Admission requirements: Bachelor's degree. No technical background is required. For those students without a technical background, additional, optional materials will be provided in the summer prior to beginning the first course in the program. No GRE is required.

Program requirements: The degree requires 36 credits, consisting of 9 4-credit courses. There is no comprehensive exam and no thesis requirement. CSF 590 provides a capstone experience through an internship with a partner organization. Students are required to take five core courses and choose four more optional courses from a list.

Core Courses: CSF 430, 432, 534, 580, and (CSF 590 or 591)

Optional Courses: CSF 410, 462, all 500-level CSF courses.

Doctor of Philosophy

For the purpose of describing degree requirements, core computer science courses are grouped into the following core areas:

Mathematical Foundations: CSC 541, 542, 544, 550

Programming Languages: CSC 402, 501, 502

Architecture and Systems: CSC 511, 512, 519

Admission requirements: Bachelors degree in computer science or a closely related field. Applicants with a bachelors 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, plus one MTH or STA course for which calculus is a prerequisite. 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 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 two courses from mathematical foundations, one course from programming languages, two courses from architecture and systems, plus three more approved CSC courses or equivalents. 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 three core areas listed above. Success in the written examination is conditional upon obtaining passing grades in all 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.

Digital Forensics and Incident Response Graduate Certificate Program

The Graduate Certificate in Digital Forensics and Incident Response is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of digital forensics. A student wishing to receive a Graduate Certificate in Digital Forensics and Incident Response must complete the following courses: CSF 410, 432, 512, and 524.

Cyber Security Graduate Certificate Program

The Graduate Certificate in Cyber Security is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of cybersecurity. A student wishing to receive a Graduate Certificate in Cyber Security must complete the following courses: CSF 430, 432, 534, and one of CSF 524, 538, 536. For more information, including a list of required courses and an application to the program, please visit dfcsc.uri.edu/academics/cyber_security.

DATA SCIENCE (ACCELERATED ONLINE PROGRAM)

See Mathematics.

DOCTOR OF NURSING PRACTICE

401.874.9711, uri.edu/nursing

D.N.P. course work includes nursing courses in nursing science, administration/leadership, informatics, health-related data analysis and implementing evidence-based strategies in health care. Practicum courses are continuous throughout the program. Interdisciplinary courses include epidemiology, health care policy, and organizational design and decision-making in the Colleges of Pharmacy, Health Sciences, and Business. The program culminates with a practice immersion experience and practice improvement project.

Specializations

For the Post B.S. – D.N.P.: the concentration is on advanced practice, with specialization as a family nurse practitioner or an adult-gerontology primary care nurse practitioner. Admissions are currently on hold for the Post-B.S. – D.N.P. program.

For the Post M.S. – D.N.P.: the concentration is on health care systems innovation.

Admission requirements

For Post-B.S. entry into the D.N.P. program, the admission requirements are the same as those listed above for the M.S. program. A minimum GPA of 3.30 is required following the advanced practice concentration courses for continuation in the D.N.P. program for students taking this option. Admissions are currently on hold for the Post-B.S. – DNP program.

For the Post-M.S. entry into the D.N.P., admission requirements include: a master's degree in nursing (GPA minimum 3.30); eligibility for R.N. licensure in Rhode Island; completion of a 300- to 500-level statistics course; completion of a master's level introduction to research course (NUR 505 or equivalent); completion of a master's level nursing theory course (NUR 507 or equivalent); completed application package with all transcripts; three letters of reference attesting to the applicant's capability for doctoral study (academic and professional, at least one from a doctorally prepared nurse); one scholarly paper or a master's thesis or equivalent; a statement of purpose indicating goals that are congruent with those of the program and institution and a curriculum vitae/resume. All materials must be received by February 15th for fall admission. Accep-

tance is based on a full review of the applicant's record and not any single component.

Post B.S. – D.N.P. Program Requirements

Program requirements include a minimum of 72 credits. Required first level course work includes 10 credits of core nursing courses and HDF 527 (3 credits). Required advanced practice core courses (11 credits) include NUR 503; NUR 504 or 508; NUR 535 and 582. Students may choose one of two advanced practice nursing concentrations: family nurse practitioner or adult-gerontology primary care nurse practitioner.

Family nurse practitioner concentration courses (18 credits) include NUR 531, 532, 533, 534 and 590. Adult-gerontology primary care nurse practitioner concentration courses (18 credits) include NUR 561, 562, 563, 564 and 590. Students who wish to obtain their master's degree after completion of the concentration courses before continuing on for the D.N.P. must take NUR 520 (1 credit) and complete a master's comprehensive exam. The remaining 28 credits in the D.N.P. program include NUR 549, 551, 680, 686 (6 credits), 688 (7 credits), PHP 540, MBA 540 and 0 – 2 elective credits depending on concentration. Admissions are currently on hold for the Post-B.S. – DNP program.

Post M.S. – D.N.P. Program Requirements

Program requirements include a minimum of 42 credits. Program pre-requisites include a master's degree in nursing, completion of a 300- to 500-level statistics course, a master's level introduction to research course (NUR 505 or equivalent), and a master's level nursing theory course (NUR 507 or equivalent). D.N.P. required first level course work (9 credits) includes NUR 681, 683, and HDF 527. Remaining D.N.P. courses (20 credits) include NUR 549, 551, 680, PHP 540, MBA 540 and 5 elective credits. Elective credits may be taken in the Colleges of Nursing, Health Sciences, Pharmacy and/or Business. The program culminates with the clinical immersion practicum and practice improvement project associated with NUR 686 (6 credits) and NUR 688 (7 credits). (revised 5/2020)

DOCTOR OF PHYSICAL THERAPY

D.P.T.

401.874.5001

Faculty: Professor McGough Chair. Associate Professor Agostinucci; Assistant Professors Clarkin and Laferrier, Clinical Associate Professors Dupre and McLinden; Clinical Assistant Professor Petrie.

URI's Physical Therapy Program is an entry-level Doctor of Physical Therapy program that prepares students for the professional licensure examination and future practice. 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 simulated hospital room with an interactive mannequin, computerized anatomical study center, point of service ultrasound imaging and KINCOM muscle performance dynamometry, postural analysis, electromyography, Gait Rite computerized gait analysis system, Balance and vestibular analysis systems, and kinetic and kinematic human motion analysis systems. Research is currently conducted in the treatment and prevention of: dysfunction of neuromuscular control mechanisms; polytrauma; balance disorders; and concussion. Current research areas also include adaptive sport participation, clinical education, interprofessional education, and return to work following injury.

Specializations

Research activities are focused on biomechanics, neuromuscular control, muscle performance, neuromuscular rehabilitation, disability, geriatrics and falls prevention, musculoskeletal injury prevention, and patient satisfaction. Clinical specialty skills are enhanced through faculty clinical practice and internships.

Admission requirements: a bachelor's degree with 8 credits of biological sciences (introductory and second level biology course (not botany); exercise physiology or neuroscience course can serve as second biology course); eight credits of human anatomy and human physiology courses (both must contain labs; can be separate anatomy and physiology courses, or A&P I and A&P II); physical sciences (16 credits, eight in chemistry and eight in physics, both must include a lab) six credits of social science, including general psychology and a second level psychology course, e.g. development, child adolescent, abnormal, etc.; three credits in mathematics (precalculus or higher) three credits in writing; three credits in statistics. Courses in computer science, exercise physiology and research design are 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 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 physical therapy settings. The experience may be part of fieldwork 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. Baccalaureate requirements must be completed prior to final acceptance into the DPT program. The completed application package must be received by mid-October of each year for a May matriculation.

Program requirements: a minimum of 112 credits of specified physical therapy course work, including 12 credits of internships. This program is a three-year plan of required course work, with semesters at the 500 and 600 levels including clinical rotations at affiliated institutions. For clinical rotations, the student may have to pay travel and living expenses. Students entering through the Early Contingent DPT program complete 26cr of required graduate level courses during their Senior Year. Early Contingent DPT students complete the same minimum of 112 credits applicable to the DPT program (26cr completed as an undergraduate student and 86cr completed as a graduate student). A criminal background check and immunizations are required.

All courses involving clinical skill development require sill competency testing via practical examination. All clinical competencies determined necessary the faculty of the respective course must be demonstrated as adequately learned by the student in these courses for achievement of a passing scholastic course grade. (see "Scholastic Standing"

in Graduate School Requirements and Policies.) A comprehensive examination is required. In addition to academic requirements, all students must meet professional behavior indicators described in the Doctor of Physical Therapy Student Handbook.

PHT 440: Head and Neck Anatomy

LEC: (3 crs.) Cross-listed as (PHT), CMD 440. Study of structure and function of human head and neck anatomy, supplemented by dissection laboratory. Emphasis on the musculoskeletal, visceral, nervous, and vascular systems related to dental hygiene and communicative disorders. (Lec. 2, Lab. 2)

PHT 500: Human Anatomy and Histology

LEC: (5 crs.) Structure and function of human anatomy as related to physical therapy. Emphasis on musculoskeletal, visceral, nervous and vascular systems and tissue histology. Functional changes after injury will be emphasized. (Lec. 4, Lab. 2) Pre: DPT student in good standing, early contingent admit DPT, or permission of the chairperson.

PHT 501: Applied Human Anatomy Laboratory

LAB: (3 crs.) Surface anatomy, palpation, introduction to forces and torques, stretching and strengthening. (Lab. 6) Pre: DPT student in good standing, early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 505: Introduction to Physical Therapy

LEC: (1 cr.) Introduction to the profession of physical therapy including concepts related to disability, rehabilitation, evidence based practice, models of care and introduction to the Guide to Physical Therapist Practice. Characteristics and history of the profession and professional expectations for practitioners will be included. (Lec. 1) Pre: DPT student in good standing or early contingent admit DPT, or permission of the chairperson.

PHT 508: Psychosocial Issues in Physical Therapy

LEC: (2 crs.) Behavioral and psychosocial issues relevant in physical therapy practice. Patient's perception of care and interactions in the health care environment. (Lec. 2) Pre: DPT student in good standing or early contingent admit DPT, or permission of the chairperson.

PHT 510: Biomechanics and Pathokinesiology

LEC: (5 crs.) Principles, theories, and recent investigations of the biomechanics of human motion and posture are presented to develop analytical skills for normal and abnormal movement evaluation. (Lec. 5) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 511: Human Neuroscience and Neurology

LEC: (5 crs.) Cross-listed as (PHT) NEU 511. Anatomy, functional anatomy, dysfunction and evaluation of the human nervous system as a basis for understanding its morphology, function, and therapeutic intervention. (Lec. 4, Lab. 2) Pre: DPT student in good standing PHT 552 or permission of the chairperson, or matriculated in the INP.

PHT 512: Physical Examination and Evaluation I

LEC: (3 crs.) Provides students with basic skills for physical examination and evaluation in the provision of physical therapy. Focus will be on strength testing, range of motion, and sensation (Lec. 3) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 513: Directed Study in Physical Therapy

IND: (1-3 crs.) Subject matter arranged to meet the individual needs of graduate students in physical therapy under the supervision of staff. (Independent Study) Pre: DPT student in good standing or early contingent admit DPT, or permission of the chairperson.

PHT 518: Communication and Education in Physical Therapy

LEC: (3 crs.) Topics include teaching in classroom and clinic, psychomotor skills and home exercise programs; increasing patient adherence; and community health. Communication development focuses on verbal/non-verbal, conflict management, assertiveness. (Lec. 3) Pre: DPT student in good standing, PHT 508, co-register with PHT 537 and PHT 544, or permission of the chairperson.

PHT 522: Physical Examination and Evaluation II

LEC: (4 crs.) A continuum of PHT 512, this course will cover posture, functional mobility, gait, balance, assistive devices, wheelchair fitting, and home evaluation. Practice of basic skills through course content using role modeling and patient cases. (Lec. 4) Pre: DPT student in good standing or early contingent admit DPT, PHT 512, PHT 510, PHT 501, PHT 508, or permission of the chairperson.

PHT 528: Ethical, Legal, and Professional Issues in Clinical Practice

LEC: (3 crs.) Practice standards, interdisciplinary issues, ethical considerations, and legal implications of physical therapy practice. Professional development, expert practice, doctoring professions, informed consent, patient rights, standards of practice, advanced directives, malpractice, domestic violence, child and elder abuse. (Lec. 3) Pre: DPT student in good standing or permission of the chairperson.

PHT 532: Physical Agents

LEC: (4 crs.) Theory, practice, and current research regarding application of physical agents. Diagnostic methods, interventions, and personnel supervision and administration of mechanical, thermal, and hydrotherapeutic agents. (Lec. 2, Lab. 2) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 535: Advanced Pathophysiology

LEC: (3 crs.) Cross-listed as (NUR), PHT 535. An in-depth study of pathophysiological phenomena across the life span from the biological life processes perspective. Clinical decision making based on the synthesis of this knowledge and current research findings will be explored. (Lec. 3) Pre: for nursing students: admission to graduate program in nursing or permission of instructor; PHT 500 or permission of the chairperson for physical therapy students.

PHT 536: Advanced Pathophysiology for Physical Therapy

LEC: (4 crs.) Weekly case study presentations are discussed to illustrate basic pathophysiologic phenomena and highlight the relevance to physical therapy practice and therapeutic decision-making. (Lec. 4) Pre: DPT student in good standing or early contingent admit DPT, PHT 512, co-register with PHT 570 or permission of the chairperson.

PHT 537: Management Theory in Physical Therapy

LEC: (2 crs.) An overview of health policy and management theory and its relationship to health care settings. Competent managers need to have a comprehensive understanding of how health care delivery is regulated. This topic will be covered in relationship to third party reimbursement, state regulations, health policy formulation roles of government and politics in health care. (Lec. 2) Pre: DPT student in good standing, co-register with PHT518 and PHT 544, or permission of the chairperson.

PHT 538: Management and Administration in Physical Therapy

LEC: (2 crs.) Practical managerial and supervisory techniques and theory in physical therapy settings with emphasis on application in a variety of settings are presented. Topics: strategic planning, consultation, performance improvement, professional development planning, resumes and interviews, management, and performance appraisal, the health care continuum, budgeting, productivity, outcomes and patient satisfaction. (Lec. 2) Pre: DPT student in good standing, PHT 537 or permission of the chairperson.

PHT 544: Health Promotion in Physical Therapy

LEC: (2 crs.) Provides physical therapy students with an understanding of their role in wellness and health promotion across systems and the lifespan. Content includes health behavior and health education. (Lec. 2) Pre: DPT student in good standing, PHT 536, co-register with PHT 518 and PHT 537 or permission of the chairperson.

PHT 545: Topics in Physical Therapy – Gender Issues

LEC: (2 crs.) Introduction to physical therapy issues specific to gender health throughout the life cycle. Topics include physical therapy management of pelvic and genitourinary health. (Lec. 2) Pre: DPT student in good standing, PHT 552, or permission of the chairperson.

PHT 550: Musculoskeletal Therapeutics I: The Extremities

LEC: (5 crs.) Physical therapy management of individuals with, and the prevention of: impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with musculoskeletal dysfunction in the extremities. (Lec. 5) Pre: DPT student in good standing, or early contingent admit DPT, PHT 501, PHT 508, PHT 510, PHT 512, PHT 532, or permission of the chairperson.

PHT 552: Musculoskeletal Therapeutics II: The Spine

LEC: (5 crs.) Physical Therapy management of individuals with, and the prevention of, impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with musculoskeletal dysfunction in the spine. (Lec. 5) Pre: DPT student in good standing, PHT 522, PHT 536, PHT 550, PHT 570, PHT 655 or permission of the chairperson.

PHT 560: Neuromuscular Therapeutics

LEC: (5 crs.) Physical therapy management of individuals with, and the prevention of, impaired motor function and sensory integrity associated with neuromuscular dysfunction. (Lec.5) Pre: DPT student in good standing, PHT 511, PHT 544, PHT 586, PHT 672, PHT 545, PHT 518 and co-register with PHT 592 or permission of the chairperson.

PHT 570: Cardiopulmonary Physical Therapy

LEC: (4 crs.) Physiological basis, testing and evaluation, treatment, and administration of programs for cardiac and pulmonary-diseased patients requiring physical therapy. (Lec. 4) Pre: DPT student in good standing or early contingent admit DPT, PHT 501, PHT 508, PHT512, co-register with PHT 536, or permission of the chairperson.

PHT 574: Sports Physical Therapy

LEC: (2 crs.) Advanced knowledge and competency in sports injury evaluation and treatment are developed. Additional coverage of sports injury prevention, athletic screening, medical intervention, interdisciplinary coordination, and patient or public education is provided. (Lec. 1, Lab. 3) Pre: DPT student in good standing or early contingent admit DPT, PHT 552 or permission of the chairperson.

PHT 575: Physical Therapy Internship I

PRA: (4 crs.) Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Specific setting and rotational time schedule are determined by the student, academic clinical coordinator, and clinical site. (Practicum) Pre: DPT student in good standing, PHT 605 or permission of the chairperson. S/U credit.

PHT 576: Broadening Experiences in Physical Therapy

LEC: (2 crs.) Provision of physical therapy service in a non-traditional setting or with a unique population. Preparatory work and two-week hands-on experience. (Lec. 1, Practicum in approved setting) Pre: DPT student in good standing, PHT 518 or permission of the chairperson. S/U credit.

PHT 580: Pediatric Physical Therapy

LEC: (2 crs.) Physical therapy assessment, care planning, and treatment of the pediatric population in diverse practice settings. Some hands-on experience with infants and children with a variety of diagnoses. (Lec. 2) Pre: DPT student in good standing, PHT 511 or permission of the chairperson.

PHT 585: Physical Therapy Internship II

PRA: (4 crs.) Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Specific setting and rotational time schedule are determined by the student, academic clinical coordinator, and clinical site. (Practicum) Pre: DPT student in good standing, PHT 575 or permission of the chairperson. S/U credit.

PHT 586: Physical Therapy in Geriatric Populations

LEC: (2 crs.) Geriatric and aging issues related to physical therapy practice. Evaluation and treatment strategies for disorders affecting adults, including biology, cognition, and motor function. Exposure to geriatric populations. (Lec. 2) Pre: DPT student in good standing, PHT 522 or permission of the chairperson.

PHT 592: Interprofessional Comprehensive Cases

LEC: (2 crs.) Cross-curricular integration of physical therapy evaluation, diagnosis, prognosis, intervention and outcome assessment applied to complex cases. Consideration of modifications necessary for different stages of development/age, different cultures, and across the continuum of care. (Lec. 2) Pre: DPT student in good standing, PHT 511, PHT 518, PHT 544, PHT 545, PHT 586, PHT 672, co-register with PHT 560 or permission of the chairperson.

PHT 595: Physical Therapy Internship III

PRA: (4 crs.) Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Selection of clinical specialty area of student's interest is considered in determination of the setting. (Practicum) Pre: DPT student in good standing, PHT 585 or permission of the chairperson. S/U credit.

PHT 600: Foundations of Evidence-Based Practice

LEC: (3 crs.) Presentation and application of principles of evidence-based practice as related to current physical therapy practice, theory development, and scientific literature. Preparation of proposal through literature review. (Lec. 3) Pre: DPT student in good standing, PHT 552 or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 605: Special Topics and Professional Preparation in Physical Therapy

LEC: (2 crs.) Integration of the art and science of physical therapy with the delivery of services. Comprehensive review of systems, including evaluation and interventions as they relate to physical therapy. (Lec. 2) Pre: DPT student in good standing, PHT 560, PHT 592, or permission of the chairperson.

PHT 610: Evidence-Based Inquiry I

PRA: (1 crs.) Introduces the student to the concept of evidence based inquiry and its importance in the physical therapy profession. Initial stages of an evidence-based inquiry project formulated with the guidance of a faculty advisor. (Practicum 1) Pre: DPT student in good standing or early contingent admit DPT, PHT 600 or permission of the chairperson. S/U credit.

PHT 611: Integrated Clinical Experience (ICE) I

PRA: (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson. S/U credit.

PHT 612: Integrated Clinical Experience (ICE) II

PRA: (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing or early contingent admit DPT, PHT 611 or permission of the chairperson. S/U credit.

PHT 613: Integrated Clinical Experience (ICE) III

PRA: (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing, PHT 612 or permission of the chairperson. S/U credit.

PHT 614: Integrated Clinical Experience (ICE) IV

PRA: (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing, PHT 613 or permission of the chairperson. S/U credit.

PHT 620: Evidence-Based Inquiry II

PRA: (3 crs.) Guides the student through the refinement and focusing of a previously identified multiphase inquiry project in which evidence is the critical feature. Identification of target audience, delineation of scope of evidence to be gathered occurs along with initial evidence collection. (Practicum) Pre: DPT student in good standing, PHT 610 or permission of the chairperson. S/U credit.

PHT 630: Evidence-Based Inquiry III

PRA: (3 crs.) Final data gathering, analysis/synthesis, and documentation aspects of a multiphase inquiry project in which evidence is the critical feature. Statistical analysis and literature synthesis are potential techniques to be utilized. (Practicum) Pre: DPT student in good standing, PHT 620 or permission of the chairperson. S/U credit.

PHT 640: Physical Therapy Capstone

PRA: (1 cr.) Provides the student with the opportunity to formally present the culminating findings of their research or leadership project to the faculty and peers. A comprehensive guide will be followed to summarize the work performed in PHT 610, PHT 620, and PHT 630. (Practicum) DPT student in good standing, PHT 630 or permission of the chairperson. S/U credit.

PHT 650: Elective Topics Related To Physical Therapy

LEC: (1-2 crs.) Instruction, observation, seminar and/or participation in a variety of topics related to Physical Therapy. (Lec. 1-2) Pre: DPT student in good standing, PHT 552, or permission of the chairperson. S/U credit.

PHT 655: Diagnostic Imaging

LEC: (2 crs.) Referral and interpretation of diagnostic images relevant in musculoskeletal assessment and management. Radiologic anatomy, normal variants, and pathological and traumatic conditions reviewed. CT scan, magnetic resonance imaging, ultrasonography, angiography addressed. (Lec. 2) Pre: DPT student in good standing or early contingent admit DPT, PHT 501, PHT 510 or permission of chairperson.

PHT 672: Pharmacology for Physical Therapists

ONL: (2 crs.) Pharmacological actions, interventions, and interactions that physical therapists encounter in their treatment of patients undergoing physical rehabilitation. Drug administration appropriate to physical therapy practice. (Online) Pre: DPT student in good standing, PHT 536 or permission of the chairperson.

EDUCATION

M.A. 401.874.4068

M.S. 401.874.2270

Ph.D. 401.874.7036

Professor Kern, coordinator of graduate studies in Education

Professor Vaccaro, coordinator of graduate studies in College Student Personnel

Associate Professor Adamy, URI co-director of Ph.D. in Education program

Faculty for the M.A.: Professors Brand, Byrd, Ciccomascolo, Coiro, Deeney, de Groot, Dennis, Kern, Peno, Xu ; Associate Professors Adamy, Clapham, Fogleman, Hicks, Hos, Kim, Shim, Sweetman; Assistant Professors Lund, Murray-Johnson, Tutwiler; Senior Lecturers Correia, Hersey, Semnoski; Professors Emeritus Boulmetis, Seitsinger

Faculty for the M.S.: Professor Vaccaro

URI Faculty for the Ph.D. in Education Program: Associate Professor Adamy, Co-Director; Professors Brand, Byrd, Ciccomascolo, Coiro, Deeney, de Groot, de Mesquita, Dennis, Fastovsky, He, Hobbs, Kern, Kovarsky, McCurdy, Peno, Rolle, Vaccaro, Xiao, Xu; Associate Professors Adamy, Branch, Clapham, Fogleman, Hicks, Kim, Shim, Spivak, Sweetman, Willis; Assistant Professors Lund, Murray-Johnson,Tutwiler; Professors Emeritus Boulmetis, Seitsinger

RIC Faculty for the Ph.D. in Education Program: Professor Cordeiro, Co-Director; Professors Bogad, Castagno, Dufour, Eagle, Goodrow, Horwitz, Hui-Michael, Johnson, Lynch, Schuster; Associate Professors August, Battle, Benson, Brell, LaCava, McKamey, and Zoll; Assistant Professor Goss; Professor Emerita Cordeiro.

Education Master of Arts Programs

Admission requirements: A bachelor's degree from an accredited institution. The graduate school recommends a minimum 3.0 GPA, by the time you begin your graduate studies at URI. GRE exams are not required for admission. (Music students must have a B.A. or a B.M. in music). Most Secondary Education MA/TCP applicants have a B.A. or a B.S. in the content area they hope to teach (e.g., English, mathematics, history, biology, Spanish). GRE exam not required. In addition, please note the following:

Secondary Education applicants: A minimum GPA of 3.0 in your content major (English, Math, etc.)

International applicants are required to submit a passing TOEFL score, and the University minimum must be met on each of the four sections of the exam; see the Graduate School website for current information on required passing scores.

Program requirements: Individuals may choose the thesis or non-thesis option. The non-thesis option requires at least one designated course with a substantial paper involving significant independent research.

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:

Adult Education

Specialization areas: adult and higher education; adult literacy; education, training, and management specialist (ETMS); program administration; and training and development. Core courses: EDC 505, 529, 583, 584, and 575 OR 599. Specialization areas: You will complete six courses from the specialization area courses provided below or you may design a specialization with the help of your advisor to meet your individual needs and interests. This is a fully online program that uses the accelerated calendar. Minimum 33 graduate level credits.

Adult and Higher Education: EDC 522, 581, and 582.

Adult Literacy: EDC 504, 516, 521, and 525.

Education Training and Management Specialist (ETMS-U.S. Navy P- Code): EDC 522, 539, 581 582, MBA 502, MGT 641, and PSC 506.

Program Administration: EDC 539, 558, HDF 562, LRS 579, and MBA 502.

Training and Development: EDC 539, 581, 582, HDF 450, 562, MBA 502, and MGT 641.

Elementary Education (Grades 1-6)

Advanced study for elementary teachers; the MATCP option is available for students seeking initial certification in these areas. Core courses: EDC 502 OR 503, 529, 570, and 575 OR 599. You will complete 6 courses (18 credits minimum) focused on expanding your skill and knowledge in Elementary Education. One course must be a non-EDC code. Minimum 30 graduate level credits.

Reading Education (PK-12 advanced licensure program)

Program leading to advanced certification as a reading specialist/consultant. Applicants must hold initial teaching certification in early childhood, elementary, or secondary education. A résumé of experience must be submitted with an application. Required courses: EDC/PSY 527, EDC 529, 562, 563, 564, 565, 566, 567, and 594. Minimum 30 graduate level credits.

Secondary Education (Grades 7-12)

Advanced study for secondary teachers of English, history, mathematics, science, and social studies; the MATCP option is available for students seeking initial certification in these areas. Core courses: EDC 402, 502 OR 503, 529 OR 530, and 574. You will complete 9 credits of education electives and 9 credits of discipline electives. Minimum 30 graduate level credits.

Special Education (PK-12 advanced licensure program)

Special education- Applicants must hold initial teaching certification in elementary or secondary education. 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 either at the elementary school level (grades 1-6) or at the secondary level (grades 7-12). Students complete a total of 36 credits over either a three-semester sequence (for full-time students) or a five-semester sequence (for part-time students). Students must also achieve a passing score on all state or University outcome measures, and on a substantial paper involving significant independent research. Courses required for elementary certification include EDS 500, 501, 503, 505, 506, 509, 512, 518, EDC/PSY 527, EDC 564, 565, and 566. The secondary certification requires EDS 500, 501, 503, 505, 506, 512, 517, 518, EDC/PSY 527, EDC 564, 565, and 566. Minimum 36 graduate level credits.

Student Defined

Designed for individuals with an undergraduate degree who are interested in working in the education profession. Does not lead to teacher certification. Core courses: EDC 502 OR 503, 529 OR 530, and 574 OR 575. Additional courses are selected with the approval of your advisor to tailor the program to professional interests and goals. Minimum 30 graduate level credits.

Education Master of Arts Teaching Certificate Programs (MATCP)

Applicants who have completed an undergraduate degree from an accredited institution and wish to pursue an initial teacher certification or add an additional teacher certification. Specializations include elementary education, health and physical education, music education, secondary education (with an academic discipline specialization), and world languages education (with a language specialization). Students may obtain certification prior to completing the requirements for the M.A.

Elementary Education (Grades 1-6) MA with Teacher Certification

Designed for individuals with a B.A. or B.S. undergraduate degree or the equivalent. The MATCP is a fully accredited certification program which prepares teachers of children in grades 1-6. Note that certification requirements may be completed before the M.A. is completed. Required courses include EDC 402, 423, 424, 502 or 503, 512, 529, and 575. Minimum 30 graduate level credits.

Health and Physical Education (Grades PK-12) M.A. with Teacher Certification

Designed for individuals with a B.A. or B.S. undergraduate degree or the equivalent. The MATCP is a fully accredited certification program which prepares physicial education and health teachers grades PK-12. Note that certification requirements may be completed before the M.A. is completed. Required courses include EDC 402, 502 or 503, 512, 529 or 530, and 575 or 599. Minimum 30 graduate level credits.

Secondary Education (Grades 7-12) M.A .with Teacher Certification

Advanced study for secondary teachers of English, history, mathematics, science, and social studies; the MATCP option is available for students seeking initial certification in these areas. Core courses: EDC 402, 502 OR 503, 529 OR 530, and 574. Minimum 30 graduate level credits.

World Languages Education (Grades PK-12) MA with Teacher Certification

Designed for individuals with a B.A. or B.S. undergraduate degree or the equivalent. The MATCP is a fully accredited certification program which prepares world language(s) teachers grades PK-12. Languages include: Chinese, French, German, Italian, Latin, Spanish. Note that certification requirements may be completed before the M.A. is completed. Required courses include EDC 402, 502 or 503, 512, 529, and 574. Minimum 30 graduate level credits.

Additional Professional Graduate Degree Programs leading to teaching licensure:

Music Education (Grades PK-12) Master of Music Teacher Certification

See Professional Graduate Degree Program Master of Music

School Library Media Certification Program (PK-12 licensure program)

See Professional Graduate Degree Program in School Library Media Master of Library and Information Studies

M.A. in Teaching English to Speakers of Other Languages and Bilingual and Dual Language Immersion (TESOL/BDL)

Teaching English to Speakers of Other Languages and Bilingual and Dual Language Immersion (TESOL/BDL)–Students in this program prepare for PK-12 certification in English as a Second Language (ESL) and/or Bilingual and Dual Language Immersion (BDL). Applicants who are seeking state licensure must hold an initial teaching certification (e.g. early childhood education, elementary education, secondary education, etc.) or be currently enrolled in an approved teaching preparation program. A track is also available for those whose goal is to teach English to adult speakers of other languages internationally. This track does not require teacher licensure. Required courses for certification: EDC 420, 501, 515, 516, 519, 526, and 563. Additional courses: EDC 506 and 6 credits of professional electives. Minimum 30 graduate level credits.

Master of Science in College Student Personnel

The College Student Personnel (CSP) program's mission is to prepare reflective practitioners for professional careers in student affairs. Graduates seek primarily entry-level positions such as advisors, coordinators, and assistant directors/deans at institutions of higher education. The CSP curriculum is designed to teach emerging professionals' best practices in student affairs and is designed in accordance with the guidelines established by the Council for the Advancement of Standards (CAS) in Higher Education.

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 website. Supporting materials must include two letters of recommendation (one preferably a faculty member from your undergraduate major and one student affairs professional), transcripts of all previous college course work, a current résumé, and a Personal Statement. For guidance on the Personal Statement, see uri.edu/education/academics/csp/.

The completed application package, including supporting materials, is due for priority 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 with a faculty representative. Those invited to interview will receive information on applying for Graduate Assistantships or other direct links to practice in college student affairs settings. 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.

Program requirements: 42-credit program consisting of 33 credits in core courses in the School of Education (EDC 529, 554, 556,560, 561, 571, 572, 576, 580, 585) and one course from HDF (551). The remaining 9 credits include: either 6 internship credits (577 and 578) and 3 elective credits or 3 practicum credits (553) and 6 elective credits.

Graduate Certificate Programs

Graduate Certificate in Digital Literacy

The Graduate Certificate in Digital Literacy is a 12-credit graduate program that enables educators, librarians, and media professionals to acquire the knowledge, skills, and competencies required for full participation in a read/write

culture where active participation in a knowledge community requires the skill use, creation and sharing of digital texts, tools, and technologies. The program consists of four rigorous courses, two that take place in the summer using a face-to-face institute model (EDC 531 and 535, six credits), and two online courses (EDC 532 and EDC 534, six credits) that are held during the fall and spring semesters. Courses are open to any graduate student in any program, and even to non-matriculating students interested in exploring one facet of the program before committing to other courses. Typically, students begin by registering in early March for the first Summer Institute in Digital Literacy (EDC 531), which is held for one week in July. Then, to best meet your needs, students discuss with the Co-Directors options for applying to the Graduate School, enrolling in the two online classes (EDC 532 and EDC 534), and completing the second Summer Institute (EDC 535). The courses have been designed to enable interested graduate students to complete the program in one year's time; beginning their coursework in one summer and finishing the certificate at the end of the next summer. However, students have up to four years from the date enrolled in the first course to complete all twelve credits in the certificate.

Graduate Certificate in Dyslexia Knowledge and Practice

The Graduate Certificate in Dyslexia Knowledge and Practice is a 12-credit graduate program that enables educators, to acquire the knowledge, skills, and competencies required to teach K-12 students with dyslexia and other language-based learning difficulties. It is designed as a hybrid synchronous on-line and face-to-face program to allow practicing teachers flexibility in attaining the competencies needed to educate students with dyslexia and other language-based learning challenges. The program consists of four courses, EDC/PSY 544 Reading Acquisition, and Reading Disability: Research and Implications for Practice, EDC/PSY 527 Language Study for Teachers of Reading, EDC 562 Methods of Intervention for Literacy Difficulties, EDC 566 Intervention in Reading and Writing Difficulties. Courses are open to any graduate student in any program and to non-matriculating students interested in exploring one facet of the program before committing to the other courses.

Post-baccalaureate Program

Post-baccalaureate Early Childhood Education (ECE) with Teacher Certification (Birth-Age 8):

Designed for students who have completed a bachelor's degree. The program is a fully accredited certification program that prepares students to teach preschool to grade 2. Students complete between 50 and 66 credits depending on their undergraduate degree. This program leads to teacher certification and does not lead to a master's degree. Apply to URI's Teacher Certification Program (non-degree status) administered through the Graduate School.

Doctor of Philosophy (Joint with Rhode Island College)

The University of Rhode Island and Rhode Island College offer a Ph.D. in education, which is an inclusive program for individuals who seek to advance their research knowledge and skills in order to create and support positive change in diverse educational settings. The program is designed to create and sustain a lively, inquiry-oriented culture that supports educational researchers and practitioners in critical and transformational dialogue, coursework, and research. The program's three outcomes provide a framework for the preparation of candidates who will be transformational thinkers, engaged scholars, and thoughtful contributors to public discourse and policy.

Designed for professionals involved in prekindergarten through adult education as well as higher education, the doctoral program admits 10 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. Cohorts are typically made up of teachers, administrators, and other education professionals who are committed to developing advanced teaching, leadership, and research skills.

Admission requirements: Official transcripts, curriculum vita, personal statement, research statement, and three letters of recommendation are required. Acceptance is based on a full review of the applicant's record and not any single component. Nonnative speakers of English must have a TOEFL score of 95 or above in order to be considered for admission, and the University minimum must be met on each of the four sections of the exam; see https://web.uri.edu/graduate-school/admission/international/. Students may substitute the IELTS (minimum score of 6.5) for the TOEFL.

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 December 1. 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 https://web.uri.edu/graduate-school/apply/.

Program requirements: The program requires a minimum of 58 credits beyond the master's degree or 88 graduate credits. All Ph.D. students enrolled in our program are expected to have a basic understanding of statistics prior to taking formal coursework. To ensure this basic understanding, accepted students will either a) enroll in and pass a summer session statistics course (EDC 555 – 3 credits) specifically designed for students in our program, b) test out of EDC 555 by passing a written test given by the course instructor in May of each year, or c) complete and pass an approved online statistics course covering content similar to EDC 555 prior to beginning formal coursework in the fall semester. 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, 620, 630, 631, for a total of 12 credits). Field research seminars (EDP 641, taken four times for a total of four 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 academic writing and research expertise to help their development as educational leaders through course work (EDP 600, 601, 612, 613, 623 for a total of fifteen credits) and the field research seminars. Scholarly expertise in a professional area is acquired through specialization courses (12 credits), including at least one course (3 credits) in

advanced research methods. Students benefit from working with faculty from URI and RIC with scholarly expertise in one or more of these three program strands: Teaching, Learning, and Development in PreK-12 Contexts; Adult Learning, Professional Development and Higher Education; and Education Policy, Analysis and Evaluation.

All students must complete a doctoral dissertation (12 credits). To progress through this program, students must 1) receive passing grades (no incompletes) and positive recommendations from professors in core seminar courses, research courses, and electives; 2) pass a comprehensive examination after completion of all core seminars, research courses, and electives; and 3) complete a successful dissertation and defense.

ELECTRICAL ENGINEERING (VLSI)*

This post-baccalaureate certficate program is not currently accepting applicants. Search uri.edu/programs to learn if the field of study is available under a different program.

ELECTRICAL ENGINEERING **

M.S., Ph.D.

401.874.2506

Faculty: Professor He, chair; Professor Sendag , director of graduate studies; Professors Besio, Fischer, Kumaresan, Lo, Yan Sun, Sunak, Swaszek, Vaccaro, and Q. Yang; Associate Professors Mankodiya, Vetter, and Wei, Assistant Professors Abhikari, Abiri, Bi, Jeong, Lin, Shahriari, and Stegagno; Professor-in-Residence Uht; Professors Emeriti Boudreaux-Bartels, Daly, Jackson, Kay, Lengyel, Ohley and Spence.

Specializations

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; 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-resolution data converters, low-power 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, cyber security, trusted computing, countermeasures to physical and software attacks, 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.

Signal processing: parameter estimation, speech processing, sensor-array processing, underwater acoustic signal processing.

Embedded systems and computer applications: embedded system designs, hardware/software designs in embedded applications for networking devices, automobiles, image processing, health care devices and systems, home appliances, and computer forensics.

Machine learning: neural networks, reinforcement learning, adaptive dynamic programming, computational intelligence, pattern recognition, big data analytics, fuzzy systems, evolutionary computation.

Cyber-physical intelligence and security computing: cyber-physical system security, artificial intelligence and machine learning, security and privacy in emerging technologies.

Systems theory: control and estimation theory; multivariable systems; nonlinear systems, modeling of deterministic and stochastic systems; model order reduction; optimal smoothing, filtering and prediction; pattern classification, computer vision; computerized imaging systems and image analysis; robotics.

Graduate Certificate in Embedded Systems

Embedded systems are special purpose computer systems commonly found in consumer electronic devices, industrial control systems and robots, and military applications. Embedded systems, based on their particular applications, may also be known as; mobile computing, internet-of-things (IoT), system-on-chip (SoC), and cyber-physical system (CPS). The field of embedded systems involves the disciplines and knowledge of modern computer architecture, embedded system interface and programming, field programmable gate arrays (FPGAs), and cyber security.

Learning Goals: To gain the understanding of core knowledge pertinent to the embedded systems and their applications. Acquire knowledge of the latest standards for embedded systems, how the standards are shaped and where to locate them in the future. Demonstrate the hands-on ability of constructing embedded systems according to the design specifications.

To enroll in the certificate program, a B.S. degree in computer engineering, electrical engineering, biomedical engineering, computer science, or other related fields is required. A B.S. degree is not required at the time of application. To apply to the certificate program, the applicant must follow the URI Graduate School application procedure. Students who are already enrolled in URI M.S. or Ph.D. programs of the related field can apply directly to the Director of the certificate program (Professor Lo).

Certificate requirements:

A minimum of 12 credits to earn this certificate:

One required course (four credits):

ELE547: Embedded Computer Systems and Applications (4 crs.)

At least eight credits from the following courses:

ELE438: Information and Network Security (4 crs.)

ELE470: Mobile Computing (3 crs.)

ELE500/ISE500: Project Planning and Management for Sys-

tems Engineering (3 crs.)

ELE543: Computer Networks (4 crs.)

ELE545: Advanced Digital Circuits and Systems (4 crs.)

ELE548: Computer Architecture (4 crs.)

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 or ELE 602) is required of all students. Up to two credits of seminar (one each of ELE 601 and ELE 602) may be used toward the 30-credit master's requirement. All full-time graduate students are required to enroll in ELE 601 every semester the course is offered. 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, but more than six credits requires prior written justification and approval by the student's thesis committee, and the Graduate Program Director or Department Chair. For the non-thesis option successful completion of ELE 598 Master's Project is required.

Accelerated Five-Year B.S./M.S. Degree Program

See Biomedical Engineering in the Undergraduate section of this catalog.

See Computer Engineering in the Undergraduate section of this catalog.

See Electrical Engineering in the Undergraduate section of this catalog.

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. All full-time graduate students are required to enroll in ELE 601 every semester the course is offered.

** Program includes the option of earning dual degrees from URI and from Technische Universität Braunschweig, Germany. For more information, visit uri.edu/iep

ENGLISH

English

M.A., ABM, Ph.D.

401.874.4663 uri.edu/english/graduate-program/

Faculty: Associate Professor Williams, chair; Associate Professor Rojas, director of graduate studies. Professors Betensky, Cappello, Faflik, Riley, Trimm, and Walton; Associate Professors Barber, Covino, Eron, Jones, Karno, Kusz, and Nikitas; Assistant Professor Mok. Professors Emeriti Arakelian, Burke, Cuddy, Davis, Dvorak, Gititi, Hills, Leo, Shamoon, and Stein.

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. Applicants will be accepted for September admission only. A writing sample of 20 pages maximum is required. Nonnative speakers of English must have a TOEFL score of 95 or above in order to be considered for admission, and the University minimum must be met on each of the four sections of the exam; see uri.edu/graduate-school/apply/international-applicants/. For more detail regarding admission see: uri.edu/english/m-a-admission/

Program requirements: 30 credits, including ENG 595 (master's project) or ENG 599 (master's thesis). ENG 510, 511, and 514 are required.

A.B.M.—Accelerated Bachelor of Arts and Master of Arts

Admission requirements: Enrolled undergraduate English major at URI, GRE not required. 75 completed credit hours required for application; 90 completed credit hours required for enrollment. Overall 3.5 GPA required to enroll. Applicants must apply in the spring of their junior year, by the June 15 deadline.

Program requirements: ABM students must complete a Program of Study and submit it to the Graduate School before the start of their last semester as an ABM student and must follow the Graduate School timetable for graduation. Nine credits may be double counted for the ABM degrees. With appropriate planning, ABM students can obtain the B.A. and M.A. degrees with a total of 141 credits rather than 150 credits. Only 500- and 600-level courses are eligible to be double counted. ABM students must double count ENG 510 (1.5 credits) and ENG 511 (1.5 credits), ENG 514 (3 credits), and one other 500- or 600-level ENG course (3 credits). Double-counted courses apply to the requirements of the English B.A. as follows: ENG 510/511: Elective; ENG 514: Ways of Thinking; Third 500- or 600-level ENG course: Representation Matters; Earlier Literary Histories; Later Literary Histories; English Capstone; Elective. The appropriate category for this seminar will be determined through consultation with the instructor and the Director of Graduate Study, and be implemented through a curriculum modification. In the fall of their senior year students must also take 3 credits of ENG 394 or ENG 395 Independent Study with a member of the English Department faculty. This course counts as an Elective in the B.A. only, and may not be counted in the 30 credits required for an M.A. degree. In their fifth year students take the remaining 5 courses required for the M.A. and complete the 6-credit non-thesis Portfolio. ABM students may complete only the non-thesis option for the English M.A. ABM students

must get approval of the English Director of Graduate Studies or the Chair of English to use credits earned outside URI to be counted toward the M.A. portion of the ABM program. Under no circumstances can more than 6 credits earned outside URI or the Department of English be counted toward the M.A. portion of the ABM program.

The M.A. portion of the ABM is not eligible for University funding in the form of fellowships or a Graduate Teaching Assistantship.

See English ABM in the ABM section of this catalog for additional information.

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. Applicants will be accepted for September admission only. The GRE test is required. A writing sample of 20 pages maximum is required. Nonnative speakers of English must have a TOEFL score of 95 or above in order to be considered for admission, and the University minimum must be met on each of the four sections of the exam; see uri.edu/graduate-school/apply/international-applicants/. For more detail regarding admission see: uri.edu/english/ph-d-admission/

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. Candidates must pass comprehensive exam; a dissertation and an oral defense are required. Core dissertation committee must include faculty in area of specialization. Interdisciplinary study is encouraged, including coursework in other departments. 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 Teaching Assistantships must be expressed in an additional, separate letter included with the application packet.

ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

M.S., Ph.D.

401.874.2471

Faculty: Professor H. Uchida, chair; Associate Professor Lang, Director of Graduate Studies. Professor E. Uchida; Associate Professors Guilfoos, Sproul, and Trandafir; Assistant Professor Liu; Professor Emeriti Opaluch, Sutinen, and Tyrrell.

Specializations

Economics and policy in environment, renewable/nonrenewable natural resources, agriculture, and international development; behavioral economics, experimental economics, economics of risk and uncertainty, nonmarket valuation, energy economics, and agent-based modeling. More specific specializations include, but not limited to: fisheries and aquaculture management and marketing; land use change and management of coastal zone and terrestrial areas; green economy including tourism; climate change; management and valuation of ecosystem services; renewable energy policy; water resource management; and natural resource pricing policies.

Master of Science

General admission requirements: the GRE is required. A strong undergraduate record in economics, statistics, and mathematics is advantageous but not required.

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 major 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.

Accelerated Bachelor's and Master's (ABM) admission requirements: URI undergraduate students can apply to M.S. degree program through the ABM program. See Environmental and Natural Resource Economics in the undergraduate section of this catalog for more information. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Doctor of Philosophy

Admission requirements: GRE is required. Master's degree in environmental and natural resource economics or related fields is preferred but not required. Strong background in mathematics (calculus and linear algebra) and statistics are essential.

Program requirements: the Ph.D. qualifying exam is required of students admitted without the master's degree in related fields. EEC 501, 502, 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, such as 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 one of the areas of specialization above.

ENVIRONMENTAL SCIENCE AND MANAGEMENT

(Interdepartmental)

M.E.S.M., Graduate Certificates in Fisheries Science, GIS and Remote Sensing, GIS and Geospatial Technologies, Community Planning, Hydrology, Aquaculture and Fisheries (traditional and online), and Science Writing and Rhetoric

401.874.4880

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. 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.

Steering committee: Professors A.J. Gold, Co-director; Senior Lecturer B. Still, Co-Director, Lecturer Michelle Peach, coordinator. Track Chairs Professors Becker, Boving, Gomez-Chiarri, Gold, Menezes, Paton, Peach, Still, and Y.Q. Wang.

Faculty: Professors Alm, Amador, Atash, Becker, Boving, Burroughs, Dalton, Englehart, Fastovsky, Forrester, Ginsberg, Gold, Gomez-Chiarri, Green, LeBrun, T. Mather, Maynard, McWilliams, Meyerson, Mitkowski, Paton, Rice, Simeoni, Stolt, Swift, E. Uchida, H. Uchida, Veeger and Y.Q. Wang; Associate Professors R. Brown, Cardace, Garcia-Quijano, Gordon, Karraker, Petersson, Pradhanang, Sartini, and Savage; Assistant Professors Bidwell, Humphries, Moore, and Parent. Clinical Associate Professor Menezes.

Specializations

Conservation biology; earth and hydrologic science; environmental communication; environmental planning and design; environmental policy and management; remote sensing and spatial analysis; sustainable systems; and wetland, watershed, and ecosystem science.

Admission requirements M.E.S.M: 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 eight specializations.

To apply you will need to provide: (1) college transcripts certifying successful completion of a bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a MESM degree. GRE's are not required. Applications for Fall semester admission should be completed by 15 July (international students 1 February), applications for Spring semester admission should be completed by 15 November (international students 15 July), and applications for summer admission should be completed by 15 April.

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 quantitative methods; 6-10 credits of electives. A culminating experience for 3 credits which consists of one of the following: an internship (EVS 597) with an environmental agency, nongovernmental agency, or private firm; an independent research project (EVS 598) that results in a substantial, high-quality, written report; or successful completion of EVS 505 (Environmental Leadership); and at least 2 credits of graduate seminar (typically EVS 501, 502), including a terminal oral presentation. 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; a 3 credit culminating experience (major paper-EVS 598, or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

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; a 3 credit culminating experience (major paper-EVS 598, or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

Environmental communication: 9 credits in natural sciences from any of the following categories: biological and environmental sciences, geoscience, oceanography, conservation biology, hydrology, ecology and management, or remote sensing and spatial analysis; 13 credits in communication or public engagement courses related to environmental science; a 3 credit culminating experience that entails engagement in a substantial, high-quality environmental communication and/or public engagement project (major paper or major product (EVS 598), internship (EVS 597) or environmental leadership course (EVS 505); 2 credits of graduate seminar; 3 credits in a numerical methods; and a minimum of 6 credits of electives.

Environmental planning and design: 13 credits in planning and design including at least 9 credits in planning; 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; a 3 credit culminating experience (major paper-EVS 598, or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

Environmental policy and management: 9 credits in social sciences from policy, planning, economics, and research 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; a 3 credit culminating experience (major paper-EVS 598, or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

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; a 3 credit culminating experience (major paper-EVS 598,

or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

Sustainable systems: 12-16 credits in natural sciences, including at least 3 credits in natural ecosystems and at least 3 credits in managed ecosystems; a 3 credit culminating experience (major paper-EVS 598, or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

Wetland, watershed, and ecosystem science: 12-16 credits in natural sciences, including at least 3 credits in each of the following topics watersheds, wetlands, and ecosystems plus 3 credits in earth science, soils, or spatial analysis; a 3 credit culminating experience (major paper-EVS 598, or, internship-EVS 597, or, environmental leadership course-EVS 505), and at least 2 credits of graduate seminar.

Environmental Science and Management Accelerated Bachelors to Master of Science (ABM)

Natural Resources Option

Please see Environmental Science and Management in the undergraduate section of this catalog for admissions details and guidance. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Sustainable Food Systems Option

Please see Environmental Science and Management (M.E.S.M.) ABM (Sustainable Food Systems option) in the ABM section of this catalog for admissions details and guidance. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Graduate Certificate in GIS and Remote Sensing

The URI Graduate Certificate in Geographic Information Systems and Remote Sensing (GIS/RS) provides students advanced training in using geospatial technologies to address analytical problems where location is an essential parameter.

Admission requirements: To apply you will need to provide: (1) college transcripts certifying successful completion of a bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a graduate certificate in GIS/RS. GRE's are not required.

Graduate students currently enrolled at URI in CELS should fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Y.Q. Wang. Currently enrolled undergraduate students can enroll in the certificate program but must apply through the Graduate School: https://web.uri.edu/graduate-school/apply/. Undergraduate students will receive their Certificate only after they have received their bachelor's degree. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 1 December.

Program requirements: 15 credits of graduate coursework that consists of: NRS410, NRS509, NRS522, and NRS51 or NRS415. The remaining credits are taken from an approved list of additional courses.

For more information: uri.edu/cels-gradprograms/certificate-in-gis-and-remote-sensing

Graduate Certificate in GIS and Geospatial Technologies (Online)

The University of Rhode Island's online Graduate Certificate in GIS and Geospatial Technologies provides students with proficiency and expertise in highly sought-after geospatial technology skills including Geographic Information System (GIS), interactive map and data productions and field data collection.

Admission Requirements: To qualify for admission, students will need to have earned a Bachelor's degree with a GPA of 3.0. The application will include a personal statement, a CV/resume, two letters of recommendation, and TOEFL, IELTS or Duolingo scores if English is not the student's native language. GRE is not required.

Program Requirements: The certificate is delivered in asynchronous online, seven-week modules that allows for flexibility to fit your schedule, and the four 3-credit courses can be completed in as little as 2 semesters. Twelve credits can be taken by choosing four of the following courses: EVS 509, NRS 570, NRS 571, NRS 572, NRS 573

Graduate Certificate in Hydrology

The URI Graduate Certificate in Hydrology provides students advanced training in the practice and processes that affect the availability and quality of groundwater and surface water resources. On completion of the hydrology graduate certificate, students will have the knowledge and skills to (1) conduct hydrologic investigations that support state, national and international industries, agencies and institutions that address the water quantity and quality based challenges facing society (2) perform hydrologic data processing and modeling appropriate for research, scholarly, and applied problem-solving endeavors.

Admission requirements: To apply you will need to provide: (1) college transcripts certifying successful completion of a bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a graduate certificate in hydrology. GRE's are not required.

Graduate students currently enrolled at URI in CELS should fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Boving. Currently enrolled undergraduate students can enroll in the certificate program but must apply through the Graduate School: https://web.uri.edu/graduate-school/apply/. Undergraduate students will receive their Certificate only after they have received their bachelor's degree. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 1 December.

Program requirements: 15 credits of graduate coursework that consists of at least 12 credits from the following courses: GEO 484/584; GEO 482/582; GEO 483; GEO 586; NRS 461; NRS 518. The remaining credits are taken from either the courses listed above or from an approved list of additional courses.

For more information: uri.edu/cels-gradprograms/graduate-certificate-hydrology

Graduate Certificate in Aquaculture and Fisheries

The URI Graduate Certificate in Aquaculture and Fisheries provides students with degrees in biological or environmental fields focused advanced training needed to find professional employment in the areas of Aquaculture and Fisheries. The program also allows students to complete the requirements of the American Fisheries Society (AFS) Professional Certification Program at the Associate Fisheries Professional (AFP) level. On completion of the Aquaculture and Fisheries graduate certificate, students will have the knowledge and skills to: (1) apply knowledge in a variety of disciplines and practical skills to address real-world problems in food security, as it relates to seafood; and (2) find employment in agencies and businesses involved in research, scholarly, and problem-solving endeavors in the field of Aquaculture and Fisheries.

Students completing the Aquaculture and Fisheries Graduate Certificate program will practice advanced skills in class projects and specialty courses that take advantage of resources in marine sciences at the University of Rhode Island, including the Fisheries Center, freshwater aquaculture facilities, the Commercial Fisheries Center (a partnership with non-profit commercial fisheries associations), the Blount Aquaculture Research Laboratory, the Tuna Aquaculture Research Facility, and several research and teaching vessels. A broad set of existing class options can accommodate students from programs within or beyond the University of Rhode Island pursuing to complement their major in marine or aquatic sciences, environmental sciences, or marine affairs, with additional targeted skills and knowledge in aquaculture and fisheries.

Admission requirements: Applications should include: 1) college transcripts certifying current enrollment or successful completion of a bachelors degree in a biological, agricultural, or environmental field, 2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and 3) a personal written statement explaining why you are seeking a University of Rhode Island graduate certificate in fisheries and aquaculture. GREs are not required. Accepted applicants will be advised on which course prerequisites should be fulfilled prior or during the first semester in the program.

Graduate students currently enrolled at URI in CELS should fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Gomez-Chiarri. Currently enrolled undergraduate students can enroll in the certificate program but must apply through the Graduate School: https://web.uri.edu/graduate-school/apply/. Undergraduate students will receive their Certificate only after they have received their bachelor's degree. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 1 December.

Program requirements: 15 credits of graduate coursework that consists of at least 12 credits from courses in Aquaculture and Fisheries Science (AFS) at the 400 level or above. The remaining credits (3) are to be chosen from a variety of courses in marine, environmental, and social sciences at the University of Rhode Island, including but not limited to courses at the 400 or above level in BIO, EEC, MAF, NRS, OCG, and WRT. Course selection will be made in consultation between the student and the program faculty advisor. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable.

For more information: web.uri.edu/cels-gradprograms/graduate-certificate-in-fisheries-and-aquaculture-science/

Online Graduate Certificate in Fisheries Science

The URI Online Graduate Certificate in Fisheries Science (FIS) will develop core competencies in sustainable fisheries management, including stock assessment, fisheries ecology, and fisheries management. On completion of the FIS Online Graduate Certificate, students will have the knowledge and skills to: 1) apply knowledge in a variety of disciplines and practical skills to address real-world problems in food security, as it relates to seafood; and 2) find employment in agencies and businesses involved in research, scholarly, and problem-solving endeavors in the field of Sustainable Fisheries. The FIS Online Graduate Certificate involves 4 x 7-week online sessions, including an intensive field-based capstone (either at URI or as an internship) that provides crucial hands-on experience. Course format and learning activities will emphasize collaborative real-world problem solving, oral and written communication, and the use of state-of-the-art analysis tools and technologies.

Program requirements: 14 credits of graduate coursework consisting of 9 credits of core courses, 2 credits of seminar, and 3 credits of summer capstone. Core courses include AFS 415 (Fisheries Ecology), AFS 531 (Fisheries Stock Assessment), and AFS/OCG 560 (Ecosystem-Based Fisheries Science and Management). A culminating experience for 3 credits which consists of one of the following: Professional Internship in Fisheries Science and Management (AFS 597) or successful completion of EVS 505 (Environmental Leadership in Practice); and 2 credits of graduate seminar: AFS 501 (Learning Outcomes for Fisheries and Aquaculture) and AFS 502 (Seminar in Fisheries and Aquaculture).

Admission requirements: Applications should include: (1) college transcripts certifying successful completion of a bachelor's degree in a biological, environmental, or other scientific field, (2) two letters of recommendation from peers, mentors, or colleagues attesting to the students ability to complete graduate level course work, and (3) a personal written statement explaining why the student is seeking a University of Rhode Island Online Graduate Certificate in Fisheries Science.

Graduate Certificate in Science Writing and Rhetoric

This graduate certificate program combines graduate-level training and an off-campus internship in science writing and rhetoric to provide graduate students with a solid foundation and skills for taking often-complex scientific results and communicating them to both specialist and non-scientific audiences, including the public and policy makers. This certificate signals to potential employers that the awardee has the knowledge, skills, and technical ability to convey science in a diversity of written forms to an array of audiences, including non-scientists.

Completion of this certificate will aid one in qualifying for positions such as science writer for an environmental non-profit organization, communications coordinator for a biotechnology company, communications specialist for a health agency, science communicator at an institute for geospatial analytics, public information officer for a federal resources agency, extension specialist for a university or a state Sea Grant program, or simply as a scientist with highly sought after communication skills.

Admission requirements: To apply you will need to provide: (1) college transcripts certifying successful completion of a bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a graduate certificate in science writing and rhetoric. GRE's are not required.

Graduate students currently enrolled at URI in CELS should fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Karraker. Currently enrolled undergraduate students can enroll in the certificate program but must apply through the Graduate School: https://web.uri.edu/graduate-school/apply/. Undergraduate students will receive their Certificate only after they have received their bachelor's degree. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 10 December.

Program requirements: 15 credits of graduate coursework that consists of WRT 533, NRS 543, BES 593 and at least 6 credits from the following courses: BES 500, BES 533, OCG 533.

For more information: uri.edu/cels-gradprograms/sciwrite

Graduate Certificate in Community Planning

The Graduate Certificate in Community Planning provides advanced instruction and training in community planning and development to address contemporary planning challenges at different geographical levels in the United States. The certificate focuses on the knowledge of the principles and practices of community planning and development, specifically in areas of land use and environmental planning as well as urban design.

The graduate certificate offers the knowledge and technical skills for students interested in a career in governmental planning agencies, private sector consulting and/or real estate development companies as well as non-governmental organizations (NGOs). If you already practice in the field and wish to enhance your skills and understanding of the community planning and development issues, you are also encouraged to consider the graduate certificate.

Program requirements: 15 credits of graduate coursework that consists of CPL 410 (or 501), 6 credits from the following core courses: CPL 434 (or 539), CPL 450, CPL 483, CPL 485, CPL/MAF 516, PSC 505, and at least 6 credits from an approved list of additional courses.

Admission requirements: To apply you will need to provide: (1) college transcripts certifying successful completion of a bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a graduate certificate in community plannig. GRE's are not required.

Applications for the Community Planning Certificate are submitted through the Graduate School: https://web.uri.edu/graduate-school/apply/. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 10 December.

For more information: uri.edu/lar/academics/community-planning-certificate

FINANCE*

M.S.

401.874.4895

Faculty: Professors Chen, Dash, Jarrett, and Lin; Associate Professors Lee and Goto; Assistant Professors Lee, Tsafack, and Xu; Full Time Lecturers Ice and Kayakachoian.

*Admissions to the M.S. has been halted for 2020-2021.

Master of Science

The goal of the University of Rhode Island Master of Science in Finance (M.S.F), a STEM Designated Degree Program, is to provide students with strong technical and analytical skills in the principles and application of finance. Students completing the URI M.S.F. program will be competent in addressing issues in fields such as corporate finance, investment, risk management and personal financial planning. Upon graduation, students will have the opportunity to explore career opportunities with investment banks, mutual funds, consulting companies and major corporations.

The M.S.F curriculum provides comprehensive coverage of critical topics in finance, including valuation, mergers and acquisitions, risk management, derivatives, insurance and investments. The curriculum will also prepare students for their CFA or CFP exams.

Admission requirements: Applicants are required to submit a statement of purpose, two letters of recommendation, undergraduate transcript and the Graduate Management Admission Test (GMAT) score. The GMAT score and the undergraduate 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 70th percentile scores on the GMAT have a reduced probability of admission. The Graduate Record Examinations (GRE) may be used in lieu of the GMAT at the discretion of the director of graduate studies.

The GMAT/GRE requirement will be waived for candidates who meet one of the following criteria: Completed a Master's, PhD, or Terminal degree (JD or MD) or is currently a Certified Public Accountant or a CFA charter holder.

Applicants for whom English is not the native language will be expected to demonstrate proficiency in written and oral communications (TOEFL score of 80 or above, IELTS is 6.5 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 uri.edu/gsadmis/ gs_apply_int.

Program requirements: To complete the program, students are expected to complete from 30 to 36 credits, (see course listing below) depending on their undergraduate degree. Applicants who lack the necessary prerequisites are required to complete courses in statistics and financial management before they can be admitted to the program. The M.S.F. program does not require a thesis. Students are required to pass a written comprehensive examination towards the end of the course work.

Course listings:

MBA 566 Security and Investment Analysis, MBA 582 Applied time Series Methods and Business Forecasting, MBA 569 Advanced International Financial Management, MAC

504 Financial Statement Analysis and Reporting, MBA 567 Advanced Portfolio Theory and Security Analysis, MBA 568 Advanced Financial Theory, BUS 421 Derivative Markets, MBA 558 Fixed Income Analysis, BUS 435 Topics in Insurance: Risk Management, MBA 570 Hedge Fund and Investment Banking, MBA 500 Business Statistics, MBA 504 Financial Management

GENDER AND WOMEN'S STUDIES

GWS Graduate Certificate Program

401.874.5150

The Gender and Women's Studies Program at URI offers an interdisciplinary certificate based on feminist scholarship and pedagogy. The open curriculum of the certificate allows students to pursue the study of women and gender, along with other social, political, and economic factors to complement student learning in discipline-based programs.

The GWS Graduate Certificate will enhance students' education and career opportunities by providing them with knowledge to navigate an increasingly diverse and interconnected world. Graduates with this certificate will be well poised to bridge the gap between academic theory and professional or political practice.

The Graduate Certificate in Gender and Women's Studies is an elective option for matriculated graduate students or non-matriculated students.

Objectives

The graduate certificate program: Offers courses on feminist theory and analysis and course content on gender in its intersections with race, ethnicity, class, religion, and sexuality. Enables students to learn about the role and importance of social, political, and economic power in the opportunities and limitations of people's lives. Enables students to complement their program of studies by adding analyses of women/gender to areas of study such as environmental studies, peace and justice studies, international development, health studies, communication, history, library sciences, international relations, English and literature, marine and coastal studies, to mention just a few. Provides the opportunity to work on research projects that will complement students' discipline-specific courses. Provides a professional credential to supplement other programs of study.

The Certificate Program requires 12 credits of course work or experiential learning. Students are required to take a minimum of 6 credits in GWS courses (there is no maximum limit to the number of GWS courses that students can take). Students may take up to 6 credits of courses outside of GWS (with the approval of the GWS director or the director of graduate studies). The types of courses that will be accepted are those with a focus on women/gender, race, ethnicity, class, religion, and sexuality, social justice, social theory, or multiculturalism.

Course Offerings:

GWS 500: Graduate Colloquium in Gender and Women's Studies (The colloquium may be repeated if the topic changes.)

GWS 501: Human Trafficking and Contemporary Slavery

GWS 502: Campaigns and Services for Victims of Trafficking and Slavery

GWS 550: Graduate Independent Study (Variable credits from 3-6 credits. If taken for 3 credits, it can be repeated for a total of 6 credits.)

Two 400 level courses may be taken to fulfill the requirements for the GWS Graduate Certificate

GWS 430: Women and Human Rights Policy

400 level courses from other departments may apply

For questions, contact Donna M. Hughes, director of graduate studies, at donnahughes@uri.edu.

How to apply for graduate study at URI:

A URI graduate application requires evidence of your ability to do graduate level coursework. Applicants submit official undergraduate transcripts, a professional resume, a small application fee, two letters of recommendation, and a personal statement of interest.

Link to URI Graduate School Application: https://web.uri.edu/graduate-school/admission/

Graduate students currently enrolled at URI fill out the "Request to Change or Add a Degree Program" form and have it approved by the certificate coordinator.

GERONTOLOGY AND GERIATRICS

Post-baccalaureate Certificate in Gerontology and Geriatrics

With the number of older adults in the U.S. increasing dramatically, gerontology is rapidly becoming one of the true "growth careers" of the present and the future. By the year 2030, roughly 20% of the US population will be 65 and older. Some of the areas of greatest need are projected to be in the health care and human service professions.

Gerontology is the quintessential interdisciplinary field. The challenges of an aging population include basic biological, psychological, and social dimensions, all of which embody the need for an interdisciplinary approach to understanding the basic nature of growing older and its consequences.

Reflecting this reality, the URI Certificate Program in Gerontology and Geriatrics is strongly interdisciplinary, with faculty from eight different departments and colleges participating in offering courses and mentoring students: Gerontology, Human Development and Family Studies, Communicative Disorders, Nursing, Nutrition and Food Sciences, Pharmacy, Physical Therapy, and Kinesiology.

The Certificate provides an important academic step beyond continuing education for professionals who already possess a bachelor's or advanced degree and can lead to further graduate training in a health or human service discipline at URI.

Admission requirements: Participants are required to have a baccalaureate degree or senior-level undergraduate status for admission into the certificate program.

Program requirements: The program requires the successful completion of 15 graduate credits or 5 courses. Participants are required to complete two foundation courses: Seminar in Older Adulthood (HDF 513) and Interprofessional Teamwork in Health and Human Services (HDF 540). In addition, students choose three electives from the following courses: Family and the Elderly (HDF 431), Environmental Context of Aging (HDF 440), Advanced Study in Human Development and Family Studies (HDF 597/98), Special Problems in Communi-

cative Disorders (CMD 598), Advanced Gerontological Nursing I (NUR 555), Practicum in Advanced Gerontological Nursing I (NUR 556), Advanced Gerontological Nursing II (NUR 557), Practicum in Advanced Gerontological Nursing II (NUR 558), Nutrition in the Community (NFS 506), Special Problems in Nutrition and Food Science (NFS 591/92), Pharmaceutical Care for Special Populations (PHP 440), Evaluation of Controversies in Drug Literature (PHP 542), Advanced Elective Experiential Rotation in Geriatrics (PHP 593), Directed Study in Physical Therapy (PHT 513), Pediatric and Geriatric Physical Therapy (PHT 580), Physiology of Aging (KIN 564), Special Problems in Kinesiology (KIN 591). Additional courses include directed study or special problems courses in relevant departments for projects related to aging and older adults.

Contact Professor Phillip Clark at aging@uri.edu for further information.

HEALTH SCIENCES

Ph.D.

The Ph.D. program in Health Sciences has four subplans: Communicative Disorders, Human Development and Family Science, Kinesiology and Nutrition and Food Sciences.

Program Director: Allison Tovar, alison_tovar@uri.edu

Credit Requirements

A minimum of 72 credit hours post-baccalaureate is required for the Ph.D. Up to 30 credits from a previously-earned master's degree can be applied toward the Ph.D. if related to the discipline (i.e., sub-plan). A minimum of 42 credits must be taken at the University of Rhode Island. Required course work, research credits and dissertation credits depend on the preparation and study plan of the individual student. All degree candidates are required to prepare a Program of Study in consultation with their major professor and doctoral committee. Written and oral comprehensive examinations and a defense of dissertation are required.

All credit requirements are minimum recommendations. The major professor and doctoral committee may require additional coursework and research credits, with specific requirements made on a case-by-case basis.

Curriculum: 42 credits (minimum). A student's formal curriculum plan will include an interdisciplinary seminar, course work and research/dissertation credits. The doctoral degree in Health Sciences is designed to foster excellence in research. Students will be involved in active research projects throughout their Ph.D. program through completion of a dissertation (minimum of 18 credits) and other research experiences (maximum of 9 credits). Students are highly encouraged to complete at least one interdisciplinary research experience (3 or more credits of 691 in a different subplan) as part of their program of study. Students will establish their programmatic expertise by completing all dissertation credits in their chosen sub plan.

Seminar

CHS 601 Seminar in Health Sciences (1 credit); repeated three times (for 3 credits total)

Course Work

12 credits including a minimum of 6 credits in statistics and/or research methods (such as the following) and the remaining credits in discipline or career related courses.

CMD 504 Research in Communicative Disorders

EDP 612 Qualitative Analysis in Educational Research (3 credits)

HDF 570 Research in Human Development and Family Studies

KIN 530 Research Methods and Design in Exercise Science

NFS 505 Methods in Nutrition Research

NUR 651 Advanced Methods in Nursing Research I (Qualitative Methods)

PSY/STA 532 Experimental Design (3 credits)

PSY 533 Advanced Quantitative Methods in Psychology (3 credits)

PSY 611 Methods of Psychological Research and Experimental Design (3 credits)

STA 501 Analysis of Variance and Variance Components

STA 502 Applied Regression Analysis

STA 520 Fundamentals of Sampling and Application

STA 535 Statistical Methodology in Clinical Trials

STA 536 Applied Longitudinal Analysis

STA 541 Multivariate Statistical Methods

Research

A total of 27 credits using a combination of special projects (691) and dissertation (699) credits, with no less than 18 credits for the dissertation. Each subplan has a dissertation research course (i.e., NFS 699, KN 699, HDF 699, CMD 699). Dissertation credits must be taken in the sub plan that the student is completing.

HEALTHCARE MANAGEMENT

M.S., Graduate Certificate

401.874.2652

Faculty: Professors Hales and Kogut (Pharmacy); Associate Professors Ashley and Rogers; Assistant Professor DiNardi (Arts and Sciences); Senior Lecturer Wu; Lecturers Beliveau and Hasbora; Adjunct Converse.

URI's graduate programs in healthcare management are designed for students with a variety of educational backgrounds and professional experience who desire knowledge about business management concepts, skills, and tools to deliver high quality health care effectively and efficiently. The programs are aimed at current and potential health professionals, clinicians or administrators, who aspire to upper management positions. The program also provides a pathway for recent bachelor's degree students to pursue health management careers.

Master of Science in Healthcare Management

Program requirements: minimum of 30 credits, including nine 3-credit courses and one 3-credit capstone course. The capstone course is MHM 515 (Practicum for Healthcare Management Professionals). Remaining 3-credit courses, from which nine must be completed, include: MHM 501 (Health Care in America), MHM 502 (Leadership in Health Admin-

istration), MHM 503 (Financial Management of Healthcare Organizations), MHM 504 (Economics for Healthcare), MHM 505 (Healthcare Information Systems Management), MHM 506 (Healthcare Operations & process Improvement), MHM 507 (Healthcare Quality Science), MHM 508 (Data Analytics in Healthcare Management), MHM 509 (Law and Ethics in Healthcare), and MHM 510 (Strategic Marketing in Healthcare).

Courses are delivered totally online in 7-week modules in an asynchronous format that follows the URI Online accelerated calendar. Students can complete the M.S. program of study in as little as 18 months.

Admission requirements: Applicants with an undergraduate degree in any field are considered for admission. Applicants must submit an official URI Graduate School application, official transcripts of all academic work, two letters of recommendation, a resume outlining professional experience, a statement of purpose, and GMAT/GRE scores.

The GMAT/GRE score requirement is waived for applicants who meet at least one of the following criteria: (1) 5+ years of full-time relevant work experience, (2) URI graduate in any major with a 3.5 or higher GPA, (3) graduate from an AACSB-accredited business school in any major with a 3.5 or higher GPA, (4) hold a master's or doctorate degree, (5) licensed as a CPA or CFA, or (6) passed Level II of the CFA exam. Applicants for whom English is not the native language will be expected to demonstrate proficiency in written and oral communications through submission of TOEFL or IELTS scores taken within the last two years. The URI Graduate School requires an undergraduate GPA of 3.0 on a 4.0 scale for admission to the M.S. program of study. Applicants who meet all other admission criteria but do not possess at least a 3.0 undergraduate GPA may receive provisional admission into the M.S. in Healthcare Management. Provisionally-admitted students become fully admitted to the M.S. program once they successfully complete two MHM courses.

Graduate Certificate in Healthcare Management

Program requirements: 12 credits, including four courses selection from MHM 501 to MHM 510. MHM 515, the practicum capstone for the M.S. degree, cannot be applied to the Graduate Certificate. Courses are delivered totally online in 7-week modules in an asynchronous format that follows the URI Online accelerated calendar. Students can complete a Graduate Certificate in as little as four 7-week terms (two semesters).

Admission requirements: Applicants with an undergraduate degree in any field are considered for admission. Applicants must submit an official URI Graduate School application, official transcripts of all academic work, two letters of recommendation, a resume outlining professional experience, and a statement of purpose. GMAT/GRE scores are not required for admission to the Graduate Certificate program. Students who complete the Graduate Certificate in Healthcare Management may continue directly into the M.S. program without having to submit GMAT/GRE scores.

HISTORY

M.A., M.A./M.L.I.S., ABM

401.874.2528

Faculty: Professor Mather, chair and director of archaeology and anthropology option; Associate Professor Loomis, director of graduate studies; Professors George, Honhart, Rollo-Koster and Rusnock; Associate Professors Buxton, Ferguson, Sterne, Verskin and Widell; Assistant Professors Gonzales and Nevius; Teaching Professor Reumann; Senior Lecturers DeCesare and Ward; Professors Emeriti Cohen, Findlay, Kim, Klein, Schwartz, Strom and Weisbord.

Specializations

General History, Thematic Track, or Archaeology and Anthropology option.

General History or Thematic Tracks: For the General History program, students may take courses in any field of history. They may also supplement with courses taken outside the department, particularly in political science, education, English, languages, and gender and women's studies. For the Thematic Tracks students may focus on any one of the following tracks: 1). Gender, sexuality and history. 2). Political or applied history. 3). Race, ethnicity and history. 4). Religion and history. 5). Rhode Island History. Students in General History or any of the Thematic Tracks have the same general requirements. The master's program includes both class work and individual instruction in the form of 500-level seminars; small 400-level courses that include undergraduates; special readings; directed study courses, and internships; 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 options for both General History and Thematic Tracks – allows students the flexibility to pursue broad interests or focus on thematic lenses that allow for global and cross-cultural comparisons. It is 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 or a variety of other fields. 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 special readings (HIS 502, 503, 536, 537, and 588), students participate in 300-level courses and complete additional projects assigned by the instructors. 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. For students interested in pursuing underwater archaeology, the option can be used for essential professional, humanistic, and social science training.

MASTER OF ARTS

Admission requirements: Bachelor's degree. GRE is required for applicants to the archaeology and anthropology track and optional for others. 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 chair. 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 all specializations and tracks, there are thesis and non-thesis options. In the non-thesis option, students complete a major research paper in HIS 495 or HIS 591. For all specializations, an approved program will require 30 credits.

General History or any Thematic Track program requirements: Of the 30 required credits, at least nine credits must be from HIS 506, 507, or 508. Courses with these numbers may be repeated if taken with different professors and/or on different topics. Three of these nine credits may be filled by a 500- or 600-level seminar in another department. 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 semester of graduate work.

In the nonthesis option, the student may earn no more than 12 credits in special readings (502, 503, 536, 537, and 588) and directed studies (591). Nine credits will normally be taken in the secondary concentration. Non-thesis students will complete a substantial research paper by enrolling in HIS 495 or 591. 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 special readings (HIS 502, 503, 536, 537, 588). 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 ART 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 ART/APG 465 or 565; and either HIS591 or HIS599. 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; ART 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.

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: Requirements listed for the regular master's in 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 36-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 54 credits rather than 66 credits.

ABM – Accelerated Bachelor's to Master's

Admission requirements: Enrolled as undergraduate history major at URI. GRE not required. 75 credit hours required for application; 90 credit hours required for enrollment. Overall 3.0 GPA and 3.1 GPA in history required to enroll.

Program requirements: Students in the ABM program may complete any of the M.A. in history programs /options. ABM students must complete a Program of Study and submit it to the Graduate School before their last semester as an ABM student and follow the Graduate School timetable for graduation. Nine credits may be double counted for the ABM Degrees. With appropriate planning, ABM students can obtain a bachelor's and master's degree with a total of 141 credits rather than 150 credits. Only 500level courses and 400level courses designated for graduate credit are eligible to be double counted. ABM students must double count HIS 401, or HIS 441, or HIS 481, and HIS 495. HIS 591 may be substituted for HIS 495. ABM students may complete the non-thesis or the thesis option of the M.A. in history. To write a thesis, ABM students must obtain the approval of the Director of Graduate Studies in History. In addition, only students wishing to build upon their undergraduate capstone paper (for which they received at least a grade "B") would be eligible to apply. The student's undergraduate capstone supervisor must support the student's request to write a thesis and must be willing to serve as major professor. ABM students must also get approval of the Director of Graduate Studies in History to use credits earned outside URI to be counted toward the master's portion of the ABM program. Under no circumstances can more than six credits earned outside URI or the Department of History or the appropriate M.A. track option be counted toward the master's portion of the ABM program.

HUMAN DEVELOPMENT AND FAMILY SCIENCE

M.S. (Couple and Family Therapy; Developmental Science), Ph.D. (Health Sciences)

401.874.2150

Faculty: Professor S. Adams, chair.

Developmental Science: Associate Professor St.-Eloi Cadely, director. Professors S. Adams, McCurdy, and Xiao; Associate Professors Branch, Leedahl, and Porto; Assistant Professor Spivak; Professors Emeriti Gray Anderson, B. Newman, and Rae.

Couple and Family Therapy: Professor Sparks, director. Professor J. Adams; Associate Professor Kisler; Professors Emeriti Maynard and Rae.

Master of Science Specializing in Developmental Science

This M.S. program is designed to immerse students in a specialized area of human development and family science, while providing a strong emphasis on policy, research, and practical knowledge of the field. Graduates from this program are prepared for positions in human service and education administration, research and policy organizations, and for advanced academic work at the Ph.D. level.

Admission requirements: GPA of 3.2 or higher, 18 undergraduate credits from relevant disciplines, including human development and family studies/science, 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. Completion of an undergraduate level statistics course taken either prior to the beginning of the program or during the first year of the program is required. Two letters of recommendation are required with at least one from an academic reference. Application deadline for fall admission is February 15. Applications received after that date will be reviewed on a space-available basis, with April 1st as the final deadline for applications. Program requirements: a minimum of 36 credits of approved graduate courses that include: a) developmental seminars, b) courses in policy and research, c) a professional seminar, and d) the completion of a master's thesis. Additionally, students have the option of including up to 3 credits of a policy, administrative, or research internship as part of the program of study.

Master of Science Specializing in Couple and Family Therapy

Admission requirements: GPA 3.3 or higher recommended. 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/faculty 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 January 15.

Program requirements: a minimum of 36 credits of approved graduate courses, 12 credits of pratica, 12 credits of internship, a comprehensive examination, and a research project. This program involves intense clinical practice, including a year-long clinical placement at approved agencies and the department's Family Therapy Clinic.

Accelerated Bachelors to Master of Science

Please find admissions details and guidance for the Accelerated Bachelors to Master of Science in Human Development and Family Science in the Undergraduate section of this catalog. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Doctor of Philosophy in Health Sciences

The College of Health Sciences has a unified doctoral program (Ph.D.). Please see Health Sciences in the Graduate section of this catalog for details.

KINESIOLOGY

M.S., Ph.D., ABM

401.874.2976

Faculty: Professor Delmonico, Director of Graduate Studies. Professors Blissmer, Delmonico, Lamont, and Riebe; Associate Professors Hatfield and Ward-Ritacco; Assistant Professors Adami, Chapman, D'Andrea, and Hartman; Professor Emeriti Bloomquist and Manfredi.

Specializations

Exercise Science; Psychosocial/Behavioral Aspects of Physical Activity.

Master of Science

Admission requirements: Bachelor's degree (≥3.0 GPA) in physical education, exercise science, kinesiology, or a related discipline, two letters of recommendation from individuals who can attest to the candidate's academic ability, a brief personal statement describing their qualifications, and transcripts for all colleges and universities attended. An applicant with a degree in an unrelated field who possesses a strong background in kinesiology may be considered. Completed application packages should be completed online, 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. Students who are interested in a graduate teaching assistantship starting in the fall semester must be admitted by April 1 for consideration.

Program requirements: 32 credits, including eight credits in core courses and six (non-thesis option) to nine (thesis option) of research requirements. The required core courses are KIN 501 (must be repeated twice), 508, and 515 or 562. The required research courses are KIN 530 and 599 (thesis option) or 591 (non-thesis option). Required courses for exercise science include selecting 9 to 12 credits from KIN 531, 559, 563, 564, 565, and 592, plus up to nine credits of electives. Required courses for psychosocial/behavioral aspects of physical activity include KIN 563 and 581, plus 9 to 12 credits of electives.

Accelerated Bachelors to Master of Science

Please find admissions details and guidance for the Accelerated Bachelors to Master of Science here. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Doctor of Philosophy in Health Sciences

The College of Health Sciences has a unified doctoral program (Ph.D.). Please see Health Sciences in the graduate section of this catalog.

LABOR RELATIONS AND HUMAN RESOURCES

M.S., M.S./J.D., Graduate Certificate Programs.

401.874.2239

Faculty: Teaching Professor, Phelps director, Schmidt Labor Research Center. Professors Cooper and McIntyre; Associate Professors Loomis and Rogers; Senior Lecturer Gamache-Griffiths

Thesis programs are designed for labor relations and human resource professionals or 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 or pursue a graduate certificate. All courses are offered in the evenings or on weekends in Providence or Kingston so that they are convenient for working students. Full-time and part-time programs are available.

Specializations

Students may specialize in labor relations or human resources. Elective substitutions may be made with the 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 elective courses in an area that satisfies their professional needs.

Master of Science

Admission requirements: Applicants with undergraduate majors in any field are considered for admission. Interview with the director required. Applicants must submit a statement of purpose; two official transcripts of all academic work, two letters of recommendation, a professional writing sample and a résumé of professional experience.

Program requirements:minimum of 36 credits, including 15 credits in core courses and 21 credits of electives of which at least 12 must be specialization electives in the field specified. The required courses are LHR 500/MBA 571*; LHR 551/MBA 572; LHR 531, 542, and 580. For a specialization in labor relations, select a minimum of 12 credits from LHR/SOC 432, LHR/ECN/PSC 521, LHR/HIS 544, 545, 546, 581. For a specialization in human resources, a minimum of 12 credits from MBA 577, 578, LHR 533, 546, 581, LHR/ECN/PSC 521, LHR/MBA 573. Open electives include BUS 446, 461, LHR/PSC 503 and LHR 532, 590/591, MBA 502, 530, 540, PSC 573, ECN 590, EDC 500, EDC 505, EDC 522, EDC 531, EDC 539, EDC 579, EDC 581, EDC 582, EDC 583, EDC 584, EDC 586 or any other courses eligible for graduate credit and approved by the director. In addition, students specializing in labor relations may take courses offered in the human resource specialization as open electives and students specializing in human resources may take courses offered in the labor relations specialization as open electives.

*500/571 may be waived as a required course by the program director for students with extensive human resource/labor relations academic or practical experience. The student may substitute any other approved course for the credits.

The Accelerated B.S. or B.A. to M.S. Program (ABM) in Labor Relations and Human Resources offers qualified students the opportunity to complete both a B.A. or B.S. (with no restriction on program) and the M.S. in Labor Relations and Human Resources in five years.

Students accepted into the ABM program will be permitted to double count credits toward both degrees up to one third (12 credits – four 3 credit courses) of the total credits required for the M.S. degree (36 credits total). 6 credits at the 400 level as approved by the director and 6 credits at the 500-level taken as electives in the major during the final year. All credits counted toward the M.S. portion of the ABM, including 400-level courses, must be earned at URI.

Students must complete all degree requirements for the ABM within two years after enrollment and coding as ABM students. An additional year may be allowed with the permission of the Graduate School. Failure to complete the ABM in the allotted time effectively ends the ABM and the students will not be able to double count credits.

ABM Admission requirements

Students are eligible to apply to the ABM program through the URI Graduate School admission system (GradCas) after they have completed 75 credits in their undergraduate program and will be notified of the admission decision before the end of that semester. Students will be enrolled in the ABM after they complete 90 credits. Student status will officially be moved from undergraduate to graduate enrollment after completion of 120 credits and conferring of their undergraduate degree.

Applicants with undergraduate majors in any field will be considered for admission. The four courses to be double counted will be discussed with and approved by the Director for each applicant during the admission process and approved by their undergraduate academic advisor. Given the nature of the program, which is rooted in the social sciences (sociology, psychology, and similar), students of the social sciences will likely have courses in their degree requirements that could be eligible for double counting. However, with the careful use of electives, summer coursework and full course loads each semester, students in nearly every degree program could be eligible.

Successful applicants will have a minimum of a 3.0 GPA and an interview with the director. Applicants must submit:

a statement of purpose,

a draft proposal of the two 400 level courses to be double counted from their B.A./B.S. program of study and an explanation of how LHR 500 and 531 will fit into their bachelor's program of study as electives and,

two letters of recommendation from faculty.

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 36 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 6 credits taken at Roger Williams: LHR 500, 542, 551, and 580. Students who specialize in human resources must also take LHR/MBA 573 and 578, while students specializing in labor relations must take LHR/PSC 521 and LHR 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: LHR 500, 542, and 580; LHR/ECN 526; and LHR/PSC 521.

Graduate Certificate Programs in Labor Relations and Human Resources

The Certificates are designed for current URI Graduate students looking to intentionally use their electives, a recent graduate hoping to compete for a managerial role, a manager seeking the credentials for the next promotion, a career shifter considering a move into HR, or a seasoned manager hoping to better understand how effectively managing people leads to a competitive advantage. Applicants with undergraduate majors in any field are considered for admission.

Traditional Certificate Program. Applicants must submit a statement of purpose; two official transcripts of all academic work, two letters of recommendation, a writing sample and a résumé of professional experience.

Program requirements: To earn a graduate certificate in labor relations, students must satisfactorily complete LHR 500/MBA 571 plus three of the following courses: LHR 432, 503, 521, 531, 542, 544, 545, and 546 or other courses approved by the program director. To earn a graduate certificate in human resources, students must satisfactorily complete LHR 500/MBA 571 plus three of the following courses: BUS 446, 461, LHR 432, 503, 521, 531, 533, 542, 545, 546, 573 and MBA 502, 577, 578 or other courses approved by the program director. To receive certificates in both HR and LR, the student may only use one course to count for both programs. They must take 6 additional courses to receive both certificates.

URI undergraduate students in any degree program may apply to the traditional graduate certificate in HR or LR in their junior or senior year and earn credits towards the certificate while completing undergraduate requirements (certificate credits cannot count toward the undergraduate degree). Students must enroll for at least one semester after completing their undergraduate degree to complete their certificate. Graduate certificates are excellent avenues for undergraduates to develop deep skills within a given topical areas and are valued by employers and graduate schools.

Accelerated Online Graduate Certificate in Human Resources.

The certificate is designed to develop foundational knowledge and skills in areas such as:

Talent acquisition

Talent training and development

Change Management

Employment Law

Motivation and Reward Systems

The Accelerated Online Graduate Certificate in Human Resources will consist of four courses delivered fully asynchronously online in 7-week modules that follow an accelerated online calendar and can be completed in two semesters and can be started in Fall, Spring, or Summer.

LHR 500 – Labor Relations and Human Resources

LHR 531 – Labor and Employment Law

LHR 573 – Staffing Organizations

MBA 578 – Human Resource Development and Change Management.

Admission requirements: Successful applicants will have a minimum of a 3.0 GPA. Applicants must submit:

a statement of purpose,

two letters of recommendation speaking to the applicant's ability to successfully complete graduate level course work.

a resume

LIBRARY AND INFORMATION STUDIES

M.L.I.S., Cooperative Programs

401.874.2947

Faculty: Professor Karno, Director, Graduate School of Library and Information Studies, Professors Ma, Mandel, Moen, and Villa Nicholas.

The Graduate School of Library and Information Studies is part of The Harrington School of Communication and Media.

The Accelerated Online Master of Library and Information Studies (M.L.I.S.) degree with 7-week sessions 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, automation, information science, leadership and community transformation,

and others. The accelerated online program with 7-week sessions 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 eligibility for Library Media Specialist K-12 certification in Rhode Island and other states participating in the Interstate Compact. This program is approved by the Rhode Island Department of Education (RIDE), accredited by the Council for the Accreditation of Educator Preparation (CAEP), and "nationally recognized" by ALA's American Association of School Librarians (AASL).

Master of Library and Information Studies

Admission requirements: bachelor's degree (B average); undergraduate GPA of 3.00 or equivalent. 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: 36 credits, 15 in required core courses (LSC 502, 504, 505, 508, and 595), except for the School Library Media Track which requires 18 credits of core courses: (LSC 502, 504, 508, 596 and 6 credits of 598). LSC 595 and LSC 596 (for School Library Media Track students) serve as the Culminating Experience for all students. Up to 6 credits of interdisciplinary study from accelerated online graduate programs may be taken in courses outside library science when relevant to the student's specialization; no more than six credits or two courses may be taken in nonmatriculating status for transfer into the degree program.

Requirements for the M.L.I.S. must be met within five calendar years after the date when the student is first enrolled as a graduate student at the University. With the submission of a written request for an extension and a schedule for completion, endorsed by the major professor and the graduate program director, a specific, time-limited extension may be approved by the Dean of the Graduate School. Extensions 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.

School Library Media Track:To complete the M.L.I.S. and meet certification requirements, candidates are required to complete LSC 502, 503, 504, 508, 520, 527, and 596 (taken three times during Fall 2, Spring 1 and Spring 2 for a total of 9 credits, choice of two courses from LSC 513, 530, and 531, and 3 credits of graduate level free electives. LSC 520, which includes 45 hoursof pre-practicum field experience, must be taken in the Summer 1 session priorto LSC 596. Total: 36 credits.

Teacher Certification Program (TCP): Candidates who already have an accredited M.L.I.S. degree may apply for the TCP program for school library media. Candidates for certification must apply for admission following GSLIS guidelines and complete the same requirements as M.L.I.S. students in the school library media track. Analysis of transcripts will determine the number of courses needed to complete the TCP.

Digital Media Track: To complete the M.L.I.S. candidates are required to complete LSC 502, 504, 505, 508, 515, 528, 595, and 9 credits of graduate level free electives. Candidates are also required to complete one of the following: LSC 527, 544, or 548. Candidates are also required to complete one of the following: LSC 503, 510, 516, or 547. Total: 36 credits.

Libraries, Leadership & Transforming Communities Track: To complete the M.L.I.S. candidates are required to complete LSC 502, 504, 505, 508, 517, 570, 595, and 9 credits of graduate level free electives. Candidates are also required to complete one of the following: Comm. 510, Comm. 520, LSC 525, LSC 527, or Comm. 530. Candidates are also required to complete one of the following: LSC 503, 515, 516, 521, 522, 523, or 560. Total: 36 credits.

Information Equity, Diverse Communities, and Critical Librarianship: This track teaches social justice approaches for libraries and information institutes; critical theoretical foundations for understanding information equity and critical thinking skills around anti-racism, and intersectionality that includes, but is not limited to: race, gender, sexuality, class, disability, and immigration in libraries. To complete the M.L.I.S. candidates are required to complete LSC 502, 504, 505, 508, 525, and 595. Candidates are also required to choose 2 courses from Diverse Communities (6 cr): LSC 511: Critical Disability Approaches in Libraries and Information Studies (3 cr); LSC 512 : Immigrant and Migrant Information Contexts and Practices (3 cr); or LSC 517: Community Relations for Libraries (3 cr): Choice of 1 course in Critical Librarianship (3 cr): LSC 513: Social Justice in Children's and Young Adult Literature (3 cr); LSC 515: Information Ethics and Policy (3 cr); or LSC 516: Information and Culture (3 cr); and 9 credits of graduate level free electives. Total: 36 credits.

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, Searching for Answers: Meeting Users' Information Needs; LSC 525, Multiculturalism in Libraries; LSC 527, Digital Information Literacy Instruction; LSC 528, Digital Visual Information Literacy.

Candidates for the ILIC must apply for admission following GSLIS 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.

Other Cooperative Programs

Under existing University policy, students may be able to establish cooperative programs with other accelerated online master's degree programs within the University. Interested persons should consult with the director.

MARINE AFFAIRS

M.A., M.M.A., Ph.D.

401.874.2596

Marine Affairs: Associate Professor Becker, chairperson. Professors Burroughs, Dalton, and Thompson; Associate Professors Bidwell, Garcia-Quijano, Lloréns, Macinko, and Moore; Assistant Professors Diamond, Hiwasaki, Mendenhall, Trandafir, Treviño Peña; Visiting Professor Saumweber; Joint Appointments Professors Mather (History) and Walsh (GSO); Adjunct Professors Colburn (NOAA), Crawford (CRC), Hoag-

land (WHOI), Jin (WHOI) Lacasse (RIC), Mulvaney (EPA), OTO (UW), Raakjaer (Aalborg University, Denmark), Robadue (CRC), Smythe (USCG Academy), Torrel (CRC), and Wyman (RWU); Professor Emeriti Juda, Nixon, and Pollnac; Associate Professor Emeritus Krausse.

Specializations

Conservation, ocean policy and law, climate adaptation and resilience, tourism and recreation, environmental communication, environmental justice, ocean energy resources, coastal and island communities, ports and shipping, fisheries and marine ecosystems, spatial planning and management, international development.

Master of Arts (M.A.)

Admission requirements: Bachelor's degree in a 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). GREs are not considered for admission to this program. Full-time applicants are typically admitted for the fall semester.

Program requirements: thesis or a major project 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. This includes six credits of Masters thesis research (MAF 599) or or six credits of Masters project research (MAF 598).

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, (3) students who have successfully completed the comprehensive examinations in the oceanography doctoral program may apply through the Graduate School, or (4) graduate level Landscape Architecture students who have completed one year of full-time study at Rhode Island School of Design. 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. Roger Williams School of Law students and Rhode Island School of Design 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. Letters of recommendation, writing samples including a master's thesis or major research paper, statement of purpose, and interview are required. GREs are not considered for admission to this program.

The statement of purpose shall include a description of the intended research topic and the names of the professor(s) most suited to direct the research. Consult the department web pages (uri.edu/maf) for current research interests and contact information for 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.

MASTER OF 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 Conley, chair. Professors Aberdam, Danis, Pollart and Takasawa; Associate Professor A. Cardany, Assistant Professorss Aaslid and Goods; Clinical Assistant Professor O'Malley; Senior Lecturers de la Garza and Frazier; Lecturer Gilliland; Director of Athletic Bands and Lecturer B. Cardany; Professors Emeriti Fuchs, Gibbs, Kent, Ladewig, Lee, Livingston, Parillo 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.

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.

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 examina-

tion 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.

M.M. in Music Education: MUS 540 (3), 545 (3), MUS 548 (3), 579 (2), 580 (0), 581 (1), six credits in graduate music education courses (6), and MUS 599 (6). Students should submit their thesis or field experience project proposal to their advisor the semester prior to graduation. Thesis/projects should be completed by November 1st for fall graduation and April 1st for spring graduation. Edits must be completed by the last day of classes; Oral presentations are scheduled during finals week.

All music education candidates must also take a minimum of six credits of electives in music history or music theory. 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 Teacher Certification and School of Education 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. 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.)

MASTER OF PUBLIC ADMINISTRATION

See Political Science in the Graduate Program descriptions.

MATHEMATICS

M.S., Ph.D., Graduate Certificate

401.874.2709

Faculty: Professor Baglama, chairperson; Associate Professor Thoma, director of graduate studies. Professors Baglama, Bonifant, Eaton, Kaskosz, Kulenovic, and Wu; Associate Professors Barrus, Bella, Comerford, Kinnersley, and Thoma; Assistant Professors Chavez, Perovic, and T. Sharland; Senior Lecturer A. Sharland; Professors Emeriti Beauregard, Driver, Finizio, Fraleigh, Ladas, Lewis, Merino, and Verma.

Specializations

Research activities are mainly concentrated in the areas of combinatorics and graph theory, complex dynamical systems, computational mathematics, data science, difference equations, financial mathematics, mathematical biology and modeling, numerical analysis, numerical linear algebra, applied probability/statistics, partial differential equations, scientific computing, 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 a 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: Two tracks are offered: Pure Mathematics and Applied Mathematics. 30 credits or 24 plus thesis (6 credits) are required out of which at least 15 must be at the 500 level or above. Additionally, for the nonthesis option, one MTH 591 or 592 credit is required for a substantial paper involving significant independent research.

For the pure mathematics track, required courses are MTH 435, 436, 513, and 515. Recommended courses include MTH 525, 535, 536, and 562. At most 4 credits can be taken outside of the mathematics program (MTH or AMS) with prior approval of the Director of the Graduate Studies, Department of Mathematics and Applied Mathematical Sciences. Additionally, a written comprehensive examination in MTH 435, 436, and 513 is required.

For the applied mathematics track, required courses are MTH 441, 518, 571, and 581. Recommended courses include MTH 451, 452, 453, 472, 542, 543, 545, 546, 550, and 572. At least 18 credits must be taken inside the mathematics program (MTH or AMS). Courses outside the mathematics program require prior approval of the Director of the Graduate Studies, Department of Mathematics and Applied Mathematical Sciences.

Accelerated Five Year B. S. – M. S. Program in Applied Mathematics: The program is designed for students who want to enter the program while still undergraduates and earn the degree in the year following completion of their bachelors. In general, students will earn 9-12 credits for the degree M.S. Applied Mathematics track during their fourth year, leaving 18-21 credits to be completed during the fifth year. Please see the department website for more information. math.uri.edu

Doctor of Philosophy

Admission requirements: same as for master's program.

Program requirements: Two tracks are offered: Pure Mathematics and Applied Mathematics. A total of 72 credits is required. Of these, 18 credits of dissertation work (MTH 699) are required. Within the first year of the Ph.D. program, the student, in conjunction with the Graduate Committee, will select a research advisor (major professor) from the graduate faculty of the Department of Mathematics and Applied Mathematical Sciences, including persons holding limited joint appointments. At this time, the student's doctoral committee is selected and the program of study is carefully prepared by the student with their major professor. The program of study must be approved by the student's doctoral committee, the department chairperson or graduate program director, and the dean of the Graduate School. Soon after that, in a similar manner, the dissertation proposal must be prepared and approved. The candidate shall successfully defend their dissertation in an oral defense. This is an oral exam, usually two hours long, administered by the candidates dissertation defense committee composed of the doctoral committee and two additional members approved by the Graduate School. This oral exam is in addition to the oral part of the comprehensive exam (see below).

For the pure mathematics track, required courses are MTH 515, 525, 535, 536, and 562. For candidates without a master's degree in mathematics, 1) subject to the approval of the department chairperson and graduate program director, at most 12 credits can be taken outside of the mathematics program (MTH or AMS); 2) the qualifying exam must be passed in MTH 435, 436, and 513; those holding course credit in these courses may waive this requirement. For candidates with a master's degree in mathematics, 1) prerequisites MTH 435, 436, and 513 must be taken; 2) up to 30 credits from a master's degree in mathematics may be applied towards the Ph.D.; and 3) all but at most 6 credits of their remaining credits must be for mathematics courses (MTH or AMS) at the 500-level or higher.

For the applied mathematics track, at least 30 of the 54 non-dissertation credits must be in mathematics (MTH or AMS). Areas of concentration are determined by and selected from among the research interests of the graduate faculty of the program, which includes members of other departments who are formally designated as graduate faculty in mathematics. Up to 24 credits for courses in the student's selected area of concentration may be applied to this degree. For candidates without a master's degree in mathematics, the qualifying exam must be passed in MTH 435, 436, and 513. For candidates with a master's degree in mathematics or a closely related area, 1) up to 30 credits from the M.S. in mathematics or an area closely related to mathematics may be applied towards the Ph.D.; and 2) all of their remaining credits must be for courses at the 500-level or higher; permission of the department chairperson and graduate program director is required if more than 12 of the remaining credits need to be taken outside of the mathematics program (MTH or AMS).

Ph.D. Comprehensive Examination. Shortly before the completion of formal course work, each doctoral candidate shall take the Ph.D. comprehensive examinations. These consist of a 10-hour written part to be taken over eight days and, on successful completion of the written part, an oral part (normally within four weeks).

For both pure and applied tracks, the written exam covers the material corresponding to 10 courses, which are selected by the student's major professor. With the permission of the department chairperson and graduate program director any exams passed as part of the MS comprehensive exam may be waived. The preparation, administration, and evaluation of the written comprehensive examination are the responsibility of the student's research advisor, the doctoral committee, and other department members assigned by the doctoral committee. Unanimous approval of all members of the doctoral committee is required for passing.

The oral part of the comprehensive examination is two hours long and is conducted by the oral comprehensive examination committee, which consists of the doctoral committee with two additional members approved by the Graduate School. This oral exam is in addition to the oral defense of the dissertation (see above).

It is the responsibility of the major professor to request the permission of the dean of the Graduate School to schedule both the written and oral exams and to inform the Graduate School about the results. Consult the Graduate Student Manual, Section 7.57, for procedures that must be followed to schedule both parts of the comprehensive examination. In case of failing the whole or a portion of the comprehensive examination, the student may be permitted one re-examination if so recommended by the examining committee and approved by the Graduate School.

Online Graduate Certificate in Data Science

Data science is the study of complex data or big data. It involves developing methods to collect, record, store, analyze, and interpret data to effectively extract useful information and detect patterns, trends, and relationships in datasets for decision-making purposes. The data scientist is often a storyteller presenting data insights to decision makers in a way that is understandable and applicable to their interests. The field of data science is interdisciplinary at its core, drawing upon skills in computer science, mathematics, statistics, and ethics. Its primary goal is to gain insights and knowledge from any type of data, both structured and unstructured, and provide important resources to organizations that make data-driven decisions. As new technologies are developed, data science will continue to grow in importance to business, industry, science, many academic disciplines, healthcare, and government in the years ahead.

This certificate is a vehicle for career advancement that requires less time and resources than a master's degree, serving as a gateway for students who wish to change careers or improve their skills to achieve a higher level within their profession. This program is offered only in the accelerated 7-week calendar format, a delivery method that provides flexibility to domestic and international students, working professionals, and active and reserve service members.

Program Requirements

A total of 5 courses are required to complete the certificate (15 credits).

Required courses:

DSP 552: Computer-based Data Exploration (3 credits)

AMS/DSP 553: Mathematical Methods for Data Science (3 credits)

DSP 555: Multivariate Statistical Learning for Data Science (3 credits)

DSP 556: Machine Learning for Data Science (3 credits)

DSP 557: Interdisciplinary Data Enabled Research/Capstone Project (3 credits)

Admission Requirements

A bachelor's degree from an accredited College or University in the United States or the equivalent of a four-year degree at an international university that is evaluated by an approved agency.

International students are required to have an overall TOEFL score of 80 or more AND meet the minimum in each individual area: Reading 20, Writing 22, Listening 17, Speaking 17.

GREs are not required.

Prior education in calculus, linear algebra, probability and statistics, programming in Python is recommended, but not required.

Application Instructions

Submit your online application through the URI Graduate School. Applicants will be expected to provide 1) college transcripts certifying successful completion of a Bachelor's degree 2) two letters of recommendation from peers, mentors, or colleagues attesting to the student's ability to complete graduate level coursework, and 3) a personal written statement explaining why the student is seeking a University of Rhode Island Online Graduate Certificate in Data Science.

Complete application instructions can be found on the Graduate School website.

To request further information, visit URI Online.

MECHANICAL, INDUSTRIAL, AND SYSTEMS ENGINEERING

M.S. (Mechanical Engineering ; Systems Engineering)

Ph.D. (Mechanical Engineering ; Industrial and Systems Engineering)

401.874.2524

Faculty: Professor Rousseau, chair; Professor Chelidze, director of graduate studies. Professors Datseris, Faghri, Ghonem, Jouaneh, Nassersharif, Shukla, Sodhi, Taggart, Wang, and Zhang; Associate Professor Maier-Speredelozzi; Assistant Professors Giri, Lin, Macht, Matos, and Yuan; Professors Emeriti Boothroyd, Dewhurst, Kim, Knight, Lessmann, Meyer, Palm, Sadd, and White.

Mechanical Engineering

Mechanical Systems/Design—This area encompasses the broad field of computer- aided design including design methodology and computer graphics, as well as kinematics and dynamics of machines, vibrations, design of machine elements, controls, automation, and techniques for assessing reliability. Current areas of research include nonlinear dynamics and vibrations, expert systems, machine tool calibration, control of robot vehicles, kinematic design and optimization, computer-aided design of control systems, structural health monitoring, damage state estimation and failure prognostics, precision machining, surface roughness analysis, and robot-assisted waterjet machining. Facilities include the Design and Automation Lab, Nonlinear Dynamics and Vibrations Lab, and Waterjet Machining Lab.

Fluid Mechanics—The fluid mechanics program includes advanced studies in laminar and turbulent flows, computational fluid dynamics, experimental methods, flows in micro-domains, flows with particulate matter, biological flow. Current areas of research include fluid flow and heat transfer in micro-domains, flow in human airways, computational fluid dynamics in irregular geometries, biological flows and lubrication, and numerical direct simulation flow modeling. Facilities include the Tribology and Fluid Mechanics Lab, Biofluids/Heat Transfer Lab, and Sensors and Surface Technology Lab.

Solid Mechanics—Studies in solid mechanics involve strength of materials, elasticity, plasticity, continuum mechanics, composite materials, fracture and fatigue, vibrations, wave propagation, computational methods, and micromechanics. Applications of these studies are applied to the mechanical and thermomechanical behavior of metals, composites, functionally graded materials, ceramics, and geological media under both static and dynamic loading conditions. A significant portion of our studies has been involved with micromechanical material behavior. Areas of current research include: behavior of materials under shock loading, dynamic fracture mechanics and material behavior, finite element modeling of biological materials, computational simulation of particulate composites, cellular and granular materials, fatigue crack

growth, micromechanical behavior of composites, material erosion from abrasive waterjet processes. Facilities include the Dynamic Photomechanics Lab, Mechanics of Solids Lab, Optics and Lasers Laboratory, Waterjet Machining Lab.

Thermal Sciences—The area of thermal science includes studies of thermodynamics, conduction, convection and radiation heat transfer, pollution, and energy processes. Recent research has been involved with experimental and numerical modeling of cooling of circuit boards, micro/nanoscale energy transport, micro/nanoscale detection, imaging, and spectroscopy, nanoscale manufacturing, nanoscale energy conversion and storage, heat transfer and fluid flow in melting and solidification, micro heat transfer, aerosol transport in human respiratory flows, direct control heat transfer with phase change, computation of natural and forced convection in complex enclosures, energy system analysis including heating, ventilating, air conditioning, refrigeration, and electrical power systems. Facilities include the Fluid Mechanics/ Filtration Lab, Biofluid/Heat Transfer Lab, Energy Research Lab, Micro/Nano Engineering Lab, and Sensors and Surface Technology Lab.

Industrial and Systems Engineering

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.

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. Some applicants may be required to take courses that are prerequisites to specific graduate courses 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.

A number of graduate and research assistantships are also available for qualified M.S. and Ph.D. students.

Master of Science

Admission requirements: Mechanical Engineering—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. Systems Engineering —B.S. degree in engineering, mathematics, physics, chemistry, computer science, or management science.

Program requirements:

Mechanical Engineering—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 distinct course in each of the three department core areas from the following selections: fluid mechanics/thermal sciences—EGR 515, MCE 541, 545, 546, 550, 551, 552, 562, 580, 653; solid mechanics—MCE 550, 552, 561, 565, 568, 571, 576, 671, 678, 679, 680; mechanical systems—MCE 503, 504, 523, 530, 534, 538, 549, 563, 564, 566, 567, 663; 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.

Systems Engineering—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. 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.

Accelerated B.S./M.S. Degree Program

See Mechanical Engineering in the Undergraduate section of this catalog. See Industrial and Systems Engineering in the Undergraduate section of this catalog.

Doctor of Philosophy

Admission requirements:

Mechanical Engineering Track—master's degree in mechanical engineering, applied mechanics, aerospace engineering, or a related field such as engineering science, civil engineering, applied mathematics, or applied physics. Exceptional students with a bachelor's degree and superior master's candidates will also be considered.

Industrial Systems Engineering Track—master's degree in engineering, mathematics, physics, chemistry, computer science, or management science. Although a person with a bachelor's degree may be admitted, this program is designed principally for people who have master's degrees.

Program requirements:

Mechanical Engineering Track—Completion of a minimum of 24 credits of course work beyond the master's degree (exclusive of graduate seminar for mechanical engineering students) is required. All full-time mechanical engineering students are required to register and attend the graduate seminar courses, MCE 501/502 each semester of residency. Additional course work may also be required depending on the background. A minimum of 18 credits of doctoral dissertation is to be taken under MCE 699. Comprehensive examination and dissertation. For students admitted to the direct Ph.D. program, the requirements are essentially the same as for a regular Ph.D., except that the master's thesis is waived and they need to pass a qualifying examination. A minimum of 72 credits is required that would include 45 – 48 credits of course work. Nine of these course work credits may be at the 400 level. The remaining 24 – 27 credits would then be taken as doctoral dissertation under MCE 699. Students will be required to satisfy the master's core requirements of their respective tracks. Comprehensive examination and dissertation.

Industrial Systems Engineering Track—Completion of a minimum of 24 credits of course work beyond the master's degree. Additional course work may also be required depending on the background. Three credits of course work must be taken outside of the student's area of specialization, and approval of this course lies with the student's doctoral

committee. Mathematics or computer science courses are normally not considered as outside of any student's area of specialization. Additional course work may also be required as a result of the candidacy review (see below). A minimum of 18 credits of doctoral dissertation is to be taken under ISE 699. Comprehensive examination and dissertation. Students with exceptional records holding only a bachelor's degree can apply for a direct doctoral program. The requirements for this program are essentially the same as for a regular Ph.D., except that the master's thesis requirement is waived. A minimum of 72 credits are required that would include 45-48 credits of course work. Twelve of these credits may be at the 400 level. The remaining 24 – 27 credits would then be taken as doctoral dissertation under ISE 699. Students will be required to satisfy the master's core requirements of their respective tracks. Comprehensive examination and dissertation.

Additional program information can be found at uri.edu/engineering/about/mechanical-industrial-systems-engineering

MEDICAL LABORATORY SCIENCE *

M.S., Master of Science

*As of Spring 2019, admission to the Medical Laboratory Science M.S. program has been suspended.

MEDICAL PHYSICS

See Physics in Graduate Program descriptions.

NEUROSCIENCE

M.S., Ph.D.

401.874.4233, uri.edu/inp/

The Interdisciplinary Neuroscience Program involves faculty from the departments of Biological Sciences; Biomedical and Pharmaceutical Sciences; Chemistry; Cell and Molecular Biology; Communicative Disorders; Electrical, Biomedical, and Computer Engineering; Mechanical, Industrial, and Systems Engineering; Psychology; and Physical Therapy. It is administered by the Graduate School and an executive committee appointed by the dean of each participating college.

INP Executive Committee Members (2020-2021): Walter Besio, Jodi Camberg, William Euler, Katharina Quinlan, John Robinson, Alycia Mosely-Austin, Lisa Weyandt (Chair)

Faculty: Professors Agostinucci, Alber, Baron, Besio, Camberg, Clarkin, Coppotelli, D'Andrea, DeBoef, Euler, Fallini, Harwood, Mahler, Mankodiya, Mosely Austin, Nelson, Owens, Quinlan, Robinson, Ross, Seeram, Shahriari, Snyder, Van Nostrand, Ward-Ritacco, Weyandt, Zawia, Zhang, and Zorn

Specializations

Dementia and aging; central nervous system disorders; cellular, molecular, and behavioral neurobiology; and computational intelligence.

Master of Science

Admission requirements: A bachelor's degree in the sciences (or related disciplines), two letters of recommendation, a statement of purpose, and transcripts of all previous degrees are required. Applicants are encouraged to specify in their statement of purpose one or more faculty members with whom they are interested in working, and to explain why. The statement of purpose should also describe the applicant's previous research experience. Students with deficiencies in undergraduate courses relevant to their Program of Study may be required to take additional courses without program credit.

Program requirements: The thesis program requires a minimum of 30 credits: 20-23 in required coursework, 6-9 in thesis research, and 1-3 in electives. Required courses include: NEU 502, 503, 504, 511, 581, 587, 591; PSY 532; a thesis proposal and successful defense of the thesis are required. Total research credits in NEU 591 and NEU 599 used towards the degree must not exceed 12 credits. The non-thesis program requires a minimum of 30 credits: 22 in required coursework, 6 in electives. Required courses include: NEU 502, 503, 504, 581 (two semesters), 582, 587 (two semesters), 591(3 credits); and PSY 532 or equivalent statistics course.

Doctor of Philosophy

Admission requirements: Same as for master's degree.

Program requirements: Successful completion of a qualifying examination or an earned M.S. with thesis in an appropriate discipline, a comprehensive examination, and written dissertation and oral dissertation defense. As the qualifying exam is meant to be equivalent to the M.S. degree, the examination must be taken no later than the first semester following the completion of eighteen credits of coursework. This examination is intended to assess a student's potential to perform satisfactorily at the doctoral level. A minimum of 72 credits is required, of these, 30 credits must be earned through required coursework, and 18 to 28 of which may be earned through dissertation research (NEU 699). Up to 30 transfer credits will be accepted for students who have already earned an M.S. degree. Registration in NEU 581 and 582 is required for one year, and successful completion of NEU 502, 503, 504, and 511 are required, as well as PSY 532 and one additional statistics or computational analysis course. Two semesters (4-6 credits) of NEU 591 are required, one in the student's primary area of research, and one in a related discipline. Doctoral students must enroll in Neurobiology Seminar (NEU 587 or equivalent) for a minimum of three semesters. Depending on a student's previous training and experience, certain requirements may be waived at the discretion of the student's dissertation committee and the Graduate School. In the final semester, a formal presentation of thesis research is required in 581/582.

Postbaccalaureate Certificate in Interdisciplinary Neuroscience

A student who does not seek a neuroscience degree, but instead wants official recognition that he/she has specific training and instruction in neuroscience, can receive a Postbaccalaureate Certificate in Interdisciplinary Neuroscience.

Admission requirements: A bachelor's degree in any field with a 3.00 GPA or higher. Students already enrolled in a master's or doctoral degree at URI are eligible to apply. Students not in a graduate degree program may also apply by submitting two letters of recommendation, a statement of purpose, and transcripts of all previous degrees

Program requirements: Students will be required to successfully complete 12-16 credits of neuroscience coursework including NEU 503.

NURSING

Nursing, Post-M.S. Certificate

401.874.9711, uri.edu/nursing

Clinical Specializations:

Post-M.S. certificate students choose to specialize in one of three areas of specialization for advanced nursing practice. Options include family nurse practitioner (FNP), adult-gerontology primary care nurse practitioner (AGPCNP) and psychiatric-mental health nurse practitioner (PMHNP). Following certificate program completion, students are eligible to take the certification examination in their specialty area.

*As of January 2020, admissions to the nursing education specialty and the adult-gerontology acute care nurse practitioner specialty are on hold.

Admission requirements:

Admission requirements include: M.S. in Nursing from a CCNE- or NLN-accredited school of nursing; minimum GPA of 3.0; eligibility for R.N. licensure in Rhode Island; and completed coursework in advanced physical assessment, advanced pathophysiology and advanced pharmacology. Completed application package should include all transcripts, three letters of reference (academic and professional, at least one from an M.S. prepared nurse, a curriculum vitae/resume and a statement of purpose. The statement of purpose should reflect the student's professional goals and reason for pursuing the post-M.S. certificate. Complete applications must be received by February 15th for fall admission. Acceptance is based on a full review of the applicant's record and not on any one single component. Qualified post-M.S. certificate students are accepted on a space-available basis.

Post-M.S. Certificate Program Requirements:

Post-M.S. certificate requirements include 18 to 20 credits, depending upon the nurse practitioner concentration chosen and an individualized gap analysis. Required courses for the family nurse practitioner specialty include NUR 531, 532, 533, 534 and 590 (18 credits). Required courses for the adult-gerontology primary care nurse practitioner specialty include NUR 561, 562, 563, 564, and 590 (18 credits). Required courses for the Psychiatric-Mental Health Nurse Practitioner specialty include NUR 502, 513, 514, 518, 545, and 546 (20 credits). Any courses required for certification in the advanced nursing practice specialty (e.g., advanced pharmacology, physical assessment, pharmacology), that were not completed as part of the student's original M.S. degree program, will be identified as part of the individualized gap analysis and will also have to be completed.

NURSING

Nursing, Ph.D.

401.874.9711, uri.edu/nursing

The Ph.D. program includes course work in the philosophy of science, generation of knowledge, theory, and the conduct of qualitative, quantitative and mixed methods research. The program also includes mentored experiential research training, comprehensive examinations and the completion of dissertation research.

Admission requirements:

Admission requirements include: a bachelor's degree in nursing from a CCNE- or NLN-accredited program; a master's degree or its equivalent in nursing or a related field; cumulative grade point averages of 3.0 and 3.3 for undergraduate and graduate programs, respectively; and completion of an undergraduate course in statistics. GRE scores are preferred but not required. TOEFL scores are required for international students for whom English is a second language. TOEFL scores > 100 are preferred.

Complete applications are due by January 15th for fall admission. Applications should include: all post-secondary transcripts; three letters of recommendation (academic and professional; one from a PhD-prepared nurse); a writing sample (e.g., thesis, scholarly paper, publication); curriculum vitae / resume; and a statement of purpose indicating professional goals and research area of interest that are congruent with those of the program and institution. Acceptance is based on a full review of the applicant's record and not any single component.

Ph.D. Program requirements:

Program requirements include a minimum of 52 credits. Requirements for the PhD degree include: 9 credits in philosophy and theory core courses (NUR 600, 602, and 603); 10 credits in research methods core courses (NUR 649, 650, 651, and 652); 6 credits in graduate statistics; 9 credits in advanced methods, cognates or focused elective courses; and 18 credits in dissertation research. A mentored research experience of 150 hours is also required. The program culminates with comprehensive examinations (written and oral) and the successful conduct and defense of the student's dissertation research (revised 2/2020)

NURSING

Nursing, M.S.

401.874.9711, uri.edu/nursing

The M.S. program includes: core nursing courses in theory, research and health policy; advanced coursework in pathophysiology, health assessment/physical assessment and pharmacotherapeutics; and advanced practice and clinical practicum courses in the student's chosen area of specialization. Practicum courses are designed to provide knowledge and clinical experience specific to the student's specialty area.

Clinical Specializations:

M.S. students choose to specialize in one of three areas of specialization for advanced nursing practice. Options include family nurse practitioner (FNP), adult-gerontology primary care nurse practitioner (AGPCNP) and psychiatric-mental health nurse practitioner (PMHNP). Following program completion, graduates are eligible to take the certification examination in their specialty area.

*As of January 2020, admissions to the nursing education specialty and the adult-gerontology acute care nurse practitioner specialty are on hold.

Admission Requirements:

Requirements include a bachelor's degree from a CCNE or NLN-accredited program with an upper-division major in

nursing; an undergraduate course in statistics; minimum GPA of 3.0; and eligibility for R.N. licensure in Rhode Island. Professional nursing experience prior to enrollment is preferred. The completed application package should include all transcripts, three letters of reference (academic and professional, at least one from an M.S.-prepared nurse), a curriculum vitae/resume, and a statement of purpose. The statement of purpose should address the student's professional goals and should relate to the nurse practitioner specialty program to which the student is applying. Applications must be received by February 15th for consideration for fall admission. Acceptance is based on a full review of the applicant's record and not on any one single component. Applicants who wish to begin early may take select courses as a non-matriculated student prior to formal acceptance and matriculation into the M.S. program.

M.S. Program Requirements:

Program requirements and minimum number of credits vary across the three advance practice specialties offered in the M.S. program. The FNP and AGPCNP specialties each require a minimum of 42 credits; the PMHNP specialty requires a minimum of 49 credits.

Required core courses for all M.S. students (13 credits) include NUR 505, 507, 520, 521 and HDF 527. Clinical specialty courses and practica vary by specialty. Required courses for the family nurse practitioner concentration (29 credits) include NUR 530, 535, 531, 532, 533, 534, 582, and 590; Required courses for the adult-gerontology primary care nurse practitioner concentration (29 credits) include NUR 530, 535, 561, 562, 563, 564, 582, and 590; Required courses for the psychiatric-mental health nurse practitioner concentration (36 credits) include NUR 502, 513, 514, 518, 530, 535, 545, 546, 547, and 582. The M.S. program culminates with written comprehensive examinations. (revised 4/2020)

NUTRITION AND FOOD SCIENCES

M.S. Nutrition Sciences, Combined M.S. Dietetic Internship Program (MSDI), M.S. Dietetics (Online), Ph.D. (Health Sciences)

401.874.2253, uri.edu/nfs/

Faculty: Professor Lofgren, Chair; Professor Melanson director of graduate studies. Professor Greene; Associate Professor Tovar; Assistant Professors Oaks, Vadiveloo, Amin, and Missimer.

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; energy balance, lipid metabolism, pregnancy nutrition, and childhood obesity prevention.

Master of Science – Nutrition

Admission requirements: Bachelor's degree. Applicants must have completed a minimum of two semesters of chemistry, and one each of biochemistry, anatomy or biology, human physiology, nutrition, and statistics. In addition, students must have completed an advanced nutrition course with a biochemistry prerequisite and an intermediate level statistics course. Students from other academic areas are encouraged to apply but must have physiology, biochemistry, nutrition, and statistics prior to admission.

Program requirements (30 credits): Thesis (6 credits), two credits of NFS 511 or NFS 512; NFS 505, 550, 553, and 554; and a minimum of six credits from one of the three tracks: Nutrition Communications, Population Health Nutrition, or Nutrition Science (described below), to be decided upon with the student's major professor. . Full-time graduate students are required to be continuously registered in NFS 511 or 512, but no more than two credits of NFS 511 or NFS 512 can be used for program credit. Applicants without undergraduate training in nutrition may be required to make up background courses without graduate credit.

M.S. Track Options:

Nutrition Communications: A minimum of six graduate-level credits would be included in courses covering scientific communication in various forms. These courses would be from URI departments such as COM, WRT, NRS, and BES. There is a growing need for nutrition professionals who can communicate evidence- based nutrition recommendations to the public in understandable, accurate, meaningful ways. These courses will prepare students to better translate nutrition science to non-nutritionists through multiple genres.

Population Health Nutrition: A minimum of six graduate-level credits would be included from courses related to nutrition and public health. This track will provide students with an understanding of public health, and community nutrition, including a deeper understanding of epidemiology, the impact of food programs, food policy, and other systemic drivers on diet, health, and sustainability in the US and globally. Students in this track will be able to apply this knowledge within community or public health settings.

Nutrition Science: A minimum of six graduate-level credits would be included from additional NFS courses and/or related science and/ or statistics courses. These would allow students to gain deeper and broader learning in biological aspects of nutrition, and possibly other related disciplines at the discretion of the student and major professor. This track prepares students to work in various aspects of food and nutrition research and applications. It develops readiness for careers in industry, academia, or other health-related workplaces, and may precede doctoral studies.

Accelerated Bachelors to Master of Science

Please find admissions details and guidance for the Accelerated Bachelors to Master of Science here. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Combined Master of Science Dietetic Internship Program

This program is designed for students who want to become Registered Dietitians by including an accredited Dietetic Internship (DI) program with the M.S. degree requirements. The DI has a specialization area in applied nutrition science. The DI is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND), 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606, 312.899.0040, ext. 5400, website: eatright.org.

Admission requirements: students wishing to complete URI's Combined Master of Science Dietetic Internship (MSDI) must have an earned bachelor's degree with completion of the Accreditation Council for Education in Nutrition and Dietetics (ACEND) Didactic Program in Dietetics (DPD) requirements

including the following courses: nutrition, general chemistry, organic chemistry, biochemistry, anatomy or biology, human physiology, and statistics. In addition, students must have completed an advanced nutrition course with biochemistry as a prerequisite. Applicants must submit an ACEND verification form or declaration of intent form signed by their DPD director. Enrollment is expected to be limited to twelve students. Program information and application deadlines can be obtained at uri.edu/nfs/.

Program requirements (34 credits): NFS 504, NFS 505; NFS 506, 553, and 554; two credits of NFS 511 or NFS 512; one credit apiece of NFS 507, 508, 581, 583, 584, and three credits of 591; three credits in a 400- or 500- level statistics course; six credits in Global Health and Applied Nutrition to be determined in consultation with the major professor. In addition to the program requirements for other M.S. students, MSDI students must complete a minimum of 1,200 hours of supervised practice experience in health care and community facilities. Students must satisfactorily complete the experiential rotations as well as M.S. degree requirements including completion of a culminating experience tailored to their interests including a significant paper with a literature review, identification of an area of need, development, implementation and evaluation of an intervention in order to receive an ACEND Verification Statement qualifying them to take the Dietetic Registration Examination as well as to apply for licensure to practice dietetics in Rhode Island.

Master of Science – Dietetics (Online)

The M.S. in Dietetics Program is a 100% online program designed to provide academic training for students who are currently completing ACEND-accredited dietetic internship programs. The required courses will complement internship rotations to provide comprehensive study of each area of Dietetics. Registered Dietitians who have completed an ACEND-accredited dietetic internship program within the past 7 years may apply but will need to provide credentialing information. Additional program information can be found on our department website (uri.edu/msdieteticsonline). Director: Dr. Jennifer Arts-Salvatore.

Admission Requirements: Concurrent enrollment in a dietetic internship program accredited by ACEND, and completion of a Didactic Program in Dietetics accredited by ACEND with an overall minimum GPA of 3.0. Students who are Registered Dietitians and who have completed a dietetic internship program accredited by ACEND within the past 7 years are eligible to apply but must complete an additional application.

Program Requirements: (36 credits): The following 11 courses are required: NFS 560 – Introduction to Clinical Practice (3 credits); NFS 561 – Advanced Medical Nutrition Therapy in Dietetics 1 (4 credits); NFS 562 – Advanced Medical Nutrition Therapy in Dietetics 2 (4 credits); NFS 563 – Advanced Medical Nutrition Therapy in Dietetics 3 (4 credits); NFS 564 – Foodservice Operations (4 credits); NFS 565 – Community Nutrition and Health Promotion (4 credits); NFS 566 – Clinical Nutrition Management (3 credits); NFS 567 – Introductory Dietetic Research (2 credits); NFS 568 – Intermediate Dietetic Research (2 credits); NFS 569 – Advanced Dietetic Research (2 credits); NFS 570 – Research in Dietetic Specialization (4 credits). Successful completion of a comprehensive exam.

Doctor of Philosophy in Health Sciences

The College of Health Sciences has a unified doctoral program (Ph.D.). Please find details in Health Sciences.

OCEAN ENGINEERING **

M.S., Ph.D.

401.874.6139

Faculty: Professor Miller, chair; Professor Baxter, director of graduate studies; Professors Ballard, S. Grilli, and Hu; Associate Professors Bradshaw, Dahl, Hashemi, Licht; Assistant Professors Phillipsand Van Uffelen; Associate Research Professors A. Grilli, Potty, and Vincent; Professors Emeriti, Silva, Spaulding, Stepanishen, and Tyce.

Specializations

Ocean instrumentation and data analysis, ocean robotics and vehicles, underwater and sub-bottom acoustics , marine hydrodynamics and water-wave mechanics, coastal and nearshore processes, natural hazards (from storms and tsunamis), coastal engineering and resilience, marine geomechanics, coastal and offshore structures, and offshore wind, wave, and current energy 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.

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 chair 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. EGR 515 counts towards the 18 credits of course work in ocean engineering. 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. EGR 515 counts towards the minimum of two courses in ocean engineering requirement. Qualifying, written, and oral comprehensive examinations are required for all doctoral students. OCE 605 and 606 are required for all full-time students.

** Program includes the option of earning dual degrees from URI and from Technische Universität Braunschweig, Germany. For more information, visit uri.edu/iep

OCEANOGRAPHY

M.O., M.S., Ph.D.

401.874.6246

Faculty: Professor Bontempi, dean; Professor Smith, associate dean. Professors Ballard, Collie, Cornillon, D'Hondt, Donohue, Ginis, Hara, Heikes, Kelley, Kincaid, Lohmann, Menden-Deuer, Robinson, Roman, Rothstein, Rynearson, Shen, Soule, Spivack, Walsh; Associate Professors Loose, Mouw, Omand, Palter, and Wei; Assistant Professors Beinart, Inomura, McMahon, Oldham and Zhou; Lecturer McConnell, Professor-in-Residence Rines; Research Professors Oviatt and Watts; Professors Emeriti Corliss, Durbin, Carey, Hargraves, King, Leinen, Merrill, Pilson, Quinn, Rahn, Rossby, Sigurdsson, Specker, Wimbush, Wishner and Yoder.

Specializations

Biological, chemical, geological, and physical oceanography.

Financial Support

A variety of assistantships are available for M.S. and Ph.D. candidates.

Master of Oceanography (non-thesis)

Admission requirements: 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 https://web.uri.edu/graduate-school/admission/international/. 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, minimum of 15 credits of OCG classes): OCG 695 (two credits maximum); major paper or equivalent product (OCG 591/592, six credits); courses required by track. For Marine Fisheries Management track: OCG 561, 670, AFS 531; one from each of the following groups: A.) OCG 501, 521, 517, 540; B.) OCG 506, 673, NRS 410, 527, STA 550, EEC 543; C.) MAF 523, 526, 651, BIO 563, OCG 673, NRS 527. For Ocean Technology and Data track: at least two from OCG 540, 521, 517 or 501, 561; at least four classes from the following: OCE 467, 512, 514, 516, 522, 550, 562, 581, 582, 583; ELE 457, 485, 503, 504, 506, 509, 583; CSF 430, 432, 534, 580; OCG 404, 506, 517, 535, 555, 665; NRS 509, 516; GEO 577; MAF 461, 521, 564. For Coastal Ocean Management track: at least two from OCG 501, 521, 517 or 540, 561; at least four classes from one or more of the following groups: OCG 512, 513, 514, 517, 522, 614, 506, 555, 519, 535, 580; NRS 423, 501, 555, 585, 509, 516; GEO 511, 515, 577; OCE 581, 582, 583; MAF 461, 515, 514, 521, 564. For General Oceanography track: three from the following group: OCG 501 or 517, 521, 540, 561; 3 credits in statistics, data analysis, or scientific writing; 6 credits in oceanography or other science departments; 3 credits in policy, management, economics, or related field.

Master of Science in Oceanography (with thesis)

Admission requirements: 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 https://web.uri.edu/graduate-school/admission/international/. 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 post baccalaureate 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: 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, 530, and OCG 610 or 613.

Doctor of Philosophy in Oceanography

Admission requirements: 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 https://web.uri.edu/graduate-school/admission/international/. 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 post baccalaureate 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, 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: OCG 540 and any two of OCG 501, 521, and 561. For specialization in physical oceanography: OCG 501, 530, 610 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 (see Marine Affairs) 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.

Fifth-year Master of Oceanography Program

The Fifth-year Master of Oceanography program is designed for students who want to enter the program while still undergraduates and earn the degree in the year following completion of their B.S. In general, students will take three of the core courses required for the M.O. degree during their fourth year, leaving 20-21 credits to be completed during the fifth year. Interested students should visit: https://web.uri.edu/gso/uncategorized/5th-year-master-of-oceanography-degree-program/ for further information. Students must earn a grade of "B" or better in PHY 111 or 203, CHM 112 or 192, MTH 132 or 142, and BIO 101 (or equivalent/AP credit).

M.O. Graduation Requirements

Program requirements (total of 30 credits, minimum of 15 credits of OCG classes): OCG 695 (two credits maximum); major paper or equivalent product (OCG 591/592, six credits); courses required by track. For Marine Fisheries Management track: OCG 561, 670, AFS 531; one from each of the following groups: A.) OCG 501, 521, 517, 540; B.) OCG 506, 673, NRS 410, 527, STA 550, EEC 543; C.) MAF 523, 526, 651, BIO 563, OCG 673, NRS 527. For Ocean Technology and Data track: at least two from OCG 540, 521, 517 or 501, 561; at least four classes from the following: OCE 467, 512, 514, 516, 522, 550, 562, 581, 582, 583; ELE 457, 485, 503, 504, 506, 509, 583; CSF 430, 432, 534, 580; OCG 404, 506, 517, 535, 555, 665; NRS 509, 516; GEO 577; MAF 461, 521, 564. For Coastal Ocean Management track: at least two from OCG 501, 521, 517 or 540, 561; at least four classes from one or more of the following groups: OCG 512, 513, 514, 517, 522, 614, 506, 555, 519, 535, 580; NRS 423, 501, 555, 585, 509, 516; GEO 511, 515, 577; OCE 581, 582, 583; MAF 461, 515, 514, 521, 564. For General Oceanography track: three from the following group: OCG 501 or 517, 521, 540, 561; 3 credits in statistics, data analysis, or scientific writing; 6 credits in oceanography or other science departments; 3 credits in policy, management, economics, or related field.

PHARMACEUTICAL SCIENCES

M.S., Ph.D. (Pharmaceutical Sciences)

401.874.2789

Faculty

Medicinal Chemistry and Pharmacognosy: Professors Cho, King, LaPlante, Seeram, and Rowley; Associate Professor Li; Assistant Professor Bertin. Research Assistant Professor Ma.

Pharmaceutics and Pharmacokinetics: Professor Akhlaghi; Associate Professors Chen and Meenach; Assistant Professors Menon and Shen; Lecturer Allababidi; Professors Emeriti Kislalioglu, Lausier, Rosenbaum, and Zia.

Health Outcomes: Professors Kogut, LaPlante, and Larrat; Associate Professor Caffrey; Assistant Professors Buchanan, Vyas, and Wen; Clinical Professor Marcoux.

Pharmacology and Toxicology: Professors Chichester, Deng, King, Slitt, Van Nostrand, and Zawia; Associate Professor Kovoor; Assistant Professors Clements, Ghonem, Fallini, Manuel, Quinlan, and Ross; Research Assistant Professor Hemme; Professor Emeriti Rodgers, Shaikh, and Swonger.

Other Graduate Faculty: Professors Barbour, Cohen, Dufresne, Hume, and Taveira; Clinical Professors Bratberg, Charpentier, Jacobson, MacDonnell, Matson, and Ward; Clinical Assistant Professor Brown; Professor Emeritus Owens.

Specializations

Medicinal Chemistry and Pharmacognosy: Molecular mechanisms of chemical carcinogenesis; mutation and repair; DNA synthesis; screening, isolation, and structure elucidation of physiologically-active natural products; biosynthesis of microbial and plant natural products; herbal medicine; structural bioinformatics; structure-based drug design.

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.

Health Outcomes: Research encompassing clinical, humanistic and economic outcomes using pharmacoepidemiologic and pharmacoeconomic designs to measure and evaluate outcomes of medication therapy and other health care interventions within populations. Focus areas include comparative effectiveness and safety research, cost-effectiveness analysis, medication adherence, and health services research.

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, drug metabolism and drug transporters, and the development of inhibitors to cell signaling events.

Master of Science (Thesis)

Admission requirements: GRE and Pharm.D. or bachelor's degree in pharmacy, chemistry, biological sciences, or allied sciences; TOEFL or IELTS (waived for applicants who graduate

from a school [B.A./B.S./Pharm.D.] where English is the primary language).

Program requirements: Successful completion of 30 credits of graduate study, including PHC 502, 2 seminar credits(PHC 693/694), PHC 599, and a thesis.

For specialization in medicinal chemistry and pharmacognosy: Three credits of BPS 530, BPS 535, or BPS 641; at least six credits of BPS 525, BPS 551, BPS 555, BPS557, BPS 633, CMB 581, CMB 582, CHM 427, CHM 505, CHM 521, or CHM 522; Six to nine credits of PHC 599. Remaining elective credits at the 500/600 level in consultation with student's major professor.

For specialization in pharmaceutics and pharmacokinetics: STA 409 or 411 or equivalent; six to nine credits of 500- or 600-level BPS courses; six to nine credits of PHC 599. One additional 400-level course can be used to complete required and elective program requirements. Remaining elective credits at the 500/600 level in consultation with student's major professor.

For specialization in health outcomes: PHP 540, PHP 550, and PHP 580; at least six credits of graduate level statistics courses as determined in consultation with the student's major professor; seven to nine credits of PHC 599; three elective credits.

For specialization in pharmacology and toxicology: BPS 641 and 642; Three credits of BPS 530 or BPS 535; Six credits of BPS 436, BPS 442, BPS 521, BPS 530, BPS 535, BPS 546, BPS 550, and CMB 581 or PHP 540; six credits of PHC 599; Four to eight elective credits in consultation with student's major professor. Two 400 level courses can be used to complete required and elective program requirements with program director approval.

Master of Science (Non-Thesis)

Admission requirements: GRE and Pharm.D. or bachelor's degree in pharmacy, chemistry, biological sciences, or allied sciences; TOEFL or IELTS (waived for applicants who graduate from a school (B.A./B.S./Pharm.D.) where English is the primary language).

Program requirements: Successful completion of 30 credits of graduate study, including PHC 502, 2 seminar credits (PHC 693/694), and PHC 599. For the non-thesis Master's degree, a capstone/culminating experience (e.g. major paper, written technical report, review article) approved by a faculty advisor and College of Pharmacy Program Director is required and should be taken in the third or fourth semester. The evaluation committee will consist of two faculty members from the area of specialization and one faculty member from outside of the department.

For specialization in medicinal chemistry and pharmacognosy: No more than 9 credits in special problems or seminar credit (BPS 597, BPS 598, PHC 599, PHC 693/694). At least twelve (12) credits of coursework in Pharmaceutical Sciences (BPS, PHC, or PHP course code, excluding BPS 597, BPS 598, PHC 599, PHC 693/694) is required, including BPS 552, and with at least six (6) additional credits in the medicinal chemistry and pharmacognosy area. The remaining elective credits will be completed in consultation with student's major professor. One 400-level course can be used to complete required and elective program requirements.

For specialization in pharmaceutics and pharmacokinetics: No more than 9 credits in special problems or seminar credit (BPS 597, BPS 598, PHC 599, PHC 693/694). A total of twelve (12) credits of coursework in Pharmaceutical Sciences (BPS, PHC, or PHP course code, excluding BPS 597, BPS 598, PHC 599, PHC 693/694) is required, with at least six (6) credits in pharmaceutics and pharmacokinetics area, and 3 credits in STA 409 or 411 or equivalent. One additional 400-level course can be used to complete required and elective program requirements. The remaining elective credits will be taken in consultation with student's major professor.

For specialization in health outcomes: PHP 540, PHP 550 and PHP 580, 2-3 credits of PHC 693/694, and at least six credits of graduate level statistics courses. The remaining elective credits will be taken in consultation with student's major professor. For specialization in pharmacology and toxicology: No more than 9 credits in special problems, or seminar, or thesis credit (BPS 597, BPS 598, PHC 599, PHC 693/694). A total of twelve (12) credits from coursework in Pharmaceutical Sciences (BPS, PHC, or PHP course code, excluding BPS 597, BPS 598, PHC 599, PHC 693/694) are required, with at least nine credits in the pharmacology and toxicology specialization. The remaining elective credits will be taken in consultation with student's major professor. Two 400-level courses can be used to complete required and elective program requirements.

Accelerated Bachelors to Master of Science

Please find admissions details and guidance for the Accelerated Bachelors to Master of Science here. Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

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; TOEFL or IELTS (waived for applicants from countries where English is the primary language). A qualifying examination is required for candidates accepted without the master's degree. This requirement is satisfied by completing, with a grade of B or better, PHC 502 and six credits from BPS 530, BPS 535, BPS 546, BPS 551, BPS 552, BPS 587, BPS 641, PHP 540, PHP 550 or PHP 580 within the first two academic semesters.

Program requirements: Successful completion of 72 credits of graduate study, including PHC 502, PHC 693/694 (3 credits), PHC 699, a qualifying exam, written and oral comprehensive examination, and a 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: BPS552; Three credits of BPS 530, BPS 535, or BPS 641; At least nine credits of BPS 525, BPS 551, BPS 555, BPS 557, BPS 633, CMB 581, CMB 582, CHM 505, CHM 521, or CHM 522; Additional course credits at the 500/600 level (including up to 3 credits of PHC 520) must be selected in conjunction with major professor and/or doctoral committee. All students are required to complete a minimum of 30 credit hours in courses other than those deemed to carry research, independent study, or directed study credits.

For specialization in pharmaceutics and pharmacokinetics: Four credits of PHC 693/694, STA 411 or equivalent, a 500-level statistics course, BPS 503 and BPS 555. Additional course credits must be selected in conjunction with major profes-

sor and/or doctoral committee. All students are required to complete a minimum of 30 credit hours in courses other than those deemed to carry research, independent study, or directed study credits. Pharmacokinetics students must successfully complete BPS 530 and BPS 670.

For specialization in health outcomes: PHP 540, PHP 550, PHP 580, PHP 640, and PHP 685; Six to nine credits of 500/600 level statistics courses as determined in consultation with the student's major professor; twenty-four credits of PHC 699; and a minimum of 18 credits of additional 500/600 level elective courses as determined in consultation with the major professor.

For specialization in pharmacology and toxicology: BPS 530, BPS 535, BPS 641, and BPS 642. Fifteen credits of BPS 525, BPS 536, BPS 542, BPS 546, BPS 555, BPS 557, BPS 565, BPS 697, BPS 698, CMB 581, and PHC 520; Additional course credits at the 500/600 level must be selected in conjunction with the major professor and/or doctoral committee. All students are required to complete a minimum of 30 credit hours in courses other than those deemed to carry research, independent study, or directed study credits.

Students transferring 30 credits from M.S. degree: Students transferring 30 credits from an M.S. degree program must complete a minimum of 12 course credits, excluding PHC 693/694, PHC 599 and special problems courses, selected in consultation with the major advisor.

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 226 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, pharmaceutics and pharmacokinetics, health outcomes, 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.

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: statement of purpose, résumé, and two letters of recommendation.

PHYSICS

M.S., Ph.D.

401.874.2633

Faculty: Professor Kahn, chair. Professors: Andreev, Heskett, Kahn, Kaufman, Meyerovich, Muller, Nightingale, Reshetnyak; Associate Professor: Ganikhanov; Assistant Professors: Antosh, Srinivasa

Specializations

Biological physics: membrane biophysics; membrane-associated folding/unfolding; molecular motors; steady-state and kinetics fluorescence and circular dichroism studies; calorimetry; small angle x-ray scattering on biological objects (at the European Synchrotron Radiation Facility, Grenoble); fluorescence microscopy; fluorescence polarization microscopy; spectral analysis from cells; electric cell substrate impedance sensing on cells.

Computational physics: classical and quantum Monte Carlo methods, large-scale parallel computations, optimization, many-body interactions and invariants, finite-size scaling.

Experimental condensed matter physics: electronic and structural properties of surfaces and thin films studied via low-energy electron diffraction, Auger electron spectroscopy, 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 Lithium Ion Batteries using Hard X-ray Photoemission Spectroscopy (HAXPES), Rutherford backscattering, and scanning tunneling microscopy; ultrafast dynamics of hot carriers in 2-dimensional materials studied with multi-color femtosecond spectroscopy; phonon decay and vibrational dynamics in traditional and soft condensed matter studied by coherent Raman spectroscopy techniques; sub-optical cycle waveform generation.

Medical physics, physics oncology and nanotechnology: novel approaches in drug delivery and tumor targeting; whole-body and ex vivo fluorescence imaging; gold and magnetic nanoparticles; laser and x-ray radiation; hyperthermia; liposome delivery.

Statistical physics: Bethe ansatz, density functional theory, fractional exclusion statistics, applications to spin systems, quantum gases, granular matter, and biological matter.

Theoretical condensed matter physics: surface physics, phase transitions and critical phenomena, critical dynamics, superconductivity, quantum transport, systems with random rough boundaries, nano-scale films and clusters, disordered systems,

low-dimensional systems, spin dynamics, nonlinear optics.

Theoretical low-temperature physics: Fermi and Bose quantum liquids, solids and gases; spin-polarized quantum systems, ultracold neutrons in quantizing gravity field.

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.

Master of Science in Quantum Computing

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics or closely related discipline. A grade of "B" or better in a rigorous quantum mechanics course is required.

Program requirements: PHY 510 or 610, 525, 530, 570, 575, 576, 577, 580, 591, 670, 680 MTH 513. The student will complete 30 credits, of which no more than six may be below the 500 level. This is a non-thesis program which requires that at least one course will require a substantial paper involving significant independent study, and the student must pass a final written and oral examination.

Master of Science in Medical Physics

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics or related discipline.

Program requirements: PHY 540, 545, 550, 552, 555, 560, 565, 585, 591; ELE 564 + lab are required courses. The following are required introductory courses, which could be taken at URI or other places: BIO 121 + lab, 242 + lab; PHY 210; SOC 224. The student will complete 30 credits, of which no more than six may be below the 500 level. This is a nonthesis program which requires that at least one course will require a substantial paper involving significant independent study, and the student must pass a final written and oral examination.

Criminal Background Checks and Trainings. All students must undergo a criminal background check annually during the professional years of the program using the College's approved vendor. The criminal background check must be completed prior to the spring semester of each year. Rhode Island Hospital participates in the program and requires certification that students have a clear criminal record (or a criminal record which, due to the timing or nature of the criminal behavior, or the relevant circumstances, does not, in the judgment of the site preclude the student's participation in the practicum/learning experience at their site). Students with criminal records, therefore, should be aware that their criminal record may preclude their participation in clinical experiences at the hospital, and as a result, their progression to meet the degree requirements may be impeded.

All students will be required to complete OSHA, HIPPA and Basic Life Support Training programs. The training programs must be completed prior to the spring semester of each professional year. Rhode Island Hospital participates in the program and requires training certifications.

Medical Physics Track: Five-Year Program leading to a B.S. in Physics and an M.S. in Medical Physics. For more information see Physics in the undergraduate section of this catalog.

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: PHY510, PHY520, PHY525, PHY530, PHY570, PHY580 are core courses required for all students. In addition to the core courses, students in the Physics track will be required to take: PHY610, PHY630, PHY670, PHY680, and either one of (PHY625, PHY 626). In addition to the core courses, students in the Applied Physics track will be required to take: PHY540, PHY 560, one of (PHY625, PHY 626), one of (PHY630, PHY670), and one of (PHY610, PHY680). The choice of tracks and courses should be done with adviser's approval. No replacements by courses from outside the Department are allowed. 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 summer preceding the second year of studies.

POLITICAL SCIENCE

M.A., ABM, M.P.A., M.P.A./M.L.I.S.

401.874.2183; 401.277.5200

Faculty: Professor Hutchison, chair. Professors Petro, Krueger, and McIntyre; Associate Professors Johnson, Pearson-Merkowitz, and Xu; Assistant Professors Jomaa, Leedahl, Ley, Parker, Rundlett, Mendenhall, and Mark; Adjunct Professors Kelley, Profughi, and Weygand.

Specializations

International relations, comparative politics, diplomacy, international development, global peace studies, public policy, and public administration.

Master of Arts in International Relations

Admission requirements: undergraduate credit in political science or related discipline; current scores from the GRE, GMAT, or MAT are required for applicants with a cumulative undergraduate GPA below 3.0

Program requirements: a minimum of 30 credits including 9 credits in required core courses and 9 credits in concentration courses. The required core courses are PSC 580 and two of the three following courses: PSC 584, 585, and NVP/PSY500 depending on concentration. PSC 585 is required for the diplomacy concentration, PSC 584 is required for the international development concentration, NVP/PSY 500 is required for the global peace studies concentration. For a concentration in diplomacy, select three courses from PSC 553, PSC 546, PSC 577, PSC 586, PSC 581, PSC 582, PSC 551, PSC 555, and PSC 556. For a concentration in international development, select three courses from PSC/LRS 521, PSC 544, PSC 546, PSC 551, PSC 553, PSC 581, PSC 582, PSC 555, and PSC 556, PSC 588. For a concentration in global peace studies, select three courses from PSY 478, PSY 690, PSC 546, PSC 551, PSC 555, PSC 556,

PSC 586, PSC 581 and PSC 582 and PSC 588. Courses can be applied to only one concentration. Students can apply no more than two special topics seminars (PSC 581/PSC582) to fulfill their concentration requirements. Thesis and nonthesis options. Nonthesis option requires one course with a substantial paper requirement that involves significant independent research and a comprehensive examination with written and oral components.

Master of Public Administration (M.P.A.)

The Master of Public Administration (M.P.A.) Program leads to the M.P.A. degree conferred by the University of Rhode Island. This program is offered in an accelerated online format and provides federal, state, city, and nonprofit officials and agencies with flexible access to its instructional programs and research expertise. In addition to delivering its online degree and certificate programs, internships, and workshops, the M.P.A. faculty conducts research into the formation and implementation of public policy and the administration of public and nonprofit agencies.

Admission requirements: Minimum GPA of 2.5.

Program requirements: a minimum of 36 credits, including completion of the Professional Certificate in Public Administration and Policy, 12 credits through the completion of either the Public Management certificate or the Policy Analysis certificate, and 12 elective credits. The 3 required core courses of the Professional Certificate in Public Administration and Policy are PSC 501, PSC 502, and PSC 504. Students completing this certificate can choose an additional 3 credits from either PSC 508, PSC 590, or PSC 592. For a certificate in Public Management, students must complete 12 credits from the following courses: PSC 503, PSC 506, PSC 507, PSC 573, or PSC 592. For a certificate in Policy Analysis, students must complete 12 credits from the following courses: PSC 505, PSC 524, PSC 583, PSC 510, or PSC 592. Students graduating from the M.P.A. program are required to complete the PSC 592 capstone course, which can only be applied toward one of the M.P.A. certificate programs.

Students in the MPA program taking elective courses at other 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 other institutions will be included in the grade point average and will become part of the student's record.

The Professional Certificate in Public Administration and Policy, the Public Management certificate, and the Policy Analysis certificate offered by the MPA program can also be completed as independent, standalone certificate programs. Each certificate program requires at least 12 credits.

Professional Certificate in Public Administration and Policy

A 12-credit post-baccalaureate Professional Certificate in Public Administration and Policy is open to current students and college graduates with or without the M.P.A. degree. This core certificate introduces students to concepts that are crucial for success in public and non-profit professional settings related to public administration and policy, including diversity and inclusion, writing for grant and policy audiences, ethics, and the historical evolution of the public administration and policy fields. Completion of the following courses is required: PSC 501, Seminar in Public Administration and Policy; PSC 502, Diversity and Inclusion in Public Administration and Policy; and PSC 504, Ethics in Public Administration and Policy. The remaining 3 credits can be chosen from the following courses: PSC 508, Policy and Grant Writing; PSC 590, Internship in Public Administration and Policy; PSC 592, Capstone in Public Administration and Policy.

Public Management Certificate

A 12-credit post-baccalaureate Public Management Certificate is open to all current students and college graduates with or without the M.P.A. degree. Students completing a certificate in Public Management will be competitive applicants for public or non-profit positions requiring financial and budgetary expertise, leadership skills, knowledge of administrative law and procedure, and the management of agency personnel. Completion of this certificate is contingent on having earned at least 12 credits in the following courses: PSC 503, Problems in Public Personnel Administration; PSC 506, Seminar in Budgetary Politics; PSC 507, Public Finance; PSC 573, Administrative Law; PSC 592, Capstone in Public Administration and Policy.

Policy Analysis Certificate

A 12-credit post-baccalaureate Policy Analysis Certificate is open to current students and college graduates with or without the M.P.A. degree. Students completing the Policy Analysis certificate will develop research and analytical capabilities that will allow them to become effective at shaping public policy either within public agencies, nonprofit agencies, or as part of a broader policymaking process. Completion of this certificate is contingent on having earned at least 12 credits in the following courses: PSC 505, Public Program Evaluation; PSC 510 Critical Topics in Public Policy; PSC 524, Seminar in Public Policy Problems; PSC 583, Public Policy Analysis; PSC 592, Capstone in Public Administration and Policy.

MPA and MLIS 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 six credits of appropriately selected coursework from one program to serve as electives in the other, and for six credits of such coursework 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.

Admission requirements: GRE and other requirements listed for MPA and MLIS. Applicants must apply and be accepted in both programs. Applications to both programs must indicate MPA/MLIS 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 MPA. 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.

Accelerated Bachelor's to Master's Degrees

International Studies B.A. to International Relations Master's degree

Political Science B.A. to International Relations Master's degree

Students in the International Studies B.A. and the Political Science B.A. programs are eligible to apply for an Accelerated Bachelor's to Master's Degree (IRABM) program to earn a Master's in International Relations.

All courses required by the International Studies B.A. and the Political Science B.A. and the International Relations Master's are required. Additional requirements for the IRABM program are listed below.

Prerequisites: Prior to application, students must receive a B or better in PSC 210 or PSC 211, or equivalent courses at the discretion of the department.

Applying for the IRABM: To apply for the IRABM program, students must have earned a minimum of 75 credits and have a 3.0 GPA. Students will be enrolled in the IRABM program only after they have met the Graduate School admission requirements and have completed 90 undergraduate credits.

See International Relations ABM in the ABM section of this catalog for additional information.

PROFESSIONAL MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT AND APPLIED ANALYTICS

Professional Master of Science, Accelerated Bachelor's to Master's

401.874.4372

Faculty: Professors Hales; Associate Professors Atlas, Chen, Ozpolat, Schniederjans; Assistant Professors Marquez-Illescas, Ozkul and Yalcin; Senior Lecturer Walsh; Full Time Lecturers Beliveau and Booth.

Professional Master of Science in Supply Chain Management and Applied Analytics

At URI, The Professional Master of Science in Supply Chain Management and Applied Analytics (STEM) is the first online program of its kind. Each course provides training toward world class leadership in developing resilient and flexible supply chains in uncertain environments. With a committed faculty of academics and practitioners, this program will equip you with the skills needed to succeed in this dynamic industry and provide students with lean six sigma certification. You will learn to analyze and develop innovative solutions to global supply chain problems.

The Professional Master of Science in Supply Chain Management and Applied Analytics provides courses in: building resiliency in supply chains, accounting and finance for supply chain mangers, global supply chain management, international transportation, supply chain analytics and data mining, warehousing and distribution systems, procurement and supplier management, customer analytics, supply chain network design and lean six sigma innovation protocols. The curriculum also prepares students for purchasing certification.

Admission requirements:

Applicants are required to submit a statement of purpose, two letters of recommendation, undergraduate transcript and TOEFL or IELTS scores taken within the last two years.

Applicants for whom English is not the native language will be expected to demonstrate proficiency in written and oral communications or they may be required to correct deficiencies by taking selected courses. The University minimum must be met on each of the four sections of the TOEFL.

Program requirements:

To complete the program, students are expected to complete 30 credits.

Course listings:

PSA 500: Resiliency in Supply Chain Management, PSA 501: Accounting and Finance for Supply Chain Managers, PSA 502: Global Supply Chain management, PSA 503: International Transportation, PSA 504: Supply Chain Analytics and Data Mining, PSA 505: Warehousing and Distribution Systems, PSA 506: Procurement and Supplier

Management, PSA 507: Customer Analytics, PSA 508: Supply Chain Network Design, PSA 509: Lean Six Sigma Innovation Protocols (with capstone project).

Accelerated Bachelor's to Master's Degree/PM

Overview

Students are eligible to apply for an Accelerated Bachelor's to Master's Degree (SCAP M.S.) program to earn a Professional Master's of Science in Supply Chain and Applied Analytics.

Students accepted into the SCAP M.S. program will be given the option to substitute up to nine undergraduate 400 level credits with nine Professional Master of Science in Supply Chain and Applied Analytics (typically a 30 credit program). Exceptional students admitted into this program will receive both time and cost savings. Credits will count toward the students undergraduate degree as well as the Professional Master of Science in Supply Chain and Applied Analytics program degree, subject to approval of the director.

Students will also be waived the application fee and the GMAT/GRE requirements.

Curriculum

Students in the SCAP M.S. program will be given the option to substitute up to nine undergraduate 400 level credits with nine Professional Master of Science in Supply Chain and Applied Analytics credits. These credits will count toward the students undergraduate degree as well as the Professional Master of Science in Supply Chain and Applied Analytics program degree, subject to approval of the director. The director does have the right to limit the number of students credit substitutions in a particular course to ensure adequate student registration.

Provided below are only some suggested replacement possibilities.

Global Warehousing and Distribution (SCA 463) or Facilities planning and material handling (ISE 445) may replace International Warehousing and Distribution Systems Management (PSA 505)

Supplier Relationship Management (SCA 464) may replace Procurement and Supplier Management (PSA 506).

Customer Analytics (MKT 467) may replace Customer analytics (PSA 507).

Supply Chain Network Modeling & Optimization (SCA 462) may replace Supply Chain Network Design (PSA 508)

Application and Admission

To apply for the SCAP M.S. program, a student must have completed at least 75 undergraduate coursework credits to apply.

A cumulative GPA of 3.0 or higher is required.

Admitted students are eligible to start the accelerated SCAP MS track after completing 90 credit hours of undergraduate coursework.

Keep in mind satisfying the above minimum qualifications does not guarantee admission to the program as the program can impose a capacity limit. There is also a potential limit for the number of undergraduate students in a graduate course.

Prospective students who meet the minimum qualification need to submit an application. The application will be reviewed through a regular review process. The GRE/GMAT requirement and the letters of recommendation will be waived. Once admitted, the student is considered a student in the SCAP M.S. program and must complete all of the Bachelor's degree requirements and graduate within 12 months of the first day of the semester for which they start the accelerated track.

The M.S. in SCM program has one application cycle per year.

PSYCHOLOGY

M.S., Ph.D.

401.874.2193

Faculty: Professor Robbins, chair. Professors Boatright-Horowitz, , Faust, Feldstein Ewing, Flannery-Schroeder, Florin, Gorman, Harlow, , Morokoff, , Robinson, Rogers, Rossi, Stein, Stoner, Walls, Weyandt, and Willis; Associate Professors Harris and Spillane; Assistant Professors, Lopez-Vergara, Stamates, , Weiss, and Yang; Instructor Webster; Adjunct Professors Redding; Adjunct Associate Professors D. Miller and Paiva; Adjunct Assistant Professors Burditt and Skierkowski; Professors Emeriti Biller, Brady, Bueno de Mesquita, Cohen, Collyer, Grebstein, Gross, Laforge, A. Lott, B. Lott, Prochaska, Quina, Silverstein, Smith, Stevenson, and Willoughby.

Specializations

Programs are offered in behavioral science and clinical. Within each program students can adopt one of the following focus areas: health psychology, research methodology, child/developmental/family; multicultural psychology; or neuropsychology. Students in the behavioral science program are expected to be engaged in research for a substantial portion of their program, and tailor their own program. Additional individual specialties can be developed within each of the program areas. For more information, go to uri.edu/psychology.

Master of Science (School Psychology Only)

*As of Fall 2018, admission to the School Psychology Specialization has been suspended.

Doctor of Philosophy (Clinical, Behavioral Science)

*As of Fall 2018, admission to the School Psychology Specialization has been suspended.

Admission requirements: GRE (verbal and quantitative) for Behavior Science only; evidence of research experience; personal statement addressing research and professional experience, interests, and goals; and curriculum vita. All graduate students in the Department of Psychology are expected to be full- time students. 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 and January 6 for behavioral science. See program websites for details. The formal application materials can be obtained from the Graduate School website, and the completed application package must be submitted online. Applicants are evaluated on the basis of previous academic achievement, GRE scores (Behavior Science only), previous research and professional experience, letters of recommendation (three required), and match between applicant and program goals. For more information, go to uri.edu/psychology. Finalists in the school and clinical programs must participate in a personal interview to complete the evaluation process.

Program requirements: Completion of a minimum of 90 credits (66 course work, 6 thesis, 18 dissertation). Students entering with an approved master's degree may 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's 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.

The clinical program is accredited by the American Psychological Association. (Commission on Accreditation, American Psychological Association, 750 First Street NE, Washington, D.C. 20002-4242; phone 202.336.5979). This program ascribes to the scientist-practitioner model of training. Program 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. This program also has 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.

SCIENCE WRITING AND RHETORIC

The URI Graduate Certificate in Science Writing and Rhetoric combines coursework and an internship in science writing and rhetoric to provide graduate students with a solid foundation and skills for taking often-complex scientific results and communicating them to both specialist and non-scientific audiences, including the public and policy makers. This certificate signals to potential employers that the awardee has the knowledge, skills, and technical ability to convey science in a diversity of written forms to an array of audiences, including non-scientists.

Admission requirements: To apply you will need to provide: (1) college transcripts certifying successful completion of a bachelor's degree, (2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and (3) a personal written statement explaining why you are seeking a graduate certificate in Science Writing and Rhetoric. GRE's are not required. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 1 December.

Program requirements: 15 credits of graduate coursework that includes WRT 533 (3 cr), NRS 543 (3 cr), BES 593 (3 cr), plus six credits selected from the following options: BES 500 and 501 (3 cr), BES 533 (3 cr), OCG 533 (3 cr), or other approved course options. This coursework, with the approval of their advisor and committee, can be applied by graduate students toward their graduate degree requirements. Students enrolled in the certificate program must complete all courses applying to the certificate with a grade B or higher.

SPANISH*

M.A.

401.874.5911

Master of Arts

*As of Spring 2019, admission to the Spanish M.A. program has been suspended.

SPEECH-LANGUAGE PATHOLOGY

M.S., Ph.D.

401.874.5969

Faculty: Professor Kovarsky, chair. Professors Kovarsky and Mahler; Associate Professors Kim; Assistant Professors Baron, Flippin, and Harwood; Clinical Assistant Professors Connors, Smith, and Federman; Teaching Professor Milner; Professor Emeriti Singer and Weiss.

The speech-language pathology program is accredited by the American Speech-Language-Hearing Association.

Master of Science

Admission requirements: Students who are interested in applying to the graduate program in speech-language pathology, and who have not taken the undergraduate requirements, may wish to enroll as post-baccalaureate (nonmatriculating) students to fulfill or begin to fulfill these requirements. The undergraduate requirements—courses needed prior to taking graduate courses—include CMD 272, 273, 276, 375, 377, and 465. Completion of these courses does not, however, assure admission into the graduate program, nor is completion of all the requirements essential for application to the program. Any required undergraduate courses not completed prior to graduate admission will be added to the graduate program. GREs and MATs will no longer be required of URI students with a cumulative GPA of 3.5 and a GPA of 3.5 or higher in their major. GREs and MATs will also no longer be required of students who already hold a post baccalaureate degree in another discipline. 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. Two letters of recommendation are also required. The completed application package must be received by October 15 for spring admission and January 15 for fall admission.

Program requirements (54 credits): Required courses consist of the following: CMD 493G, 504, 550, 560, 561, 564, 565, 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, and 598.

Accelerated Bachelor's to Master's Degree in Speech-Language Pathology

Admission requirements: GRE or MAT scores will no longer be required of URI students with a cumulative GPA of 3.5 and a GPA of 3.5 or higher in their major. URI sixth-semester standing in communicative disorders with all major requirements completed and 24 elective credits remaining. This is a competitive program and admission is not guaranteed. A minimum (but higher to be competitive) cumulative grade point of average of 3.00 overall and 3.20 in the major is required for consideration. Two letters of recommendation from URI communicative disorders faculty are also needed. Students should indicate their intent to apply to the accelerated program in the graduate application materials.

This accelerated program is not available to non-URI undergraduates or part-time graduate students. Students accepted to these programs follow a specified sequence of graduate-level course work and clinical practicum during their senior year, and complete the master's degree with an additional one year and one summer of full-time study in speech-language pathology.

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 Communicative Disorders in the undergraduate section of this catalog 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).

Doctor of Philosophy in Health Sciences

The College of Health Sciences has a unified doctoral program (Ph.D.). See Health Sciences in the graduate section of this catalog.

STATISTICS

M.S.

401.874.2701

Faculty: Professor DiPippo, chair. Associate Professor Puggioni, section head. Professor Gonzalez; Associate Professor Katenka; Assistant Professor Wu; Adjunct Professors Kajiji and Ordonez; Professors Emeriti Hanumara and Heltshe.

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 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 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.

TEACHER CERTIFICATION

401.874.5930

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 health education, physical education, elementary education or one of the secondary education 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 occurs once a year. Typically, the deadline for admission is late 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 admission information; they may also visit the School of Education's website at uri.edu/education. Graduate applicants with an undergraduate cumulative GPA of 3.00 or above are exempt from admission testing requirements. Applicants whose undergraduate GPA is 2.50 or above may be admitted to degree candidacy upon the submission of other evidence of academic potential. In this case, admission test scores are required. Visit uri.edu/education/admissions-testing-requirements for current test scores information.

An interview and admission portfolio are 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, School of Education, 401.874.2426 or Assistant Professor Hyunjin Kim, Human Development and Family Studies Department, 401.874.5961

Elementary Education: Associate Professor Sandy Jean Hicks, School of Education, 401.874.5976

Secondary Education

English: Associate Professor Diane Kern, School of Education, 401.874.9490

Mathematics: Professor Cornelius deGroot, School of Education, 401.874.4149

Science: Associate Professor Jay Fogleman, School of Education, 401.874.4161

Social Studies: School of Education, 401.874.7418

All Grades (PK-12)

Health Education: Associate Professor Emily Clapham, Department of Kinesiology 401.874.5447

Music Education: Assistant Professor Audrey Cardany, Department of Music, 401.874.2765

Physical Education: Associate Professor Emily Clapham, Department of Kinesiology, 401.874.5447

Reading Specialist Program: Associate Professors Theresa Deeney and Julie Coiro, School of Education, 401.874.2682.

School Library Media: Professor Cheryl McCarthy, Graduate School of Library and Information Studies, 401.874.2878

School Psychology: Professor Gary Stoner, Department of Psychology, 401.874.4234

Special Education: Professor Joanne Eichinger, School of Education, 401.874.7420

World Languages: Professor JoAnn Hammadou-Sullivan, Department of Modern and Classical Languages and Literatures, 401.874.4712

TEXTILES, FASHION MERCHANDISING AND DESIGN

M.S.

401.874.4574

Faculty: Professor Welters; Associate Professor Aspelund Chair; Associate Professors Hannel and Strubel; Assistant Professors Goswami; Associate Professor Emerita Helms, Harps-Logan, and Kang. Professors Bide Emeritus and Ordoñez Emerita.

The department offers a wide variety of individualized programs in close association with other departments (Art, Chemistry, Education, History, Business) and with various social science fields.

Specializations

Textile science, historic textiles and fashion, textile conservation, cultural analysis, and fashion merchandising.

Master of Science

Admission requirements: 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. Student must present the paper to a committee of three faculty members and archive the paper on Digital Commons. TMD 511 and 512 are requirements for all students. For the textile science specialization, TMD 511, 512; a statistics course. For the specializations focusing on historic textiles and fashion, textile conservation, and cultural analysis, TMD 511, 512, 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 511, 512, 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 merchandising may be required to make up deficiencies without graduate credit.

Accelerated Bachelors to Master of Science

Please find admissions details and guidance for the Accelerated Bachelors to Master of Science in the Accelerated Bachelor's to Master's Programs section of this catalog.Unless otherwise stated, students will adhere to the requirements listed for the M.S. above.

Postbacclaureate 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 in the 50th percentile 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 Thanatology

This interdisciplinary program is intended for professionals with baccalaureate or higher degrees. The curriculum is designed for practicing nurses, social workers, psychologist, hospice professionals, bereavement counselors, physicians, teachers, clergy, funeral directors, and others who would like to expand and enrich their knowledge and skills in this area. Senior students may be admitted to the courses by permission of the instructor. Professionals will be prepared to work with the dying and their families in settings such as the home, hospitals, hospices, long-term care facilities, churches/synagogues, and funeral homes.

Admission requirements: Participants are required to have a baccalaureate degree or senior-level undergraduate status for admission into the certificate program. Permission to enroll in a course may be granted by course instructors to professionals not enrolled in the certificate program.

Program requirements: Participants are required to complete 15 credits from the approved list of courses in thanatology. All students must take Death, Dying, and Bereavement (HDF421) or Loss Across the Lifespan (NUR426), and Contemporary Thanatology (NUR523) as a capstone course at the end of the program. The approved courses are as follows: HDF471, NUR523, NUR524, NUR525, NUR 527, NUR529, PHL401, PHP460, PSC440, PSY554Q, Ind. Study Use department code for independent study.

Contact Professor Hames at chames@uri.edu for further information.

Course Descriptions

Information on course numbering, contents of course descriptions, and code definitions.

Contents of a course description listing.

Course Codes:

AAF - Africana Studies

ACC - Accounting

AFS - Aquaculture and Fisheries Science

AME - American Studies

AMS - Applied Mathematical Sciences

APG - Anthropology

ARB - Arabic

ART - Art

ASL - American Sign Language

AST - Astronomy

AVS - Animal and Veterinary Science

BAI - Business Analytics and Intelligence

BES - Biological and Environmental Studies

BIO - Biological Sciences

BIS - Bachelor of Interdisciplinary Studies

BME - Biomedical Engineering

BPS - Biomedical and Pharmaceutical Sciences

BTC - Biotechnology

BUS - Business

CCJ - Criminology and Criminal Justice

CHE - Chemical Engineering

CHM - Chemistry

CHN - Chinese

CHS - College of Health Sciences

CLA - Classics

CLS - Comparative Literature Studies

CMB - Cell and Molecular Biology

CMD - Communicative Disorders

COM - Communication Studies

CPL - Community Planning

CRG - Continuous Registration

CSC - Computer Science

CSF - Digital Forensics and Cyber Security

CSV - Community Service

CVE - Civil and Environmental Engineering

DBA - Doctorate of Business Admin

DSP - Data Science Program

ECN - Economics

EDC - Education

EDP - Ph.D. in Education

EDS - Special Education

EEC - Environmental Economics

EGR - Engineering

ELE - Electrical Engineering

ELS - English Language Studies

ENG - English

ENT - Entomology

EVS - Environmental Sciences

FIN - Finance

FLM - Film Media

FOS - Forensic Science

FRN - French

GCH - Grand Challenges

GEG - Geography

GEO - Geosciences

GER - German

GRK - Greek

GWS - Gender and Women's Studies

HBW - Hebrew

HDF - Human Development and Family Studies

HIS - History

HLT - Health

HPR - Honors Program

HSA - Health Services Administration

HSS - Human Science and Services

INE - Innovation and Entrepreneurship

ISE - Industrial and Systems Engineering

ITL - Italian

ITR - Internships/Experiential Education

JOR - Journalism

JPN - Japanese

KIN- Kinesiology

LAN - Languages

LAR - Landscape Architecture

LAS - Latin American Studies

LAT - Latin

LAX - Latin American, Caribbean and Latinx

LET - Letters

LHR - Labor Relations and Human Resources

LIB - Library

LIN - Linguistics

LTI - Library Technology and Innovation

LSC - Library and Information Studies

MAC - Master of Science in Accounting

MAF - Marine Affairs
MBA - Master's in Business Administration
MCE - Mechanical Engineering
MGT - Management
MHM - Master of Science in Healthcare Management
MKT - Marketing
MLS - Medical Laboratory Science
MSL - Military Science and Leadership
MTH - Mathematics
MUS - Music
NES - New England Studies
NEU - Neuroscience
NFS - Nutrition and Food Sciences
NRS - Natural Resources Science
NUE - Nuclear Engineering
NUR - Nursing
NVP - Nonviolence and Peace Studies
OCE - Ocean Engineering
OCG - Oceanography
OCS - Off Campus Study - Undergraduate
OCSG - Off Campus Study - Graduate
PHC - Pharmacy
PHL - Philosophy
PHP - Pharmacy Practice
PHT - Physical Therapy
PHY - Physics
PLA - Prior Learning Assessment
PLS - Plant Sciences
POR - Portuguese
PRS - Public Relations
PSA - Prof Supply Chain & Analytics
PSC - Political Science
PSY - Psychology
RDE - Resource Development Education
RIC - Joint PHD program with Rhode Island College
RLS - Religious Studies
RUS - Russian
SAF - Sustainable Agriculture and Food Systems
SCA - Supply Chain Management
SCM - School of Communication and Media
SMC - Sports Media and Communication
SOC - Sociology
SPA - Spanish
SPC - School of Professional and Continuing Studies
STA - Statistics
SUS - Sustainability
THE - Theatre
THN - Thanatology
TMD - Textiles Fashion Merchandising and Design
UCS - University College for Academic Success
URB - Urban Affairs
URI - University of Rhode Island Freshman Seminar
WRT - Writing

Course numbers: A course number ending with a G, as in PSC 116G, indicates a Gen Ed course in the Grand Challenge outcome. A course number ending with an H, as in COM 100H indicates an honors version of the course.

Instructional delivery method (e.g. Lec for lecture, Rec for recitation, STU for studio): A course can have more than one delivery method.

Number of class hours per week for each delivery method (e.g. Lec. 3, Rec. 1): Homework, out-of-class assignments, etc. are in addition to the number of class hours noted.

Pre or co-requisites: These are courses or other requirements that must be taken prior to or concurrently with the course under review. When registering, eCampus checks your record for the prior or concurrent course and allows enrollment only if you meet the requirement. During early registration, current enrollment in a prerequisite course will satisfy the condition.

Designation of Gen Ed outcomes: Courses approved for Gen Ed credit have that designation listed at the end of the description, (e.g. (A2) (C1) for a course that fulfills the A2 and the C1 outcomes).

Restrictions on credit or entry: Courses or credit restricted to students by major, by college, by student level (grad or undergrad), or other, will be so designated.

Course Number. 001-099: Pre-freshman and special undergraduate courses. These courses do not carry credit towards the bachelor's degree. **100-299:** Lower-division undergraduate courses **300-399:** Upper-division undergraduate courses **400-level:** Generally limited to juniors and seniors majoring in that field, but are open to other advanced undergraduates and graduate students with permission. **500-level:** Graduate courses for which a bachelor's degree is usually a prerequisite, but qualified seniors and honors students are admitted with permission. These courses should make up the majority of course work for students working toward a master's degree. **600 level:** Advanced graduate courses. **900-level:** Special types of graduate courses for which no degree credit is given. They include courses offered to remedy deficiencies as well as workshops, institutes, and courses offered one-time only by visiting faculty. (There are a few 900-level courses indicating off-campus study, namely codes OCS/OCSG 996, 997, 998 and 999 which are not graduate courses for which no degree credit is given. See the course descriptions for details.)

College of Engineering enrollment restrictions of special note: Enrollment in 200-level courses offered by the College of Engineering is restricted to engineering majors only. Students not coded in one of the engineering majors may seek entry to a 200-level course offered by the College of Engineer-

ing by petitioning the chair of the department offering the course. Enrollment in courses in the College of Engineering at or above the 300-level is restricted to students who have been admitted to a degree granting college. In other words, students in University College cannot enroll even if they are in an engineering major. Students in colleges other than engineering may seek to enroll with permission of the department head for the course offering.

AAF | Africana Studies

AAF 150 Introduction to Afro-American History LEC (3 crs.) Cross-listed as (HIS), AAF 150. Survey of Afro-American history from African origins to the current racial confrontation. (Lec. 3) (A3) (C3)

AAF 150H Honors Section of HIS/AAF 150: Introduction to Afro-American History LEC (3 crs.) Honors Section of HIS/AAF 150: Introduction to Afro-American History. Cross-listed as (HIS), AAF 150. Survey of Afro-American history from African origins to the current racial confrontation. (Lec. 3) Pre: 3.40 overall GPA or better. (A3) (C3)

AAF 201 Introduction to African-American Studies LEC (3 crs.) Interdisciplinary exploration of some of the pivotal themes and issues in the study of peoples of African descent. (Lec. 3) (A3) (C3)

AAF 202 Introduction to Afro-Americanx Culture LEC (3 crs.) Interdisciplinary survey of the social origins of Afro-American culture. (Lec. 3/Online)

AAF 208 History of Hip-Hop in Black American Culture LEC (3 crs.) Cross-listed as (MUS), AAF 208. Explores hip-hop culture, surveying its historical development, political significance, social influence, and technological innovations. (Lec. 3) (A4) (C1)

AAF 230 Black Lives Matter Movement LEC (3 crs.) Develop understanding of how and why the Black Lives Matter Movement came into existence, comparing it to the Civil Rights Movement. Defines African American culture today. (Lec. 3)

AAF 239 Leadership in the African Diaspora LEC (3 crs.) Critically poses the question: How has leadership informed the African Diaspora and shaped the dynamics of culture with the African Diaspora? (Lec. 3) (A2)

AAF 240 Race and Ethnicity LEC (3 crs.) Cross-listed as (SOC), AAF 240. Relations among the various ethnic, religious, racial, and political minorities and majorities, with special reference to the United States. (Lec. 3) (C3) (A2)

AAF 247 Introduction to Literature of the African Diaspora LEC (4 crs.) Cross-listed as (ENG), AAF 247. Major themes, genres, and motifs of the literatures of Africa and the Americas. Focus on one or more of these regions. Study of black oral and written literatures with emphasis on cultural, historical, political, and socioeconomic contexts. (Lec. 3, Project 3) (A3) (C3)

AAF 248 African-American Literature from 1900 to the Present LEC (4 crs.) Cross-listed as (ENG), AAF 248. Twentieth-century African-American literature, with emphasis on major issues, movements, and trends, including the study of W.E.B. DuBois, the Harlem Renaissance, the civil rights movement, and the black arts movement. (Lec. 3, Project 3) (A3) (C3)

AAF 290 African-American Women: Service, Community, and Self LEC (3 crs.) Introductory course on African-American women. Focuses on the idea of African-American women's service which has been a constant theme and necessity for the African-American community in North America. (Lec. 3)

AAF 295 Religion in African American Thought & Culture LEC (3 crs.) Cross-listed as (AAF) RLS 295. Religion in African American Thought & Culture is an exploration of the role religion has played in African American cultural formation. (Lec. 3)

AAF 300 Special Topics in African and Afro-American Studies LEC (3 crs.) Selected contemporary topics, problems, issues, and individuals from the field of African and Afro-American studies. The topical format allows in-depth analysis of some significant aspect of the African and Afro-American experience. (Lec. 3/Online) Topic: Conditions for Community Service is service learning. Pre: AAF 201 or 202 or permission of instructor. Some topics may be offered online. May be repeated with different topic.

AAF 331 The African-American Artist in Context: A Cultural and Historical Survey II LEC (3 crs.) Cross-listed as (AAF), ART 331. Examines art and artists, the trends, philosophical attitudes, political realities, social influences, and artistic styles of 20th century African-American artists. (Lec. 3)

AAF 336 Social Inequality LEC (3 crs.) Cross-listed as (SOC), AAF 336. Dimensions and dynamics of inequality in society; concepts of class, status, race, ethnicity and gender; foundational theories of inequality; intersecting systems of inequality, including race, class, gender, citizenship and sexuality. (Lec. 3) Pre: one 100- or 200-level sociology course.

AAF 352 Black Images in Film LEC (3 crs.) Cross-listed as (AAF), ENG 352. Exploration of the cultural, economic, political, and ideological motivations behind the standard representation of people of the African diaspora in cinema in the U.S. and other areas of the world, while examining film as a genre with a vocabulary and idiom of its own. (Lec. 3)

AAF 355 Black Women in the U.S.: Colonial Times to the Present LEC (3 crs.) Cross-listed as (HIS), AAF 355. Women's experiences in the study of African-American history. Assigned readings familiarize students with the state of scholarship and examine the intersection of race, class, and gender in that experience. (Lec. 3) Pre: sophomore standing. (A3) (C3)

AAF 356 Black Urban History: Late 19th and 20th Centuries LEC (3 crs.) Cross-listed as (HIS), AAF 356. Examines the historical black experience in urban environments in the U.S. Assigned readings, research, and group discussions examine the issues of migration, community, politics, class, and gender. (Lec. 3) Pre: sophomore standing.

AAF 359 History of Slavery in America LEC (3 crs.) Cross-listed as (HIS), AAF 359. Origins, development, and demise of slavery, with emphasis on the area that currently constitutes the United States. (Lec. 3) Pre: sophomore standing or permission of instructor.

AAF 362 African-American Literary Genres LEC (4 crs.) Cross-listed as (ENG), AAF 362. Study of drama and poetry in the continued oral and written heritage of Africa and America, excepting short story and the novel. Focus on Baraka, Bullins, Dunbar, Giovanni, Hughes, and Walker. (Lec. 3, Project 3)

AAF 363 African-American Fiction LEC (4 crs.) Cross-listed as (ENG), AAF 363. Study of formal and thematic developments in the African-American novel and short story. Focus on Baldwin, Chesnutt, Ellison, Gaines, Hurston, Jacobs, Marshall, Morrison, Naylor, Reed, Walker, Wideman, Wilson, and Wright. (Lec. 3, Project 3)

AAF 364 Contemporary African Literature LEC (4 crs.) Cross-listed as (ENG), AAF 364. Study of contemporary African literature by genre, region, or theme, with emphasis on literary traditions, issues, and socio-cultural contexts. (Lec. 3, Project 3)

AAF 366 Twentieth-Century Black Politics and Protest LEC (3 crs.) Cross-listed as (HIS), AAF 366. Explores the development and evolution of black politics and protest in the twentieth century including the Civil Rights and Black Power Movements and their legacies. (Lec. 3) Pre: HIS 150 or AAF 150 or HIS 142 and sophomore standing or permission of instructor. (C3) (B1)

AAF 372 African-Americans and the Legal System LEC (3 crs.) Focus on constitutional changes designed to influence the political status of African-Americans in the United States. (Lec. 3)

AAF 380 Civil Rights Movement LEC (3 crs.) Cross-listed as (AAF), PSC 380. Major transformations in American life brought about by the civil rights movement in law, in social relations, in the role of government. Focus on the period between 1954 and 1968 in an effort to identify and evaluate the changes in government and civil society

that occurred during this period. (Lec. 3)

AAF 388 History of Sub-Saharan Africa LEC (3 crs.) Cross-listed as (HIS), AAF 388. Ancient and medieval Africa, and the impact of Islam; the "Glorious Age" of the Sudanic empires; the slave trade and the age of exploration; the period of European partition and the rise of African nationalism. (Lec. 3) Pre: sophomore standing or permission of instructor.

AAF 390 Directed Study or Research IND (3 crs.) Directed study arranged to meet the needs of individual students who desire independent work and to promote collective research efforts in African and Afro-American Studies. (Independent Study) Pre: permission of director.

AAF 399 Introduction to Multicultural Psychology LEC (3 crs.) Cross-listed as (PSY), AAF 399. Introductory course focusing on multiculturalism as a major paradigm. Emphasizes the meaning of multiculturalism and associated principles, concepts, and sociocultural factors as related to assessment, intervention, and research. (Lec. 3/Online) Pre: PSY 113 or 103.

AAF 408 African Governments and Politics LEC (4 crs.) Cross-listed as (PSC), AAF 408. Political developments in the nations of Africa. Main stress is thematic: challenges to democracy, ethnicity, and identity politics, African political thought, civil conflict, resources, and common developmental problems. (Lec. 4, Practicum) Pre: PSC 113 or 210, and PSC 116 or 211.

AAF 408H Honors Section of PSC/AAF 408 - African Governments and Politics LEC (4 crs.) Cross-listed as (PSC), AAF 408. Honors Section of PSC/AAF 408 - African Government and Politics. (Lec. 4, Practicum) Pre: PSC 113 or 210, and PSC 116 or 211, and 3.40 or better overall GPA.

AAF 410 Issues in African Development SEM (3 crs.) Cross-listed as (AAF), PSC 410. A seminar focusing on the dynamics of African development, including political and social change, economic development, education, urbanization, rural development, environmental management, labor and business, industrialization, and technology transfer. (Seminar) Pre: APG 313 or PSC 201 or HIS 388 or permission of instructor.

AAF 415 Dynamics of Social Change in the Caribbean LEC (3 crs.) Cross-listed as (AAF), PSC, ECN 415. Exploration of the slave trade and the origins of Africans and people of African descent in the Caribbean. Emphasis on political and economic relations with the U.S. and the impact of modernization. (Lec. 3) Not for graduate credit.

AAF 428 Institutional Racism SEM (3 crs.) Cross-listed as (SOC), AAF 428. Critically examines the origin, nature, and consequences of institutional racism in the US. (Seminar) Pre: one 300-level sociology course or permission of instructor.

AAF 466 Urban Problems LEC (3 crs.) Cross-listed as (PSC), AAF 466. Contemporary and emerging problems of urban affairs. Discussion, reading, and assignments on the interaction among urban change, development of social institutions, and formation of public policy. (Lec. 3/Online) Pre: PSC 113 or 210.

AAF 466H Honors Section of AAF/PSC 466: Urban Problems LEC (3 crs.) Cross-listed as (PSC), AAF 466H. Honors Section of AAF/PSC 466: Urban Problems. (Lec. 3) Pre: PSC 113 or 210, and 3.40 overall GPA.

AAF 477 Internship in Africana Studies PRA (1-6 crs.) Supervised professional experience with a relevant agency or organization. Activities and expectations to be determined between site supervisor and intern and approved by a faculty advisor, prior to registration. May be repeated for up to 12 credits. Not for graduate credit. (Practicum) S/U only.

AAF 498 Senior Seminar in African and Afro-American Studies SEM (3 crs.) Study of a particular issue of the experience of Blacks in the diaspora from an interdisciplinary perspective. Subject or theme will change yearly. Pre: AAF 150, 201, 202, senior standing, or permission of instructor. Not for graduate credit.

ACC | Accounting

ACC 201 (BUS) Financial Accounting LEC (3 crs.) Basic concepts and systems used in financial accounting for business organizations. (Lec. 3) Open to students with more than 24 credits or permission of dean's office.

ACC 201H (BUS) Honors Section of ACC (BUS) 201: Financial Accounting LEC (3 crs.) Honors Section of ACC (BUS) 201: Financial Accounting. (Lec. 3) Pre: Must have a 3.40 overall GPA. Open only to students with more than 24 credits or permission of dean's office.

ACC 202 (BUS) Managerial Accounting LEC (3 crs.) Basic techniques and systems used by management accountants in budgeting, cost accounting, cost analysis, and control. (Lec. 3/Online) Pre: ACC (BUS) 201 or 201H or permission of instructor.

ACC 301 (BUS) Intermediate Accounting I LEC (3 crs.) Theoretical aspects of accounting principles and their application to preparation and analysis of corporate financial statements. Valuation, recognition and disclosure relative to current and long-term assets and revenue recognition. (Lec. 3) Pre: ACC (BUS) 201 or 201H or permission of instructor. May be repeated once.

ACC 302 (BUS) Intermediate Accounting II LEC (3 crs.) Continuation of corporate financial reporting. Topics include stockholder's equity, earnings per share, income taxes, current liabilities, bonds, leases, accounting changes, and statement of cash flows. (Lec. 3) Pre: ACC (BUS) 301 with a grade of C or better or permission of instructor.

ACC 303 (BUS) Cost Accounting LEC (3 crs.) Cost and managerial accounting systems and concepts including cost allocation, actual and standard cost systems, cost and profit planning, and control systems. (Lec. 3). Pre: ACC (BUS) 202 or permission of instructor.

ACC 390 (BUS) Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

ACC 401 (BUS) Accounting Computer Systems LEC (3 crs.) Accounting information systems and use of the computer for decision making; emphasis on sources of information and employment of analytical tools in solving accounting problems. (Lec. 3) Pre: ACC (BUS) 301 or concurrent enrollment in 301, BAI (BUS) 310 or current enrollment in BAI (BUS) 310, or permission of instructor.

ACC 402 (BUS) Advanced Accounting LEC (3 crs.) Consolidation accounting, international accounting issues, and other accounting issues facing multinational, multi-divisional and other complex organizations. (Lec. 3) Pre: ACC (BUS) 302 or permission of instructor.

ACC 402H (BUS) Honors Section of BUS 402: Advanced Accounting LEC (3 crs.) Honors Section of ACC (BUS) 402: Advanced Accounting. Consolidation accounting, international accounting issues, and other accounting issues facing multinational, multi-divisional and other complex organizations. (Lec. 3) Pre: ACC (BUS) 302 or permission of instructor. Must have a 3.40 overall GPA.

ACC 403 (BUS) Federal Tax Accounting LEC (3 crs.) Federal laws, regulations, and other authorities affecting taxation of individuals. (Lec. 3) Pre: ACC (BUS) 302 or concurrent enrollment in 302, or permission of instructor.

ACC 404 (BUS) Auditing LEC (3 crs.) Auditing standards, procedures, programs, working papers, and internal control. (Lec. 3) Pre: ACC (BUS) 302 or concurrent enrollment in 302, or permission of instructor.

ACC 491 (BUS) Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

ACC 492 (BUS) Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

ACC 493 (BUS) Internship In Accounting PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: Admission into an internship program and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

ACC 691 (BUS) Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

ACC 692 (BUS) Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

ACC 699 (BUS) Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

AFS | Aquaculture and Fisheries Science

AFS 102 Introductory Aquaculture LEC (3 crs.) Aquaculture and its historical development worldwide, its contribution to food supply, non-food species, methods of production, environmental and ecological considerations, culture practices employed for selected species, selective breeding, feeding, disease, processing and marketing. (Lec. 3)

AFS 105G Food from the Sea LEC (3 crs.) Introduction to capture fisheries and aquaculture and their contribution to food supply, methods of production, environmental and ecological considerations, practices employed, processing, and marketing, with a regional New England focus. (Lec. 3) (A1) (GC)

AFS 106 Food from the Sea Laboratory LAB (1 cr.) Laboratory on capture fisheries and aquaculture and their contribution to food supply, methods of production, environmental and ecological considerations, practices employed, processing, and marketing, with a regional New England focus. (Lab. 2)

AFS 132G Sustainable Agriculture, Food Systems, and Society LEC (3 crs.) Cross-listed as (AFS), AVS, PLS 132G. Food is essential to life, and a foundation of civilization. This course will explore agriculture's history, culture, and practices world-wide, and challenge students to develop sustainable agricultural practices. (Lec. 3) (A2) (GC)

AFS 132GH Honors Section of AFS/AVS/PLS 132: Sustainable Agriculture, Food Systems, and Society LEC (3 crs.) Cross-listed as (AFS), AVS, PLS 132H. Honors Section of AFS/AVS/PLS 132: Sustainable Agriculture, Food Systems, and Society. (Lec. 3) Pre: 3.40 overall GPA. (A2) (GC)

AFS 190 Issues in Biotechnology LEC (3 crs.) Cross-listed as (AFS), CMB, NRS, PLS 190. Introduction to modern biotechnology in medical, pharmaceutical, forensic, agricultural, marine, and environmental applications. Consideration of ethical, environmental, health, and social issues. (Lec. 3/Online) (A1)

AFS 201 Shellfish Aquaculture LEC (4 crs.) Culture of marine and freshwater mollusks. Emphasis on life history, biological requirements, culture practices, and economic importance of major species used for human food or shell products. (Lec. 3, Lab. 3) Pre: AFS 105G.

AFS 202 Finfish Aquaculture LEC (3 crs.) Introduction to the culture of finfish, emphasizing general principles and hands-on experience. Topics include water quality, spawning, care and maintenance, and growth of selected freshwater and marine species. (Lec. 1, Lab. 6) Pre: AFS 102 or equivalent.

AFS 215 Fisheries Science LEC (3 crs.) Introduction to principles of fisheries as an interdisciplinary science including biology, ecology, anthropology, and oceanography. Practical skills for research in the marine and freshwater environment. (Lec. 2, Lab. 1) Pre: AFS 105G.

AFS 270 Basic Scuba Diving in Science and Technology LEC (3 crs.) Rigorous introduction to scuba diving including equipment, diving physics, no-decompression and decompression diving, basic skills, and safety. Emphasis on development of basic knowledge and skills appropriate for a diving scientist or technician. Open Water Diver Certification by the National Association of Underwater Instructors is provided. (Lec. 2, Lab. 3) Pre: scuba diving physical examination and demonstration of strong swimming skills.

AFS 290 Small Boats: Their Equipment and Operation LEC (3 crs.) Principles and practices of vessel operation, from outboard skiffs to small trawlers. Basic nomenclature, navigation, and shiphandling. Rigging and working gear used in marine resource development. (Lec. 2, Lab. 3)

AFS 300 Diseases of Aquatic Organisms LEC (4 crs.) Integrate and apply knowledge on disease dynamics and host-pathogen-environment interactions with skills from a variety of disciplines to manage the impact of diseases affecting aquatic organisms, from algae to whales. (Lec. 3, Lab. 2) Pre: AFS105G and a BIO course or permission of instructor. (D1)

AFS 321 World Fishing Methods LEC (3 crs.) An introduction to fish catching methods and gears used throughout the world including the interaction between the gear, the species and related behavior, and the ecology and habitat associations. (Lec. 3) Pre: AFS 105G and concurrent enrollment in AFS 322.

AFS 322 Laboratory for World Fishing Methods LAB (1 cr.) Introduction to techniques and skills in fish catching methods and gears used throughout the world. (Lab. 3) Pre: AFS 105G and concurrent enrollment in AFS 321.

AFS 362 Crustacean Aquaculture LEC (3 crs.) Reproductive biology, breeding, culture systems, nutrition, genetics, and ecology of selected species of cultured crustaceans. Representative species of penaeid shrimp, freshwater prawns, crayfish, crabs, lobsters, and brine shrimp will be discussed. (Lec. 3) Pre: AFS 201 and 202. Offered in spring of od-numbered years.

AFS 391 Special Problems and Independent Study IND (1-3 crs.) Special work to meet individual needs of students aquaculture, fisheries, and marine technology. (Independent Study) S/U grades only.

AFS 392 Special Problems and Independent Study IND (1-3 crs.) Special work to meet individual needs of students aquaculture, fisheries, and marine technology. (Independent Study) S/U grades only.

AFS 395 Underwater Photography and Film LEC (3 crs.) Photography and film as applied to the underwater environment, including safe watermanship skills, camera equipment, lighting, and post-production methods. (Lec. 3) Pre: Permission of instructor

AFS 396 Marine Technical Practicum PRA (3 crs.) Practice through field work of technical skills for application in marine sciences research (e.g. scuba diving leadership, field equipment servicing, operation of instrumentation, and/or boating operations). (Practicum) Pre: AFS 270 or equivalent Open Water Scuba Diving certification upon approval of course instructor, and admission into the Undergraduate Marine Technical Certificate Program. S/U grades only.

AFS 397 Underwater Photography & Film Laboratory LAB (1 cr.) Students gain experience in underwater photography and film techniques while snorkeling and/or scuba diving. Additional snorkel or scuba certifications by Scuba Diving International are provided. Travel course, additional fees. (Lab. 1) Pre: Credit or concurrent enrollment in AFS 395, permission of instructor, must pass basic swim evaluation.

AFS 399 Aquaculture and Fisheries Internship PRA (1-6 crs.) Supervised work performed with an environmental agency, nongovernmental organization, or private firm as part of the requirements of the Aquaculture and Fisheries Science program. (Practicum) Pre: Permission of instructor. S/U grades only.

AFS 415 Fishery Ecology LEC (3 crs.) Ecological characteristics of fishes and shellfishes in capture fisheries worldwide. Relationship between aspects of fishing, habitats, and community structure along with assessment methods. (Lec. 3) Pre: AFS 215 and MTH131 or MTH141; concurrent registration in 416.

AFS 416 Fishery Ecology Laboratory LAB (1 cr.) Practices and techniques of fisheries ecology. Field exercises in local model estuary and coastal zone on sampling methods, enumerating and documenting collections, measuring and reporting environmental attributes, estimating population parameters.(Lab. 2) Pre: concurrent registration in AFS 415.

AFS 425 Aquaculture and the Environment LEC (3 crs.) Impacts of aquaculture practices on the environment, including habitat alteration, release of drugs and chemicals, and interaction of cultured and wild organisms. Methods to reduce or eliminate those impacts: modeling, siting and monitoring of aquaculture facilities; use of polyculture and water reuse systems. (Lec. 3) Pre: AFS 102.

AFS 432 Marine Finfish Aquaculture LEC (3 crs.) Culture of non-salmonid marine fish worldwide, with emphasis on the hatchery phase. Broodstock, larval rearing, live and formulated feeds, grow-out systems, stock enhancement. Requires student project on facility design. Pre: AFS 105G.

AFS 433 Research Diving Methods LEC (3 crs.) Underwater methods used to assess biological, physical, chemical, and geological characteristics of estuarine and coastal environments are presented and used to investigate seasonal changes in these parameters in the Narragansett Bay environment. (Lec. 2, Lab. 3) Pre: scuba certification and permission of instructor.

AFS 440 Aquatic Food Production in the Philippines LEC (3 crs.) Interdisciplinary, cross-cultural experience of aquaculture and fisheries in the Philippines through field trips to aquaculture facilities, coral reefs, and historic sites. Travel required; additional costs apply. (Lec. 1, Lab 3, Sem 1) Pre: permission of instructor. (D1)

AFS 483 Salmonid Aquaculture LEC (3 crs.) Principles of salmonid aquaculture, including culturing, spawning, incubation, feed formulation and feeding, disease control, genetics, systems management, harvesting, and transport. (Lec. 2, Lab. 2) Pre: AFS 102 or equivalent.

AFS 486 Fish Physiology LEC (3 crs.) Study of how fish function in the changing aquatic environment from the molecular to the organismal level. The major organ systems, regulation of physiological and biochemical functions, and interactions will be explored. (Lec. 3) Pre: BIO 201 or 242, or AVS 331, or permission of instructor.

AFS 491 Special Projects IND (1-3 crs.) Work that meets the individual needs of students in aquaculture and fisheries. (Independent Study) S/U grades only.

AFS 492 Special Projects IND (1-3 crs.) Work that meets the individual needs of students in aquaculture and fisheries. (Independent Study) S/U grades only.

AFS 500 Advanced Diseases of Aquatic Organisms LEC (3 crs.) Application of ecology and evolution to the advanced study of diseases affecting aquatic organisms (Lec. 3) Pre: AFS 300, graduate standing, or permission of instructor.

AFS 501 Professional Develop. in Fisheries and Aquaculture SEM (1 cr.) Formulate learning outcomes and develop professional internships for new AFS graduate students through interaction with faculty; develop skills in environmental communication, leadership, and ethics. (Seminar) S/U grades only.

AFS 502 Seminar in Fisheries and Aquaculture SEM (1 cr.) Presentation of proposed, ongoing and completed major projects by AFS graduate students. Discussion among graduate students, faculty, and other mentors on project design, methods, analysis, and presentation. (Seminar) S/U grades only.

AFS 503 Pathobiology LEC (3 crs.) Cross-listed as (AFS), AVS 503. Mechanisms and causes of disease in homeothermic and poikilothermic vertebrates. Cell death, inflammation, infection, metabolic disorders, and neoplasis in relation to fish, reptiles, birds, and mammals. Effects of disease at the cellular, tissue, organ, and organismal levels with a medical orientation. (Lec. 3) Pre: BIO 201 or AVS 331.

AFS 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

AFS 531 Fisheries Stock Assessment LEC (3 crs.) A quantitative approach to describing the processes of fish growth and mortality, the estimation of stock size, the prediction of stock yield, and management practices. Spreadsheets and other microcomputer applications will be used for analysis and modeling. (Lec. 2, Lab. 3) Pre: AFS 415, STA 409 or permission of instructor.

AFS 532 Experimental Design LEC (3 crs.) Cross-listed as (STA), PSY, AFS 532. Application of statistical methods to biological and psychological research and experimentation. Experimental situations for which various ANOVA and ANCOVA designs are most suitable. (Lec. 3) Pre: STA 409 or equivalent.

AFS 534 Animal Virology LEC (3 crs.) Cross-listed as (AFS), CMB 534. Basic properties, classification, and evolution of animal viruses. Individual agents are studied in detail. (Lec. 3) Pre: CMB 432, 533, or permission of chairperson.

AFS 560 Ecosystem-Based Fisheries Science & Management LEC (3 crs.) Cross-listed as (AFS), OCG 560. The scientific components of ecosystem-based fisheries management: climate variation, trophic interactions, habitat, bycatch, and human dimensions. Classes emphasize problem-solving through case studies of domestic and international fisheries. (Lec. 3) Pre: Graduate standing or instructor permission.

AFS 576 Seminar in Genetics of Aquatic Organisms SEM (3 crs.) Modes of inheritance found in fish including chromosome number, polyploidy, sex determination, and hybridization. Heritabilities, methods of selection, and mating systems used in the development of fish suited for intensive culture. (Seminar) Pre: BIO 352.

AFS 581 Current Topics in Molluscan Aquaculture LEC (3 crs.) Review and critical analysis of recent literature within the field of molluscan biology with emphasis on application to mariculture techniques. Student presentation of selected topics and field trips to state-of-the-art mariculture facilities. (Lec. 3) Pre: graduate standing or senior standing with permission of instructor.

AFS 584 Advanced Aquaculture Systems LEC (3 crs.) Development of design criteria, operational analysis, and management of selected species in water reuse systems. (Lec. 2, Lab. 2) In alternate years.

AFS 586 Fish Nutrition LEC (3 crs.) Digestion and metabolism of carbohydrate, protein, and lipids by fish. Role of vitamins and minerals in metabolism and associative nutritional diseases resulting from deficiencies. Inadvertent toxic factors in fish feeds. (Lec. 3) Pre: CHM 228 or equivalent. In alternate years.

AFS 591 Special Projects IND (1-3 crs.) Research projects in animal pathology, virology, and aquaculture. (Independent Study) Pre: graduate standing or permission of chairperson.

AFS 592 Special Projects IND (1-3 crs.) Research projects in animal pathology, virology, and aquaculture. (Independent Study) Pre: graduate standing or permission of chairperson.

AFS 597 Internship in Fisheries and Aquaculture ONL (3 crs.) Supervised work performed with an environmental agency, nongovernmental organization, or private firm as part of the requirements of AFS graduate degree programs. (Accelerated Online Program) Pre: Enrolled in Online Graduate Certificate in Fisheries Science or permission of instructor. S//U only.

AME | American Studies

AME 204 Introduction to American Studies LEC (4 crs.) A critical examination of the field of American Studies, with emphasis on interdisciplinary methods. Required for the undergraduate Minor in American Studies. (Lec. 3, Online) (B1) (C3)

AMS | Applied Mathematical Sciences

AMS 393G Introduction to Predictive Analytics LEC (3 crs.) Cross-listed as (AMS), DSP 393G. The course implements an active learning pedagogy for students to meticulously and systematically work with "Big Data" to develop data-driven predictive models for decision-making. (Lec. 3) Pre: MTH 215; STA 308 or STA 409 or BAI (BUS) 210; and STA 305. (B3) (D1) (GC)

AMS 490 Intermediate Topics in Applied Mathematics LEC (1-4 crs.) Topics in applied and computational mathematics. Applications from engineering, biology, finance, data and network science, along with relevant numerical algorithms, will be considered. (Lec. 1-4) Pre: Permission of instructor. May be repeated for a maximum of 12 credits. Not for graduate credit.

AMS 528 Applied Topology LEC (3 crs.) Fundamental concepts of topology, metric spaces, homotopy equivalence. Simplicial complexes. Homology and cohomology groups. Exact sequences. Duality. Persistent homology, persistent diagrams, and their computation. Applications. (Lec. 3) Pre: MTH 215 and MTH 243 or permission of the instructor.

AMS 553 Mathematical Methods for Data Science ONL (3 crs.) Cross-listed as (AMS) DSP 553. This course covers a wide range of mathematical tools from Discrete Mathematics, Calculus, Linear Algebra, and Probability Theory that arise in Data Science. Each mathematical construct is accompanied by examples of its use in solving practical problems in Data Science. (Accelerated Online Program) Pre: Enrollment in the Online Graduate Certificate in Data Science.

AMS 590 Advanced Topics in Applied Mathematics LEC (1-4 crs.) Advanced topics of current interest in applied and computational mathematics. Applications from engineering, biology, finance, data and network science, along with relevant numerical algorithms, will be considered. (Lec.) Pre: Permission of instructor.

AMS 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

APG | Anthropology

APG 200 Language and Culture LEC (3 crs.) Cross-listed as (APG), LIN 200. Cross-cultural survey of the interaction of culture and language. Introduction to various fields of linguistic research emphasizing descriptive and semantic investigations. Linguistic studies used as illustrative material. (Lec. 3)

APG 201 Human Origins and Evolution LEC (3 crs.) The biocultural evolution of humans. An investigation into humankind's place in nature, including a review of the living primates, human genetics and development, evolutionary theory, and the human fossil record. (Lec. 3/Online) (A1) (C3)

APG 202 Introduction to Archaeology LEC (3 crs.) Archaeological perspectives on the major developments in humanity's past, from the evolution of the earliest humans to the emergence of agriculture and the earliest urban civilizations. (Lec. 3) (A2) (C2)

APG 203 Cultural Anthropology LEC (3 crs.) Anthropological approaches to the study of peoples and cultures around the world. (Lec. 3) (A2)

APG 282G Sapiens: The Changing Nature of Human Evolution LEC (3 crs.) Cross-listed with (BIO), APG 282G. Study of human origins and history in order to understand Homo sapiens as a significant cause of evolutionary change, including an in-depth description of our widespread influence on Earth's systems. (Lec. 3) Pre: Sophomore or higher standing. (A1) (C2) (GC)

APG 302 Methods of Anthropological Inquiry LEC (3 crs.) Logic, techniques, and problems in obtaining true information in anthropological inquiry. Problems from anthropological field work and use of cross-cultural data. (Lec. 3) Pre: APG 203 or permission of instructor. Restricted to juniors and seniors.

APG 303 Archaeology of the Americas LEC (3 crs.) Archaeology of the Americas before and during the period of European contact, including evidence for the earliest human occupation, social complexity, and human impacts on the environment. (Lec. 3)

APG 304 Coastal Archaeology LEC (3 crs.) Exploration of issues and controversies in coastal archaeology, including human adaptation through time, oceanic colonization, the preservation and study of coastal sites, and relevance to current environmental and social issues. (Lec. 3) Pre: APG 202 or permission of instructor.

APG 308 Sustainable Agriculture and Food Cultures LEC (3 crs.) Cross-listed as (APG), SOC, GWS 308. Comparative study of sustainable food systems and cultures focusing on the sociocultural dynamics of production, distribution, and consumption. Areas include comparative food systems, indigenous food cultures, gender and food, food equity, and food movements. (Lec. 3) Pre: sophomore standing.

APG 308H Honors Section of APG/SOC/GWS 308: Sustainable Agriculture and Food Cultures LEC (3 crs.) Honors Section of APG/SOC/GWS 308: Sustainable Agriculture and Food Cultures. (Lec. 3) Pre: 3.40 overall gpa and sophomore standing.

APG 310 Topics in Anthropology LEC (3 crs.) Analytical study of selected topics in anthropology. Subjects will vary according to the expertise and availability of instructors. (Lec. 3) Pre: one anthropology course or permission of instructor. May be repeated with different topic.

APG 310H Honors Section of APG 310: Topics in Anthropology LEC (3 crs.) Honors section of APG 310: Topics in Anthropology. (Lec. 3) Pre: 3.40 overall gpa and one anthropology course, or permission of instructor. May be repeated with different topic.

APG 311 Native North Americans LEC (3 crs.) Survey of selected North American Indian groups from before European contact to the present. Modern reservation life; influence of the federal government on Indian life. (Lec. 3)

APG 315 Cultures and Societies of Latin America LEC (3 crs.) Contemporary cultures and societies; emphasis on adjustment of the people to modern social and economic changes. (Lec. 3) Pre: APG 203 or permission of instructor.

APG 316 U.S. Latinas/Latinos/Latinxs: Anthropological Approaches LEC (3 crs.) Introduction to Latinas/Latinos/Latinxs in U.S. culture, history, politics, and everyday life. Course examines how a heterogeneous and changing Latino/a/x population shapes, and is shaped by life in the United States. (Lec. 3) Pre: sophomore standing.

APG 319 Cultural Behavior and Environment LEC (3 crs.) Cultural adaptations made by traditional and industrial societies to natural and human environments using examples from prehistory and ethnography. (Lec. 3)

APG 320 Sociolinguistics LEC (3 crs.) Cross-listed as (LIN), APG 320. Presentation of the major areas of micro- and macro-sociolinguistics: speech acts, registers, repertoires, language attitudes, social correlates of phonological and syntactic features and changes. (Lec. 3) Pre: APG/LIN 200 or 220.

APG 328 Gender and Culture LEC (3 crs.) Analytical study of gender in a cross-cultural context, discussion of the possible origins of gender and subsistence modes, and an examination of societies with flexible or unusual gender systems. (Lec. 3) Pre: one APG course or permission of instructor.

APG 329 Contemporary Mexican Society LEC (3 crs.) Cross-listed as (SOC), APG 329. Examines the social, political, economic, and cultural

dimensions of contemporary Mexico. Demographic composition, economic and political development, civil society and women's political participation, indigenous issues and rights, U.S.-Mexico relations and bilateral issues, and human rights. (Lec. 3) Pre: SOC course at the 200-level or APG 203.

APG 345 Introduction to Medical Anthropology ONL (3 crs.) Overview of the perspectives, theories, and methods used by contemporary medical anthropologists. Cross cultural approach to human health and disease with emphasis on biological, ecological, political, economic, and cultural factors. (Online)

APG 377 Undergraduate Teaching Experience in Anthropology/ Sociology PRA (1-3 crs.) Cross-listed as (APG), SOC 377. Introduces students to various aspects of college level teaching while working under the supervision of course instructors and/or faculty members in Anthropology or Sociology. (Practicum 1-3) Pre: Permission of instructor. Not for major credit. S/U only.

APG 399 Sex and Reproduction in Our Species LEC (3 crs.) An investigation of the biological, behavioral, and cultural components of human reproduction, including mating and parenting behaviors, as well as making, growing, and raising offspring, all in an evolutionary context. (Lec. 3) Pre: APG 201, or permission of instructor.

APG 401 Anthropological Theory and Practice SEM (3 crs.) Overview of historical and contemporary anthropological theory; read major theoretical works by anthropologists to examine how they inform cultural theory, help us formulate cultural analysis and understandings of sociocultural life. (Seminar) Pre: APG 200 or 203, and junior standing; or permission of instructor.

APG 411 (300) Paleoanthropology LEC (3 crs.) Investigation into the biocultural evolution of hominins, beginning with hominoids 23 million years ago; course based on evidence from fossil bones and teeth, artifacts, and paleoecological reconstruction. (Lec. 3) Pre: APG 201 and 202, or permission of instructor. Not for graduate credit.

APG 412 Primatology LEC (6 crs.) Investigation of the behavior of wild and captive prosimians, monkeys, and apes, and anthropological application of primate data for conservation and reconstructing human origins. (Lec. 5, Lab.1) Pre: APG 201 or permission of instructor. (A2)

APG 413 Peoples of the Sea LEC (3 crs.) Cross-listed as (APG), MAF 413. Examination of human sociocultural adaptation to the seas. (Lec. 3) Pre: APG 203 or MAF 100 or graduate status. Open only to juniors, seniors, and graduate students.

APG 414 Culture and Cognition LEC (3 crs.) Explores relationship between human society, human culture and human thought through an examination of biocultural aspects of human cognition and their implications for the understanding of culture. (Lec. 3) Pre: APG 200 or APG 201 or APG 202 or APG 203. Not for graduate credit.

APG 415 Migration in the Americas LEC (3 crs.) Cross-listed as (APG), SOC 415. Contemporary trends in migration in the Americas with a focus on migratory flows from Latin America to the United States. Migration theories, unauthorized migration, anti-immigration discourses, inter-migration in Latin America, gender dynamics, transnationalism, refugees and the internally displaced, and immigration policies in the Americas. (Lec. 3) Pre: open only to juniors, seniors, and graduate students.

APG 417 Archaeological Method and Theory LEC (3 crs.) Theoretical and methodological approaches in archaeology, with an emphasis on skills and knowledge needed by professionals in the field, including ethical responsibilities. Laboratory demonstrations. (Lec. 3) Pre: APG 202 and junior standing; or permission of instructor.

APG 427 Senior Seminar: Unity of Anthropology SEM (4 crs.) Capstone course for anthropology program, with emphasis on all four subfields. Majors will integrate subfields and apply anthropological thinking to contemporary environmental, social, or health issues. Includes career development component. (Seminar, Indp. Study) Pre: APG 200, APG 201, APG 202, APG 203 and senior standing, or permission of instructor. (D1)

APG 465 Seminar in Cultural Heritage LEC (3 crs.) Cross-listed as (ART), APG 465. Investigates how global development, commercialization, and conflicts affect humankind's cultural heritage. Examines some ethical issues and legal strategies for protecting cultural sites, artifacts, and traditional folkways. (Lec. 3) Pre: at least 3 credits at the 300-level in anthropology, art history, or history; or permission of the instructor.

APG 470 Directed Research in Anthropology IND (3-6 crs.) Self-guided study and research, seminar, or individual program. (Independent Study) Pre: permission of instructor. May be repeated for credit for a total of 6 credits.

APG 471 Critical Island Studies LEC (3 crs.) Cross listed as (MAF), APG 471. A critical approach to island studies with a focus on Caribbean and Pacific small islands and the history of island studies. Topics include tourism, climate change, development, culture, and conservation. (Seminar)

APG 472 Critical Studies of Tourism and Ecotourism SEM (3 crs.) Cross listed as (MAF), APG 472. Analysis of domestic and international case studies emphasizing concepts and critical thinking around issues pertaining to coastal tourism, recreation, ecotourism, the history of tourism, and consumption. (Seminar)

APG 475G Global Perspectives on Reproduction SEM (3 crs.) Cross-list with (SOC), APG, GWS 475G. Explores the impact of inequalities of race, class, age, gender and sexuality on global variations in contraception, fertility, childbirth, and parenthood, and the ethical issues and social forces affecting reproduction. (Seminar) Pre: 300-level coursework in sociology, anthropology, gender and women's studies, or health studies; or permission of the instructor. Not for graduate credit. (A2) (C2)

APG 477 Internship PRA (3 crs.) Supervised professional experience with a relevant agency or organization. Activities and expectations to be determined between site supervisor and intern and approved by a faculty advisor, prior to registration. Not for graduate credit. S/U only.

APG 490 Underwater Historical Archaeology SEM (3 crs.) Cross-listed as (HIS), APG 490. Methodological and theoretical foundations of underwater historical archaeology. Examines the contribution of shipwrecks and other inundated sites to our understanding of the global nature of modern life. (Seminar) Pre: at least 3 credits of course work at the 300-level in history, anthropology or art history, or permission of instructor.

APG 565 Seminar in Cultural Heritage LEC (3 crs.) Cross-listed as (ART), APG 565. Investigates how global development, commercialization, and conflicts affect humankind's cultural heritage. Examines some ethical issues and legal strategies for protecting cultural sites, artifacts, and traditional folkways. (Lec.) Pre: 300-level coursework in anthropology, art history, or history; or permission of instructor.

ARB | Arabic

ARB 100 Accelerated Beginning Arabic LEC (6 crs.) Equivalent to ARB 101 and 102. Builds communicative skills in formal and colloquial Arabic as well as Arab culture. (Lec. 6)

ARB 101 Beginning Arabic I LEC (3 crs.) Fundamentals of grammar and pronunciation of Arabic; exercises in reading, writing, and conversation. (Lec. 3) Students enrolling in this course should have had no more than one year of previous Arabic study.

ARB 102 Beginning Arabic II LEC (3 crs.) Continuation of ARB 101. (Lec. 3) Students enrolling in this course should have taken ARB 101 or equivalent.

ARB 103 Intermediate Arabic I LEC (3 crs.) Development of facility in reading; exercises in grammar, writing, and conversation. (Lec. 3) Students enrolling in this course should have taken ARB 102 or equivalent.

ARB 104 Intermediate Arabic II LEC (3 crs.) Continuation of ARB 103. (Lec. 3) Students enrolling in this course should have taken ARB 103 or equivalent.

ARB 111 Intensive Beginning Arabic I LEC (4 crs.) Introduction to Arabic letters, sounds and basic conversational language in colloquial and standard Arabic. (Lec. 3, Rec. 1) (A3) (C2)

ARB 112 Intensive Beginning Arabic II LEC (4 crs.) Beginning course in colloquial and standard Arabic, basic conversational and reading skills. (Lec. 3, Rec. 1) Pre: ARB 111 or instructor consent. (A3) (C2)

ARB 120 Arabic for Heritage Learners LEC (4 crs.) Arabic course targeted at students with an existing background in Arabic. Improve communication skills, reading and writing in spoken and written Arabic. Equivalent to ARB 111 and ARB 112. Not open to students with credit in ARB 111 or 112. (C2) (A3)

ARB 211 Intensive Intermediate Arabic I LEC (4 crs.) Intermediate colloquial and Standard Arabic, developing reading, writing, speaking, listening skills. (Lec. 3, Rec. 1) Pre: ARB 102, 112 or instructor consent. (A3) (C2)

ARB 212 Intensive Intermediate Arabic II LEC (4 crs.) Intermediate colloquial and Standard Arabic, developing reading, writing, speaking, listening skills. (Lec. 3, Rec. 1) Pre: ARB 211 or instructor consent.

ARB 251G Contemporary Culture of the Arab World LEC (4 crs.) English language course analyzes the contemporary daily life and popular culture of the Arabic-speaking world. (Lec. 3, Rec. 1/Online) (A3) (C2) (GC)

ARB 251GH Honors Section of ARB 251G: Contemporary Culture of the Arab World LEC (4 crs.) Honors Section of ARB 251G: Contemporary Culture of the Arab World. English language course analyzes the contemporary daily life and popular culture of the Arabic-speaking world. (Lec. 3, Rec. 1/Online) Pre: 3.40 overall GPA. (A3) (C2) (GC)

ARB 311 Intensive Advanced Arabic I LEC (4 crs.) Advanced colloquial and Standard Arabic, developing reading, writing, speaking, listening skills. (Lec. 3, Rec. 1) Pre: ARB 212 or instructor consent.

ARB 312 Intensive Advanced Arabic II LEC (4 crs.) Advanced colloquial and Standard Arabic, developing reading, writing, speaking, listening skills. (Lec. 3, Rec. 1) Pre: ARB 311 or instructor consent.

ARB 315 Topics in Arabic Culture & Society in Arabic LEC (4 crs.) Content-focused Arabic language course on topics in Arabic culture and society with supplemental language instruction materials. May be repeated with different topic. (Lec. 3, Rec. 1) Pre: ARB 212 or instructor permission.

ARB 325 Topics in Arabic Studies in Translation LEC (1-4 crs.) Topics in Arabic literature, culture, and language taught in English using texts in translation. May be repeated with different topic. (Lec. 3)

ARB 415 Advanced Topics in Arab Culture & Society in Arabic LEC (4 crs.) Advanced content-focused Arabic language course on topics in Arabic culture and society. May be repeated with different topic. (Lec. 3, Rec. 1) Pre: Credit for ARB 315 or concurrent enrollment in ARB 315 with instructor permission. Not for graduate credit.

ARB 497 Directed Study IND (1-3 crs.) Directed Study in Arabic Language. (Independent Study 1-3) Pre: instructor consent.

ART | Art

ART 002 Sophomore Review STU (0 crs.) Presentation by majors of a broad selection of their previous college-level work for review by faculty. (Studio) Pre: ART 101, 103, and 207.

ART 101 Two-Dimensional Studio STU (3 crs.) Exploration of principles of visual organization relating primarily to formulations on the two-dimensional surface by means of fundamental studies and assignments in studio techniques. (Studio 6) (A4)

ART 103 Three-Dimensional Studio STU (3 crs.) Introduction to problems in three-dimensional organization. Observations from objects with discussion and application to simple mold and casting techniques. Introduction to the use of basic materials, clay, plaster, and wood. (Studio 6) (A4)

ART 105 Motion Graphic Design LEC (3 crs.) Introduction to 4D (time-based) digital design projects for on-line display, live performances, and installations with focus on the production of digital forms of animation, video, photo, sound, and interactivity. (Lec. 1, Studio 2) (A4)

ART 120 Introduction to Art LEC (3 crs.) Fundamental principles of the visual arts, evolution of styles and conceptions through the ages in different forms of creative expression. (Lec. 3) (A4)

ART 203 Color in Art & Design STU (3 crs.) Color is a powerful tool for artists and designers. This studio course investigates phenomena of color perception and expression as they relate to diverse media and disciplines. (Studio 6)

ART 204 Graphic Design I STU (3 crs.) Introduction to the creative process and fundamental elements and principles of design. Project-based assignments promote creative thinking and problem solving using industry-standard tools to critically engage with contemporary design issues. (Studio 6)

ART 207 Drawing I STU (3 crs.) Visual perception and observation, using nature structures, drawing from models, still life, and landscape; exercises in basic drawing techniques and principles. (Studio 6) (A4)

ART 208 Drawing II STU (3 crs.) Advanced practice in graphic conceptions; exercises in spatial problems, organizing relationships of abstract forms and structures; advanced drawing media. (Studio 6) Pre: ART 207.

ART 213 Photography I: B/W Photography STU (3 crs.) Introduction to basic black and white photography and exploration of related techniques using light-sensitive materials. Emphasis on photography as an artistic media. Required projects and readings. (Studio 6)

ART 214 Photography I - Digital STU (3 crs.) Introduction to basic digital photography and editing. Emphasis on photography as an artistic media. Required projects, lab work, readings, discussions. (Studio)

ART 215 Video and Multimedia I STU (3 crs.) Introduction to video production, editing, and web distribution, with an emphasis on experimental video, video art, and video installation. Required studio projects and readings. (Studio 6) May be repeated for a maximum of 6 credits with permission of instructor.

ART 221 Painting I STU (3 crs.) Techniques of painting, utilizing as reference the natural and human-made environments. Traditional and contemporary materials. (Studio 6) Pre: ART 101 or 207.

ART 231 Printmaking I STU (3 crs.) Introduction to the intaglio process and monotype, with an emphasis on image development and workshop procedures. (Studio 6) Pre: ART 101 or 207 or permission of instructor.

ART 233 Relief Printing and Typography I STU (3 crs.) Introduction to basic elements of graphic design; letter forms, their relationship to the page and to the image. Various traditional and modern reproduction techniques, workshop practice in typesetting and layout. (Studio 6) Pre: ART 101 or permission of chairperson.

ART 243 Sculpture I STU (3 crs.) Formation of three-dimensional forms employing basic sculptural materials and techniques. Basic media, emphasis on form, material, and structural means in studio practice. (Studio 6) Pre: ART 103 or permission of instructor.

ART 251 Introduction to Art History: Ancient-Medieval LEC (3 crs.) The development of architecture, sculpture, and painting from prehistory through the Middle Ages. (Lec. 3) (A3)

ART 252 Introduction to Art History: Renaissance-Modern LEC (3 crs.) The development of architecture, sculpture, and painting from the early Renaissance to the present. (Lec. 3) (A3)

ART 284 Introductory Topics in Architectural History LEC (3 crs.) Consideration of the history of architecture and city planning through surveys of selected periods and themes. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor.

ART 301 Projects in Studio IND (3 crs.) Studio projects under

guidance of instructor selected by student. (Independent Study) Pre: permission of chairperson and instructor. May be repeated once for up to 6 credits.

ART 303 Topics In Studio STU (3 crs.) Selected topics based on particular materials, techniques, or thematic premises. Topics and semesters to be announced. (Studio 6) Pre: art major status, or permission of instructor or chairperson. May be repeated for credit with permission of instructor and chairperson.

ART 304 Graphic Design II STU (3 crs.) Approach of project design situations faced by professional studio agencies in an educational context. Current visual communication issues are solved through extensive research and the application of learned concepts and skills. (Studio 6) May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work. Pre: ART 204.

ART 309 Drawing III STU (3 crs.) Further problems in drawing with emphasis on independent work. (Studio 6) May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work. Pre: ART 208 or permission of instructor.

ART 312 Introduction to Video Games: Design and Development LEC (4 crs.) Cross-listed as (SCM), ART, COM, FLM 312. Introduces video game development through the perspective of artistic design and production. Projects include pitches, storyboards and mock-ups, narratives and scripts, and prototypes. Entails substantial collaborative work. (Lec. 3, Studio 2) Pre: sophomore standing.

ART 314 Photography II: B/W Darkroom STU (3 crs.) Continuation of 213 with emphasis on expanding skills in creative photographic expression, technique and communication. Discussions/papers on contemporary photography. (Studio 6) Pre: ART 213. May be repeated for credit up to 9 credits with permission of instructor, doing increasingly independent work.

ART 315 Photography II: The Digital Darkroom STU (3 crs.) Introduction to the Digital Darkroom with an emphasis on digital workflow, printing, and the use of digital as a form of artistic expression. Required projects and readings. (Studio 6) May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work. Pre: ART 214 or Art 213 and 204 or permission of instructor.

ART 316 Video and Multimedia II STU (3 crs.) Continuation of ART 215 with an emphasis on video installation, sound installation, interactivity, and the use of unique digital multimedia in art and performance. Required studio projects and reading. (Studio 6) May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work. Pre: ART 215, or permission of instructor.

ART 322 Painting II STU (3 crs.) Continuation of ART 221. (Studio 6) May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work. Pre: ART 221.

ART 324 Figure Drawing and Painting STU (3 crs.) Introduction, exploration, and integration of materials, principles, and techniques related to the human figure. Emphasis on conceptual and observational approach to structure and development of form. May be repeated once for credit with permission of instructor. Pre: ART 207 and 208 and 221 or permission of instructor.

ART 331 The African-American Artist in Context: A Cultural and Historical Survey II LEC (3 crs.) Cross-listed as (AAF), ART 331. Examines art and artists, the trends, philosophical attitudes, political realities, social influences, and artistic styles of 20th century African-American artists. (Lec. 3)

ART 332 Printmaking II STU (3 crs.) Introduction to lithography including stone, plate, and photographic processes. Contemporary viewpoints and their relationship to traditional printmaking. May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work in intaglio and lithography Pre: ART 231.

ART 334 Relief Printing and Typography II STU (3 crs.) Continuation of ART 233. Applications of previous studies to experimental workshop assignments leading to production of book pages, folders, posters, and other visual material incorporating type and print in a contemporary idiom. (Studio 6) Pre: ART 233 or permission of chairperson. May be repeated for credit with permission of instructor.

ART 344 Sculpture II STU (3 crs.) Continuation of ART 243. (Studio 6) May be repeated for up to 9 credits with permission of instructor, doing increasingly independent work. Pre: ART 243 or permission of instructor.

ART 354 Art of the Ancient Mediterranean LEC (3 crs.) Developments in architecture, painting, and sculpture in Greece and Rome from 800 B.C. to 400 A.D. Brief analysis of the art of the Aegean from 2500 to 1500 B.C. (Lec. 3) Pre: ART 251 or 252 or permission of instructor. May be repeated once with permission of instructor.

ART 356 Medieval Art LEC (3 crs.) Painting, sculpture, architecture, and minor arts of the Middle Ages from 500 to 1400 in Western Europe. (Lec. 3) Pre: ART 251 or permission of chairperson.

ART 359 Baroque Art LEC (3 crs.) Developments in painting, sculpture, and architecture in Italy and northern Europe from 1600 to 1750. (Lec. 3) Pre: ART 251 or 252 or permission of instructor.

ART 361 Modern Art LEC (3 crs.) Investigates major movements of European and American painting, sculpture, printmaking, and photography from the late nineteenth to the mid-twentieth century. (Lec.3) Pre: ART 251 or 252, or permission of instructor.

ART 362 Contemporary Art LEC (3 crs.) Investigates current trends in art including installation, performance, and multimedia approaches from the second half of the twentieth century to today. (Lec.3) Pre: ART 251 or 252, or permission of instructor.

ART 364 American Art LEC (3 crs.) Painting, sculpture, and architecture from their origins in the 17th century to the present; emphasis on the 19th century. (Lec. 3) Pre: ART 251 or 252.

ART 365 Renaissance Art LEC (3 crs.) Painting, sculpture, and architecture of Italy and northern Europe from 1400 to 1600. (Lec. 3) Pre: ART 251 or 252 or permission of instructor.

ART 374 Topics in Film LEC (3 crs.) Explores the social, historical, and aesthetic development of the cinema from 1895 to the present. Lectures (3 hours) and required film screenings. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor.

ART 375 Topics in the History of Photography LEC (3 crs.) Explores the social, historical, and aesthetic development of photography from 1826 to the present. (Lec. 3) May be repeated for a maximum of 6 credits with permission of instructor.

ART 380 Topics in Art and Architectural History LEC (3 crs.) Selected topics, themes, and issues in the history of the visual arts. (Lec. 3) Pre: ART 251 or 252 or permission of instructor. May be repeated with a different topic for maximum of 6 credits.

ART 385 Women in Art LEC (3 crs.) Examination of women artists and their work in the history of western art; analysis of representations of women and gender in works of art and art historical texts. (Lec. 3) Pre: ART 252 or GWS 150 or permission of instructor.

ART 387G Exploring Climate Change using Visual Design Tools LEC (3 crs.) Cross-listed as (LAR), ART 387G. This course uses landscape architecture/art as a conduit to investigate climate change. While exploring the confluence of ethics and design, students will increase cultural consciousness and move toward civic responsibility. (Lec. 3) Pre: 12 credits earned at 100 level or above, and one of LAR 201 or LAR 202 or ART 105 or ART 214, or permission of instructor. Basic knowledge of climate change is expected. (D1) (C1) (GC)

ART 404 Data Visualization and Infographics Design STU (3 crs.) Cross-listed as (ART), DSP 404. Familiarizes students with the concepts and techniques required in creating and visualizing large and complex data, enabling students to design and present bodies of information. (Studio) Pre: junior, senior, or graduate standing. (A4) (D1)

ART 405 Studio Seminar STU (3 crs.) Intensive self-directed work under guidance of instructor. Periodic critiques and discussion of work

of all participants. (Studio 6) May be repeated once for up to 6 credits with permission of instructor. Not for graduate credit. Pre: Limited to senior B.A. and B.F.A. studio art majors.

ART 465 Seminar in Cultural Heritage LEC (3 crs.) Cross-listed as (ART), APG 465. Investigates how global development, commercialization, and conflicts affect humankind's cultural heritage. Examines some ethical issues and legal strategies for protecting cultural sites, artifacts, and traditional folkways. (Lec. 3) Pre: at least 3 credits at the 300-level in anthropology, art history, or history; or permission of the instructor.

ART 470 Art History: Senior Projects TUT (3-6 crs.) Intensive, independent work on a project determined by consultation with the student's project advisor. (Tutorial) Pre: senior standing, art history major, permission of chairperson.

ART 477 Art & Art History Internship PRA (3 or 6 crs.) Internship in an approved professional arts organization. Specific details determined in consultation with faculty supervisor and off-campus liaison, and approved by chairperson. (Practicum) Pre: junior standing in the B.A. or B.F.A. programs and permission of chairperson. May be repeated once for a maximum of 6 credits. S/U only.

ART 480 Advanced Topics in European and American Art SEM (3 crs.) Consideration of the history of European and American art through analysis of selected periods or themes. (Seminar) Pre: permission of instructor. May be repeated for credit with a different topic.

ART 501 Graduate Studio Seminar STU (3 crs.) Intensive independent studio work under guidance of instructors. Periodic critiques and discussions related to work of all participants in the course. (Studio 6) Pre: 48 credits in studio.

ART 565 Seminar in Cultural Heritage LEC (3 crs.) Cross-listed as (ART), APG 565. Investigates how global development, commercialization, and conflicts affect humankind's cultural heritage. Examines some ethical issues and legal strategies for protecting cultural sites, artifacts, and traditional folkways. (Lec.) Pre: 300-level coursework in anthropology, art history, or history; or permission of instructor.

ART 575 Classical Archaeology: Critical Approaches to the Greek and Roman Past SEM (3 crs.) Study of material remains of ancient Greek and Roman (and related) cultures. Critical analysis of art, artifacts and architecture with attention to changing approaches to interpreting antiquity. (Seminar) Pre: coursework at the 300-level in art history, history, or anthropology, or permission of instructor.

ASL | American Sign Language

ASL 101 American Sign Language I LEC (3 crs.) For students with little or no previous knowledge of ASL. Acquisition of basic grammar and lexical skills to communicate in routine social or professional situations. (Lec. 3) (B2) (C3)

ASL 102 American Sign Language II LEC (3 crs.) Continuation of American Sign Language I. Builds on the basic grammatical, linguistic, communicative and cultural concepts learned in ASL 101. (Lec. 3) Pre: ASL 101 or equivalent. (B2) (C3)

AST | Astronomy

AST 108 Introductory Astronomy: Stars and Galaxies LEC (4 crs.) Celestial sphere, constellations. Constitution of sun, stars, nebulae, and galaxies. Planetarium used freely for lectures and demonstrations. (Lec. 3, Lab. 1/Online) (A1)

AST 108H Honors Section of AST 108: Introductory Astronomy: Stars and Galaxies LEC (4 crs.) Honors Section of AST 108: Introductory Astronomy: Stars and Galaxies. Celestial sphere, constellations. Constitution of sun, stars, nebulae, and galaxies. Planetarium used freely for lectures and demonstrations. (Lec. 3, Lab. 1/Online) (A1)

AST 118 Introductory Astronomy: The Solar System LEC (4 crs.) Celestial sphere, Earth, formation of and motions and characteristics of objects in solar system, the Sun, exoplanets, and search for extraterrestrial life. Planetarium used for lectures and demonstrations. (Lec. 3, Lab. 1/Online) (A1)

AST 118H Honors Section of AST 118: Introductory Astronomy: The Solar System LEC (4 crs.) Honors Section of AST 118: Introductory Astronomy: The Solar System. Celestial sphere, Earth, formation of and motions and characteristics of objects in solar system, the Sun, exoplanets, and search for extraterrestrial life. Planetarium used for lectures and demonstrations. (Lec. 3, Lab. 1/Online) Pre: Must have a 3.4 overall GPA or higher. (A1)

AST 334 Optics LEC (3 crs.) Cross-listed as (PHY), AST 334. Geometrical and physical optics; thick lens optics, interference, diffraction, polarization. (Lec. 3) Pre: PHY 112 or 205.

AST 483 Laboratory And Research Problems In Physics LEC (3 crs.) Cross-listed as (PHY), AST, OCG 483. Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: PHY 381 and 382.

AST 484 Laboratory and Research Problems In Physics LEC (3 crs.) Cross-listed as (PHY), AST, OCG 484. Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: PHY 381 and 382. (D1) (B3)

AST 491 Special Problems IND (1-6 crs.) Cross-listed as (PHY), AST 491. Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study)

AST 492 Special Problems IND (1-6 crs.) Cross-listed as (PHY), AST 492. Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study)

AVS | Animal and Veterinary Science

AVS 101 Introduction to Animal Science LEC (3 crs.) Animal industry's role in world and national economy; inheritance, growth, physiology, nutrition, and diseases of domestic animals and poultry; geographic distribution and marketing of animal products. (Lec. 3/Online) (A1)

AVS 102 Introduction to Animal Science Laboratory LAB (1 cr.) Laboratory and demonstrations of principles of the animal industries. (Lab. 2) Pre: credit or concurrent enrollment in 101. Restricted to AVS majors.

AVS 110 Freshman Seminar in Animal and Veterinary Science SEM (1 cr.) Overview of the animal and veterinary sciences and the fields they encompass. Student projects, presentations, and field trips. (Seminar) Pre: AVS 101. Open only to freshmen.

AVS 132G Sustainable Agriculture, Food Systems, and Society LEC (3 crs.) Cross-listed as (AFS), AVS, PLS 132G. Food is essential to life, and a foundation of civilization. This course will explore agriculture's history, culture, and practices world-wide, and challenge students to develop sustainable agricultural practices. (Lec. 3) (A2) (GC)

AVS 132GH Honors Section of AFS/AVS/PLS 132: Sustainable Agriculture, Food Systems, and Society LEC (3 crs.) Cross-listed as (AFS), AVS, PLS 132H. Honors Section of AFS/AVS/PLS 132: Sustainable Agriculture, Food Systems, and Society. (Lec. 3) Pre: 3.40 overall GPA. (A2) (GC)

AVS 201 Companion Animal Management LEC (3 crs.) Nutrition, reproduction, behavior, and management of companion animals. (Lec. 3) Pre: AVS 101.

AVS 212 Feeds and Feedings LEC (3 crs.) Principles and practices of feeding farm animals, nutrient requirements, physiology of digestion, identification and comparative value of feeds, computer calculation of

rations for livestock. (Lec. 2, Lab. 2) Pre: AVS 101 and 102.

AVS 250 Livestock Judging and Evaluation LEC (2 crs.) Principles and practical application of livestock selection and evaluation. Emphasis will be placed on the concepts of selection, evaluation of performance data, and visual appraisal of livestock. (Lec. 1, Lab. 1) Pre: AVS 101 and AVS 102.

AVS 275 Pasture and Grazing Management in Sustainable Agriculture LEC (4 crs.) Cross-listed as (AVS), PLS 275. An introduction to managing livestock and grasslands to promote animal health and increase food and fiber supplies while sustaining land productivity, promoting ecosystem function, and maintaining farm economic viability. Lec. 3, Lab 2) Pre: AVS 101 and 102 or permission of instructor.

AVS 301 Seminar in Animal and Veterinary Science SEM (1 cr.) Readings, reports, lectures, and discussions on scientific topics in animal and veterinary science. Subject matter adapted to student and faculty interest. (Seminar) Pre: junior or senior standing.

AVS 302 Seminar in Animal and Veterinary Science SEM (1 cr.) Readings, reports, lectures, and discussions on scientific topics in animal and veterinary science. Subject matter adapted to student and faculty interest. (Seminar) Pre: junior or senior standing.

AVS 304 (104) Advanced Animal Management Techniques LEC (3 crs.) Hands-on course in advanced animal handling and management skills needed to maintain animal health and productivity. Students will use software currently used in the animal industry. Fields trips required. (Lec. 1, Lab. 2) Pre: AVS 101 and AVS 102 and either AVS 323 or AVS 324.

AVS 323 Animal Management I LEC (3 crs.) Principles of care and management of domesticated ruminant animals including dairy cattle, beef cattle, sheep, and goats. Emphasis on the production methods of the animal industries. Participation in field trips required. (Lec. 3) Pre: AVS 101.

AVS 324 Animal Management II LEC (3 crs.) Principles of the care and management of domesticated monogastric animals including swine, horses, and poultry. Emphasis will be given to modern production methods. Participation in field trips required. (Lec. 3) Pre: AVS 101.

AVS 325 Animal Management III LEC (3 crs.) Principles of the care and management of exotic ruminant and monogastric animals. Emphasis will be on handling, care, feeding, breeding, behavior, and disease prevention. Participation in field trips. Pre: AVS 101 or permission of instructor.

AVS 326 Equine Management LEC (3 crs.) Principles of selection, breeding, feeding, management, behavior, health and welfare of horses. (Lec. 3) Pre: AVS 101

AVS 327 Zoo Animal Management LEC (3 crs.) Experts discuss zoo animal care and the role of zoos in modern society with an emphasis on education, conservation, and research. Held at Roger Williams Park Zoo; additional costs apply. (Lec. 3) Pre: BIO 101 and 102 and sophomore standing or above.

AVS 331 Anatomy and Physiology LEC (3 crs.) Fundamentals of anatomy and physiology of domesticated animals. (Lec. 3) Pre: BIO 101 or CHM 101 or CHM 103.

AVS 332 Animal Diseases LEC (3 crs.) Specific diseases of avian and mammalian species; etiology, symptoms, and control. (Lec. 3) Pre: AVS 331.

AVS 333 Anatomy and Physiology Laboratory LAB (1 cr.) The fundamental anatomy of domestic animals is examined. Demonstrations of physiological principles are performed. Laboratory techniques for screening physiological function in vivo and in vitro are covered. (Lab. 2) Pre: credit or concurrent enrollment in 331.

AVS 340 Veterinary Pharmacology LEC (3 crs.) Cross-listed as (BPS), AVS 340. Principles of pharmacology including pharmacokinetics and pharmacodynamics, drug indications, usages and side effects, practical applications of drugs including drug handling, dosing calculation and administration methods. (Lec. 3) Pre: for AVS students: AVS 331 and 333 or permission of instructor; Pre: for BSPS and Pharm.D. students: 2nd or 3rd year standing.

AVS 343 Behavior of Domestic Animals LEC (3 crs.) Examination of the basis for, and exhibition and control of, behavioral patterns of domestic animals. (Lec. 3) Pre: AVS 101 and 102.

AVS 372 Introductory Endocrinology LEC (3 crs.) Morphology and physiology of endocrine glands. Roles of hormones in regulation of body processes. Discussion of all endocrine organs and relationship of endocrine and nervous systems. Emphasis on domesticated animals and fowl. (Lec. 3) Pre: BIO 101 or permission of instructor.

AVS 390 Wildlife and Human Disease LEC (3 crs.) Cross-listed as (AVS), ENT 390. Introduction to the study of human diseases carried by wildlife (zoonoses), including surveillance, epidemiology, transmission, public health impact, and prevention. Interdisciplinary approach with emphasis on problem solving using real-life examples. (Lec. 3)

AVS 399 Animal Science Internship PRA (1-6 crs.) Options in various professional experience programs involving the animal and veterinary sciences. (Practicum) Pre: permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

AVS 404 Food Systems, Sustainability and Health LEC (3 crs.) Cross-listed as (AVS), NFS, SAF 404. Scientific analysis of animal and human health and nutrition in various food systems. Interdisciplinary discussion on food systems and sustainability. (Lec. 3) Pre: Senior in good standing or permission of instructor. Not for graduate credit. (D1) (B4)

AVS 412 Animal Nutrition LEC (3 crs.) Principles of animal nutrition, metabolism of carbohydrates, proteins, and fats; mineral and vitamin requirements; nutritive requirements for maintenance, growth, reproduction, lactation, and work. (Lec. 3) Pre: junior standing or above.

AVS 420 Animal Breeding and Genetics LEC (3 crs.) Scientific methods for the genetic improvement of domesticated animals. Genetic variation and expected results of different types of selection and mating systems. (Lec. 3) Pre: junior standing or above. In alternate years.

AVS 440 Seminar on Marine Mammals LEC (3 crs.) Leading scientists discuss the natural history, anatomy, physiology, husbandry, behavior and conservation of marine mammals. Current research is emphasized. (Lec. 3) Pre: junior standing, and BIO 101 and 102 and permission of the instructor. Not for graduate credit. Special registration and fee are required. Contact Mystic Aquarium, Mystic, CT.

AVS 442 Physiology and Behavior of Marine Mammals LEC (3 crs.) An exploration of how marine mammals exploit aquatic environments, combining examination of research literature with experiential learning in lab and aquarium facilities locally and abroad. Travel required; additional costs apply. (Lec. 1, Lab. 2) Pre: Sophomore standing or above and a major in any department in CELS and permission of instructor. Not for graduate credit.

AVS 443 Advanced Methods in Applied Animal Behavior LEC (3 crs.) Practical application of the study of animal behavior to improve animal management in farm, zoo, or research settings. Emphasis on research methods and science-based animal training techniques. (Lec. 3) Pre: AVS 343 or concurrent enrollment in AVS 343. Not for graduate credit. (D1)

AVS 462 Laboratory Animal Techniques LEC (4 crs.) Management of laboratory animals with emphasis on animal biology, breeding, care, health, research use, and animal welfare. Laboratory animal applications in clinical studies and other selected topics. (Lec.3, Lab. 2) Pre: AVS 331 and 333.

AVS 463 Animal Veterinary Technology LEC (3 crs.) Theory and application of animal health practices required of paraprofessionals in a veterinary practice. The role of the veterinary assistant in a modern clinical practice will be emphasized. (Lec. 2, Lab. 3) Pre: AVS 331.

AVS 472 Physiology of Reproduction LEC (3 crs.) Anatomy and physiology of reproduction, with emphasis on domestic animals. (Lec. 3) Pre: BIO 101 and AVS 331 or permission of instructor. (D1)

AVS 473 Physiology of Reproduction Laboratory LAB (1 cr.) Laboratory exercises in mammalian reproductive physiology encom-

passing whole animal applications and gamete techniques. Current assisted reproductive technologies and management schemes will be discussed. (Lab. 2) Pre: concurrent enrollment in AVS 472.

AVS 491 Special Projects IND (1-3 crs.) Work that meets the individual needs of students in animal and veterinary science. (Independent Study) S/U grades only.

AVS 492 Special Projects IND (1-3 crs.) Work that meets the individual needs of students in animal and veterinary science. (Independent Study) S/U grades only.

AVS 500 Instructional Methods in Life Sciences LEC (2 crs.) Organization and development of instructional material and teaching methods for graduate teaching assistants in the life sciences. Emphasis on practice presentation in classroom/lab setting. (Lec. 2) Pre: graduate standing or permission of instructor for senior undergraduate.

AVS 503 Pathobiology LEC (3 crs.) Cross-listed as (AFS), AVS 503. Mechanisms and causes of disease in homeothermic and poikilothermic vertebrates. Cell death, inflammation, infection, metabolic disorders, and neoplasis in relation to fish, reptiles, birds, and mammals. Effects of disease at the cellular, tissue, organ, and organismal levels with a medical orientation. (Lec. 3) Pre: BIO 201 or AVS 331.

AVS 504 Food Systems, Sustainability, and Health LEC (3 crs.) Cross-listed as (NFS), AVS 504. Scientific analysis of animal and human health and nutrition in various food systems. Interdisciplinary discussion on food systems and sustainability. (Lec. 3) Pre: graduate student in good standing or permission of instructor.

AVS 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

AVS 538 Epidemiology of Infectious Diseases LEC (3 crs.) Cross-listed as (CMB), AVS 538. Principles of epidemiology, interrelationships of host, environment, and agent in infectious diseases. (Lec. 3)

AVS 591 Research Problems IND (3 crs.) Research problems to meet individual needs of graduate and honors students in the fields of animal breeding, nutrition, or physiology and food science. (Independent Study) Pre: permission of chairperson.

AVS 592 Research Problems IND (3 crs.) Research problems to meet individual needs of graduate and honors students in the fields of animal breeding, nutrition, or physiology and food science. (Independent Study) Pre: permission of chairperson.

AVS 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

BAI | Business Analytics and Intelligence

BAI 110 (BUS) Business Computing Applications LEC (3 crs.) Applications, concepts, and skills relevant to information technology in the context of the modern business environment. Topics include word processing, spreadsheet, presentation, and internet software. (Lec. 3/Online) Pre: open to students with a BU code or permission of the COB dean's office.

BAI 111 (BUS) Introduction to Business Analysis and Applications LEC (3 crs.) Selected mathematical tools and techniques for analysis of business and economic problems and as aids in decision making. Topics from finite and modern mathematics and applied calculus. (Lec. 3) Pre: open to students passing a placement test or earning a C- or better in BAI (BUS) 113 or permission of instructor. (B3)

BAI 113 (BUS) Business Computing and Quantitative Analysis LEC (3 crs.) Applications, concepts, and skills relevant to technology and quantitative processes in business. Topics include financial analysis, business modeling, and spreadsheets that promote effective decision making. MS Excel certification exam preparation. (Lec. 3) Pre: Open to students with a BU code or permission of the instructor.

BAI 210 (BUS) Managerial Statistics I LEC (3 crs.) General statistical methods used in the collection, presentation, analysis, and interpretation of statistical data. Includes frequency distribution, measures of central tendency and dispersion, probability theory, sampling distribution, central limit theorem, law of large numbers, estimation, and tests of hypothesis. Pre: Minimum of C- in BAI (BUS) 111 or MTH 131 or MTH 141.

BAI 211 (BUS) Managerial Decision Support Systems LEC (3 crs.) Methodologies and information technologies that support decision making. Emphasis on the use of PC-based analytical software for solving managerial problems; case studies and group problem solving. (Lec. 3) Pre: BAI (BUS) 110 or BAI (BUS) 113, and BAI (BUS) 210.

BAI 212 (BUS) Managerial Statistics II LEC (3 crs.) Additional data analysis techniques, including tests of independence and goodness of fit, regression, correlation, analysis of variance, time series, and index numbers. (Lec. 3) Pre: BAI (BUS) 210 or STA 308.

BAI 304G (BUS) Social Entrepreneurship and Innovation LEC (3 crs.) This course explores processes followed and skills needed by individuals wishing to advance entrepreneurial/innovative approaches to the alleviation of complex social problems. (Lec. 3) (C1) (GC)

BAI 310 (BUS) Business Data Analysis with Excel LEC (3 crs.) Introduces intermediate and advanced spreadsheet concepts for business applications. Import, organize, and evaluate data; apply quantitative analysis and modeling tools to extract meaningful information; communicate results for business decision-making. (Lec. 3/Online) Pre: BAI (BUS) 113 or BAI 111 or equivalent.

BAI 356 (BUS) Business Analytics Programming LEC (3 crs.) Techniques for business data analytics and visualization using appropriate software platforms (i.e. R) and real-world business data. Emphasis on business analytics, handling real-world business data and issues. (Lec. 3) Pre: BAI (BUS) 113.

BAI 357 (BUS) Information Technology In Business Organizations LEC (3 crs.) An overview of existing and developing information technologies used in business organizations. Topics include computer hardware and software, business information systems, operating systems, data communications, and local- and wide-area networks. (Lec. 3)

BAI 358 (BUS) Business Data Communications and Networking LEC (3 crs.) Introduction to data communications and computer networks within the context of modern business organizations. Emphasis on current technologies and their impact on management information systems. (Lec. 3)

BAI 390 Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

BAI 405 (BUS) End-User Development for Business Analysis LEC (3 crs.) Tools and techniques for developing end-user software applications (in VBA) for use in today's business environment. Designed for students who have no prior experience in computer programming. (Lec. 3) Pre: Open to juniors and seniors in the College of Business Administration, completion of BAI (BUS) 310 or permission of instructor. Not for graduate credit.

BAI 455 (BUS) Business Applications Programming II LEC (3 crs.) Intermediate concepts for developing software solutions to business applications using appropriate hardware platforms and software environments. (Lec. 3) Pre: ACC (BUS) 202 and FIN (BUS) 320, and MGT (BUS) 340 or MGT (BUS) 341, and SCA (BUS) 255 and BAI (BUS) 265, and credit for or concurrent enrollment in INE (BUS) 315, and senior standing in the College of Business. Not for graduate credit.

BAI 456 (BUS) Management of Databases LEC (3 crs.) Concepts and methods in management of large volume of data: creation, design, and implementation; data models; integrity; and security. Use of database management systems software (NoSQL). (Lec. 3)

BAI 457 (BUS) Design For Management Information Systems LEC (3 crs.) Concepts, methods and techniques used in the design of management information systems. Field work required. (Lec. 3) Pre: SCA (BUS) 359, BAI (BUS) 456. Not for graduate credit.

BAI 458 (BUS) Seminar In Management Information Systems SEM (3 crs.) Preparation and presentation of papers on selected topics. (Seminar) Not for M.B.A. credit.

BAI 476 (BUS) Machine Learning for Business Intelligence LEC (3 crs.) Use machine learning models in R to solve business problems such as segmenting markets, forecasting demand, analyzing customer reviews, making online recommendations, and predicting consumer preferences. (Lec. 3) Pre: MTH 215 and (BAI (BUS) 211 or STA 308 or STA 409) and MKT (BUS) 365 - all with grades of C or better.

BAI 491 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

BAI 492 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

BAI 493 Internship In Business Analysis and Intelligence PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: admission into internship program, and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

BAI 494 Business Internship/Field Experience PRA (0 cr.) Undergraduate Business majors completing approved Off Campus Experience. Fall, Spring, Summer, or Winter Semester. Registration is by permission number only. (Practicum) Pre: BUS major and instructor consent. S/U only.

BAI 608 (BUS) Doctoral Research Seminar SEM (3 crs.) Provides a rigorous analysis of current research questions and the research techniques used to address those questions pertinent to Management Information Systems. Recent developments and current issues are addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

BAI 691 Directed Study-Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

BAI 692 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

BAI 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

BES | Biological and Environmental Studies

BES 500 Advanced Science Ethics LEC (1 cr.) This course focuses on the ethics of scientific research using case studies to inform discussion on common ethical issues in science. (Lec. 1) Pre: graduate standing or permission from the instructor.

BES 501 Advanced Scientific Communication LEC (2 crs.) This course focuses on the process of writing and reviewing scientific manuscripts and grant proposals. (Lec. 1, Sem. 1) Pre: graduate standing or permission from the instructor.

BES 503 Laboratory Rotations in Cell and Molecular Biology LAB (3 crs.) Course will provide first-year graduate students with experience in research laboratories of the CMB graduate faculty. (Lab. 3) Pre: Restricted to students enrolled in the BES graduate program.

BES 532 Advanced Conservation Biology SEM (3 crs.) Cross-listed as (BES 532), EEC 542. Examination of different components of conservation of biological diversity. Topics include minimum viable populations, ecology and economics of reserve design, reintroductions, causes of extinction, and the ecosystem conservation strategies. (Seminar) Pre: permission of instructor.

BES 533 Using Multimedia to Communicate Science LEC (3 crs.) An advanced course that provides training to students of the sciences in multimodal--radio, tv, and print--storytelling focusing on science related issues. (Lec. 3) Pre: Graduate standing or permission of instructor.

BES 550 Advanced Ecology LEC (4 crs.) This course provides a survey of physiological, population, and community ecology. It encourages thinking and learning about key ecological concepts through primary literature, discussion, analytical writing, and problem sets. (Lec. 4) Pre: graduate standing; must have completed introductory biology and ecology or courses that included significant introduction to ecology.

BES 551 Ecosystem Science and Sustainability LEC (3 crs.) Fundamental principles of systems ecology linking natural and human infrastructure, processes, ecosystem dynamics with focus on global change; creating innovative methods to frame the complexity of designing more sustainable systems. (Lec. 3) Pre: Graduate standing or permission of instructor.

BES 581 Biological and Environmental Sciences Colloquium SEM (1 cr.) Invited talks on selected research topics in selected areas related to biological and environmental sciences. (Seminar) Pre: graduate standing in the College of Environment and Life Sciences. S/U credit.

BES 582 Biological and Environmental Sciences Colloquium SEM (1 cr.) Invited talks on selected research topics in selected areas related to biological and environmental sciences. (Seminar) Pre: graduate standing in the College of Environment and Life Sciences. S/U credit

BES 593 Internship in Science Writing PRA (3 crs.) Internship with agency or organization in which student develops and disseminates written pieces on science-related topics to non-scientific audiences. (Practicum) Pre: Previous completion of WRT 533, NRS 543, and permission of instructor.

BES 599 Master's Thesis Research IND (1-12 crs.) To be taken by students in the Master of Science - Biological and Environmental Sciences (BES) degree program. Number of credits determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: Enrollment in the MS-BES graduate program. S/U credit.

BES 600 Graduate Seminar in Biological & Environmental Sciences SEM (1 cr.) Presentation of proposed, ongoing, or completed research by BES graduate students. Discussion among graduate students, faculty, and staff, with emphasis on research design, methods, and interpretation of results. (Seminar) Pre: graduate standing in BES. All graduate students must enroll at least twice; full-time students are expected to enroll each spring. S/U credit.

BES 699 Doctoral Dissertation Research IND (1-12 crs.) To be taken by students in the PhD - Biological and Environmental Sciences (BES) degree program. Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: Enrollment in the PhD-BES graduate program. S/U credit.

BIO | Biological Sciences

BIO 101 Principles of Biology I LEC (3 crs.) Chemistry, structure, metabolism, and reproduction of cells. Principles of genetics. Structure, development, and physiology of animals. Survey of the animal kingdom. (Lec. 3) Pre: Credit or concurrent enrollment in BIO 103. (A1)

BIO 101H Honors Section of BIO 101: Principles of Biology I LEC (3 crs.) Honors Section of BIO 101: Chemistry, structure, metabolism, and reproduction of cells. Principles of genetics. Structure, development, and physiology of animals. Survey of the animal kingdom. (Lec. 3) Pre: Credit or concurrent enrollment in BIO 103 and a 3.4 overall GPA. (A1)

BIO 102 Principles of Biology II LEC (3 crs.) Structure, physiology, and reproduction of plants. Diversity of plants, fungi, and algae. Principles of ecology and evolution. (Lec. 3) Pre: BIO 101, 103, and credit or concurrent enrollment in BIO 104. (A1)

BIO 103 Principles of Biology Laboratory I LAB (1 cr.) Selected laboratory exercises to accompany BIO 101. (Lab. 2) Pre: credit or concurrent enrollment in BIO 101. (A1)

BIO 104 Principles of Biology Laboratory II LAB (1 cr.) Selected laboratory exercises to accompany BIO 102. (Lab. 2) Pre: BIO 101, 103 and credit or concurrent enrollment in 102. (A1)

BIO 110 Fundamentals of Biology LEC (3 crs.) Fundamental biological concepts including the chemical and cellular basis of life, genetics, evolution, and organismal form and function. Intended for science majors who require one semester of biology. (Lec. 3) Pre: Credit or concurrent enrollment in BIO 103. Not open to students with credit in BIO 101. (A1)

BIO 130 Topics In Marine Biology SEM (1 cr.) Current and classical issues considered in small classes. Designed for students interested in marine biology. (Seminar) Pre: Limited to marine biology majors. Required of all freshmen marine biology majors and students entering the major with fewer than 24 credits. May not be repeated.

BIO 181G The Information Age: From Politics to Medicine LEC (3 crs.) Cross-listed as (BIO), DSP 181G. How big data affects our society, from advertising to politics to medicine. (Lec 3) Not for major credit for B.S. Biological Sciences or B.A. Biology. (A1) (GC)

BIO 201 General Animal Physiology LEC (4 crs.) The study of animal physiology (respiration, bioenergetics, locomotion, circulation, osmoregulation, hormones, nervous system, sensory organs, reproduction, immune function) with a consideration of environmental challenges and evolutionary adaptations. (Lec. 3, Lab. 1) Pre: BIO 101/103 and 102/104, and CHM 101, or permission of instructor.

BIO 220 Fundamentals of Human Anatomy and Physiology I LEC (3 crs.) Explores the integration of the structures and functions of the human organism through a systems approach; including the biochemical properties of the cell, integumentary, muscular, skeletal, and nervous systems. (Lec. 3) Pre: Credit or concurrent enrollment in BIO 221.

BIO 221 Fundamentals of Human Anatomy and Physiology I Laboratory LAB (1 cr.) Fundamental structure and function of organ systems of the human body explored through models, dissections, and experiments. Specific topics include: tissues, integumentary system, muscular system, skeletal system, and nervous system. (Lab. 1) Pre: Credit or concurrent enrollment in BIO 220.

BIO 222 Fundamentals of Human Anatomy and Physiology II LEC (3 crs.) Explores the integration of the structures and functions of the human organism through a systems approach; including senses, endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive. (Lec. 3) Pre: BIO 220 and 221, and credit or concurrent enrollment in BIO 223.

BIO 223 Fundamentals of Human Anatomy and Physiology II Laboratory LAB (1 cr.) Fundamental structure and function of organ systems of the human body explored through models, dissections, and experiments. Specific topics include: special senses, endocrine, circulatory, respiratory, digestive, urinary, and reproductive systems. (Lab. 1) Pre: BIO 220 and BIO 221, and credit or concurrent enrollment in BIO 222.

BIO 228 Seminar in Biological Sciences SEM (1 cr.) Lectures by local scientists on recent and ongoing basic research in biology, especially on-campus studies. Follow-up discussions will support student understanding and prepare students for independent research. (Seminar) Pre: Credit or concurrent registration in BIO 102. S/U only.

BIO 230G Communicating Science through Data Visualization LEC (3 crs.) Exploring how scientists and communicators can use data visualization to communicate complex concepts simply and effectively to wide and varied audiences. (Lec. 2, Online) Pre: Students must be of sophomore standing. (C1) (GC)

BIO 256G Risking our Reefs: Human Impacts on Ecosystem Builders LEC (3 crs.) Examination of human impacts on coral and oyster reef ecosystems and the ecological, economic, and ethical considerations of reef use and restoration. (Lec. 3) Pre: BIO 262 or NRS 223. (A1) (C2) (GC)

BIO 262 Introductory Ecology LEC (4 crs.) Structure and function of ecosystems, limiting factors, population dynamics, population interactions, and community relationships. Selected habitats and general ecological effects of humans. (Lec. 3, Rec. 1) Pre: BIO 101, 102 or equivalent.

BIO 263 Introduction to Ecological Data Analysis LEC (1 cr.) Learn to analyze ecological data.Gain quantitative skills, reinforce ecological concepts, and learn to integrate concepts to answer biological questions. (Lec. 1) Pre: credit or concurrent registration in BIO 262.

BIO 272 Introduction to Evolution LEC (4 crs.) Cross-listed as (BIO), GEO 272. Introduction to evolution as the unifying thread in the biosphere. Processes and patterns discussed, including microevolution and macroevolution. Social impact of evolution discussed from a biological perspective. Pre: GEO 102 or one semester of biological sciences, or permission of instructors.

BIO 282G Sapiens: The Changing Nature of Human Evolution LEC (3 crs.) Cross-listed with (BIO), APG 282G. Study of human origins and history in order to understand Homo sapiens as a significant cause of evolutionary change, including an in-depth description of our widespread influence on Earth's systems. (Lec. 3) Pre: Sophomore or higher standing. (A1) (C2) (GC)

BIO 286 Humans, Insects, and Disease LEC (3 crs.) Cross-listed as (BIO), ENT 286. Role of insects, ticks, and mites as vectors and as direct agents of diseases in humans; factors affecting the spread of these diseases and their role in our cultural development. (Lec. 3) Not for major credit for B.S. in biological sciences.

BIO 300 Physiology of Exercise LEC (3 crs.) Cross-listed as (KIN), BIO 300. Applied human physiology, with applications to physical activity, exercise, and sport. Particular attention to acute and chronic adjustments of the circulatory, respiratory, metabolic, and muscular systems with exercise. (Lec. 3/Online) Pre: BIO 121 or BIO 220 and BIO 221 and BIO 222 and BIO 223 or permission of instructor. Open to Kinesiology and Biology majors only.

BIO 301 Physiology of Exercise Laboratory LAB (1 cr.) Cross-listed as (KIN), BIO 301. Student participation in laboratory sessions designed to understand the physiology of exercise relating to body composition, EKG, pulmonary, and metabolic functions. (Lab. 2) Pre: BIO 121 or BIO 220 and BIO 221 and BIO 222 and BIO 223 or permission of instructor. Open to Kinesiology and Biology majors only.

BIO 302 Animal Development LEC (4 crs.) Survey of the patterns and mechanisms of animal development, including the molecular genetic control of development, medical developmental biology and evolution of development. (Lec. 3, Lab 3) Pre: BIO 101, 102, and two additional semesters of biological sciences; genetics recommended.

BIO 308 The Invisible Living Ocean LEC (3 crs.) The goal of this course is to explore the major groups of marine organisms that are mostly invisible to the naked eye, which fuel food webs, drive global biogeochemical cycles and affect climate. (Lec. 3) Pre: BIO 101 and BIO102, or permission of instructor.

BIO 310 Bermuda Marine Biodiversity LAB (2 crs.) Based at the Bermuda Institute for Ocean Sciences, this course will provide students with experience in biodiversity assessment in the field, where we will blend fieldwork, lectures and laboratory manipulation. (Lab. 6) Pre: concurrent enrollment in BIO308.

BIO 311 Plant Structure and Development LEC (4 crs.) Structure of vascular plant cells, tissues and organs; cellular and molecular mech-

anisms controlling developmental processes including cell division, leaf initiation, epidermal patterning and vascular differentiation. (Lec. 3, Lab. 3) Pre: BIO 102 or permission of instructor.

BIO 320 Introduction to Computational Biology LEC (3 crs.) Cross-listed as (CMB), BIO 320. Introduction to the current topics of computational biology. Students will obtain hands-on experiences in navigating biological databases and analyzing biological data. (Lec. 3) Pre: CMB 201 or CMB 211.

BIO 321 Plant Diversity LEC (4 crs.) Representative forms of prokaryotes, algae, fungi, bryophytes, and vascular plants with emphasis on evolution, ecology, and life cycle. (Lec. 3, Lab. 3) Pre: BIO 102 or permission of instructor.

BIO 323 Field Botany and Taxonomy LEC (4 crs.) Cross-list with (NRS), BIO 323. Collection, identification, and study of vascular flora of Rhode Island, including use of manuals and herbarium specimens. Field trips throughout Rhode Island. Discussion of principles, methods, and data used in classification. (Lab. 2, Online) Pre: BIO 102.

BIO 331 Parasitology LEC (3 crs.) An introduction to the biology of parasitic organisms, including life cycles, infection pathways, and impacts on hosts. Topics are explored via lecture, laboratory exercises, literature review, and discussion groups. (Lec. 2, Lab. 1) Pre: BIO 101 and BIO 102.

BIO 332 Plant Pathology: Introduction to Plant Diseases LEC (4 crs.) Cross-listed as (BIO), PLS 332. Nature, cause, and control of plant diseases. Use of basic techniques for identification of major types of plant diseases and their causal agents. (Lec. 4) Pre: BIO 102 or PLS 150 or permission of instructor.

BIO 341 Principles of Cell Biology LEC (3 crs.) Cross-list as (BIO), CMB 341. An introduction to the structure and organization of eukaryotic cells. Topics include membranes and organelles, gene expression, protein synthesis and secretion, energy utilization, the cytoskeleton, and signal transduction. (Lec. 3) Pre: one semester of biological sciences and one semester of organic chemistry.

BIO 345 Marine Environmental Physiology LEC (3 crs.) The physiological basis of adaptation to the marine environment. Physiological methods adapted to marine plants and animals. (Lec. 2, Lab. 3) Pre: two semesters of biological sciences.

BIO 346 Plant Physiology LEC (3 crs.) Development and function of vascular plants, including energy and nutrient assimilation, growth, reproduction, and interactions with other organisms and the physical environment. (Lec. 3) Pre: BIO 102, one semester of chemistry, or permission of instructor.

BIO 350 Field Entomology and Taxonomy LEC (4 crs.) Cross-listed as (ENT), BIO, NRS 350. Collection, identification and study of the common families of insects, including use of keys and teaching collection specimens. Field trips throughout Rhode Island. Discussion of insect classification. (Lec. 3, Lab. 1) Pre: BIO 102 or permission of instructor.

BIO 352 General Genetics LEC (4 crs.) Cross-listed as (BIO), CMB 352. Introduction to basic genetic principles and concepts leading to an understanding of genes, heredity, and the nature of inherited variation. Applications and implications for animals, plants, fungi and bacteria. (Lec. 3, Rec. 1) Pre: BIO 101 and BIO 102.

BIO 353 Genetics Laboratory LAB (1 cr.) Cross-listed as (CMB), BIO 353. Basic principles and concepts of genetics demonstrated with microorganisms, plants, and animals. (Lab. 2) Pre: credit or concurrent enrollment in CMB/BIO 352.

BIO 354 Invertebrate Zoology LEC (4 crs.) Study of the origin and evolutionary relationship of the invertebrate animals. Emphasis on marine forms. Laboratory sessions include comparative study of selected examples and field trips to local environments. (Lec. 3, Lab. 1) Pre: BIO 101, 102, 103, and 104.

BIO 355 Marine Invertebrates of Southern New England LAB (3 crs.) Collection and identification of marine invertebrates of southern New England. Emphasis on field work and laboratory studies. Students collection will incorporate video photography. (Lab. 6) Pre: BIO 101 and 102 or permission of instructor.

BIO 360 Marine Biology LEC (4 crs.) The nature of plants and animals of the sea. Diversity of species and adaptations to habitats from the sea surface to the depths of the ocean. (Lec. 3, Lab. 3) Pre: BIO 101 and 102.

BIO 365 Biology of Algae LEC (4 crs.) Taxonomy, morphology, and evolution of all major algal divisions. Laboratory/field component focuses upon taxonomic identification of both live and preserved microscopic and macroscopic algal species. (Lec. 3, Lab. 3) Pre: BIO 102.

BIO 366 Vertebrate Biology LEC (3 crs.) Life histories, adaptations, ecology, classifications, and distribution of vertebrate animals. Laboratory and extensive field work on local vertebrates. (Lec. 2, Lab 3) Pre: BIO 262 recommended.

BIO 385 Introductory Entomology LEC (3 crs.) Cross-listed as (ENT), BIO 385. Introduction to the diverse components of entomology, emphasizing basic principles of insect morphology, physiology, behavior, and ecology. Current topics in insect biodiversity and management strategies. (Lec. 3) Pre: BIO 102 and BIO 101, or permission of instructor.

BIO 388 Biology of Bees and Pollination Ecology LEC (3 crs.) Cross-listed as (ENT), BIO, NRS 388. Learn the biology, behavior and pollination services of bees. Learn how to identify bees to family level. Understand the basics of honey bee management. Learn various types of pollination. (Lec. 3) Pre: BIO 101 and 102, or permission of instructor.

BIO 396 Biology And Society SEM (3 crs.) A seminar course dealing with the impact of biological discoveries on societal questions and with the social influences that affect biological discovery. Discussion of original papers, magazines, newspaper articles, and books about various discoveries. (Seminar) Pre: Pre: junior or senior standing majoring in Biological Sciences (BS), Biology (BA) or Marine Biology (BS), or permission of instructor. (D1) (B4)

BIO 404 (304) Comparative Vertebrate Anatomy LEC (4 crs.) Anatomy of chordates emphasizing functional and evolutionary diversity. Lecture focuses on morphological variation and evolution including study of primary literature. Laboratory focuses on comparative anatomy through dissections and models. (Lec. 3, Lab. 3) Pre: BIO 101 and 102 and junior standing.

BIO 412 Evolution and Diversity of Fishes LEC (4 crs.) Origin, evolution and diversification of fishes, their phylogenetic relationships, and morphological, physiological, ecological, and behavioral adaptations in marine and freshwater habitats. (Lec. 3, Lab. 3) Pre: BIO 101 and 102, or permission of instructor. Not for graduate credit.

BIO 416 Intertidal Ecology LEC (4 crs.) The ecology of intertidal shores within New England, with a focus on common marine macroalgae. Includes field surveys, specimen identification, and an emphasis on research planning and hypothesis testing. (Lec. 3, Lab. 1) Pre: BIO 101, 102 and BIO 262 or BIO 360 (or permission from instructor).

BIO 417 Herpetology LEC (4 crs.) Cross-listed as (NRS), BIO 417. Introduces students to the biology, ecology, conservation, and management of reptiles and amphibians, including global perspectives, and field methods for studying amphibians and reptiles of northeastern North America. (Lec. 2, Lab. 4) Pre: BIO 101/103 and 102/104; and NRS 223 or BIO 262, and permission of instructor. Not for graduate credit.

BIO 419 Field Experience in Herpetology PRA (1 cr.) Cross-listed as (NRS), BIO 419. Capstone field trip in herpetology to region with higher amphibian and reptile diversity, such as Appalachia, to hone skills in identification, broaden understanding of ecology, and apply field research methods. (Practicum) Pre: concurrent enrollment in or credit for NRS/BIO 417, and permission of instructor. S/U only. Not for graduate credit.

BIO 422 Biology of Sharks and Their Relatives LEC (3 crs.) Survey of sharks, skates and rays including their classification, evolutionary history, physiology, ecology and interactions with humans. (Lec. 3) Pre: BIO 360 and junior standing or permission of the instructor.

BIO 425G Marine Biodiversity: A Larval Perspective LEC (3 crs.) Almost all marine life has a biphasic life cycle. This course explores

the diversity marine reproduction and larval forms, and how humans interact with species from a larval perspective. (Lec. 3) Pre: BIO 262 and junior standing, or permission of instructor. (D1) (B2) (GC)

BIO 437 Fundamentals of Molecular Biology LEC (3 crs.) Cross-listed as (BIO), CMB 437. Biochemical basis of heredity as seen through the structure and function of nucleic acids. Includes DNA replication, transcription, translation, gene regulation, and gene organization in prokaryotes and eukaryotes. Current methods emphasized. (Lec. 3) Pre: CMB 211, BIO 352, and CMB 311, or permission of instructor.

BIO 439 Big Data Analysis LEC (3 crs.) Cross-listed as (BIO), DSP 439. Learn about big data and how to write scripts to analyze data. (Lec. 3) Pre: junior standing, MTH 131 or 141. Not for graduate credit.

BIO 440G How Our Genes and the Environment Shape Our Lives LEC (3 crs.) Explore how deteriorating environments alter early human embryological development, increasing diseases and neurological disorders, altering entire societies. (Lec. 3) Pre: BIO101 and junior standing. (A1) (B2) (GC)

BIO 444 Insect Ecology LEC (3 crs.) Ecology of insects and other terrestrial arthropods at the physiological, individual, population, community, and ecosystem levels. Not for graduate credit. (Lec. 3) Pre: BIO 262 or ENT 385.

BIO 452 Advanced Topics In Genetics LEC (3 crs.) Cross-listed as (CMB), BIO 452. More detailed treatment of topics introduced in the general genetics course (352) including aspects of transmission genetics, molecular genetics, cytogenetics, biotechnology, developmental genetics, and the impact of genetics on society. (Lec. 3) Pre: BIO 352.

BIO 455 Marine Ecology LEC (3 crs.) Investigation of the structure and dynamics of various marine ecosystems. Includes mineral cycling, energy flow, community and population organization, and behavioral ecology in selected marine environments. (Lec. 3) Pre: 262 or permission of instructor.

BIO 467 Animal Behavior LEC (3 crs.) Roles of natural selection, individual learning, and cultural transmission in shaping animal behavior. (Lec. 3) Pre: two semesters of biology.

BIO 469 Tropical Marine Invertebrates PRA (5 crs.) Systematic survey of tropical invertebrates. Emphasis on examples from Bermuda's marine environment. Laboratory includes field collections, identification, and preparatory techniques for taxonomic studies. (Practicum, Lab. 8) Taught in Bermuda. Pre: BIO 360, junior standing, and permission of instructor.

BIO 472 Advanced Evolutionary Biology LEC (3 crs.) Cross-listed as (BIO), GEO 472. A survey of modern evolutionary biology, including classic evolutionary theory, phylogenetics, evolution and development, adaptation, mass extinction and genomic evolution. (Lec./Sem. 3) Pre: BIO/GEO 272, or permission of instructor. Not for graduate credit.

BIO 475 Ecology of Coral Reefs in Bermuda PRA (5 crs.) Structure and function of coral reef ecosystems with emphasis on the biology of corals. Laboratory sessions focus on field surveys and research techniques. (Practicum, Lab 8) Taught in Bermuda. Pre: BIO 262 and junior standing; SCUBA certification required.

BIO 480 Community Ecology LEC (3 crs.) Exploration of community ecology, with an emphasis on interspecific interactions (competition, predation, mutualism), species diversity, succession, niche theory, and island bio-geography. Format includes lecture, case studies, and discussion. (Lec. 3) Pre: BIO 262 or permission of instructor. Not for graduate credit.

BIO 482G Biology of Human Health and Disease LEC (3 crs.) An applied study of the evolutionary drivers of human health and of our current understanding of the ecological, genetic, and molecular mechanisms underpinning disease conditions. (Lec. 3) Pre: BIO/CMB 352 and one additional BIO course at 200 level or above. Not for graduate credit. (D1) (GC)

BIO 485 Salt Marsh Ecology LEC (4 crs.) Cross-listed as (BIO), NRS 485. Structure and function of salt marsh ecosystems, including biogeochemistry, in the context of global change. Seminar-style discussions of primary scientific literature, laboratory and field exercises, and an independent research poster. (Lec. 2, Lab 4) Pre: BIO 262 or NRS 223 and 2 semesters of chemistry or permission of instructor. BIO 360 recommended. Not for graduate credit.

BIO 491 Independent Biological Research IND (1-3 crs. each) Individualized laboratory, field, or literature research projects. May be repeated for a total of 6 credits. (Independent Study) Pre: open only to undergraduates on arrangement with staff. S/U only.

BIO 492 Independent Biological Research IND (1-3 crs. each) Individualized laboratory, field, or literature research projects. May be repeated for a total of 6 credits. (Independent Study) Pre: open only to undergraduates on arrangement with staff. S/U only.

BIO 495 Tropical Marine Biology Research PRA (6 crs.) Independent marine research in Bermuda. Topics may include marine ecology, physiology, systematics, etc. Proposal, oral report, and project paper required. (Practicum, Lab 12). Taught in Bermuda. Pre: Junior standing, BIO 475 and 469.

BIO 498 Teaching Practicum in Biological Sciences PRA (1 cr.) Teaching experience for undergraduates through planning and assisting in introductory laboratory courses. Can be repeated once for credit. Not for major credit in BS BIO, BA BIO, or BS MBIO. (Prac. 1). Pre: permission of instructor. Not for graduate credit.

BIO 502 Introduction to Neurobiology LEC (4 crs.) Cross-listed as (BIO), NEU 502. Fundamental processes in neurobiology with emphasis on cellular and membrane mechanisms of nerve functioning. (Lec 3). Pre: BIO 201 and MTH 141, or permission of instructor.

BIO 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

BIO 511 Special Readings in Developmental Plant Anatomy IND (3 crs.) Intensive tutorial work, research, and reading on ontogeny of plant structures and morphogenetic mechanisms. (Independent Study) Pre: graduate standing and permission of instructor. Concurrent audit of 311 required. Offered on demand.

BIO 512 Evolution and Diversity of Fishes LEC (4 crs.) Origin, evolution, and diversification of fishes, their phylogenetic relationships, and morphological, physiological, ecological, and behavioral adaptations in marine and freshwater habitats. (Lec. 3, Lab. 3) Pre: Graduate standing and permission of instructor.

BIO 517 Herpetology LEC (4 crs.) Cross-listed as (NRS), BIO 517. This course provides an in-depth background on the biology, ecology, conservation, and management of reptiles and amphibians, including field methods for studying amphibians and reptiles of northeastern North America. (Lec. 2, Lab. 4) Pre: graduate student in biological and environmental sciences and permission of instructor.

BIO 519 Field Experience in Herpetology PRA (1 cr.) Cross-listed as (NRS), BIO 519. Capstone field trip in herpetology to region with higher amphibian and reptile diversity, such as Appalachia, to hone skills in identification, broaden understanding of ecology, and apply field research methods. (Practicum) Pre: Concurrent enrollment or credit for NRS/BIO 517 and permission of instructor. S/U only.

BIO 539 Big Data Analysis LEC (3 crs.) Cross-listed as (BIO), DSP 539. Learn about big data and gain sufficient programming skills to analyze data efficiently and accurately for research. (Lec. 3) Pre: graduate standing

BIO 544 Insect Ecology LEC (3 crs.) Cross-listed as (ENT), BIO 544. Ecology of insects and other terrestrial arthropods at the physiological, individual, population, community, and ecosystem levels. Pre: permission of instructor. In alternate years.

BIO 550 Advanced Topics In Neurobiology SEM (3 crs.) Published papers in selected aspects of neurobiology will be discussed. Repre-

sentative topics include role of Ca++, c-AMP in the nervous system, gating currents learning at the cellular level, cellular rhythmicity. (Seminar) In alternate years.

BIO 563 Biology and Ecology of Fishes LEC (4 crs.) Cross-listed as (BIO), NRS 563. Exploration of the functional biology and ecology of marine and freshwater fishes through lecture and discussion of primary literature. Laboratory involves specimen study, field trips, and a research project. (Lec. 3, Lab. 3) Pre: BIO 366 or equivalent, or permission of instructor.

BIO 572 Advanced Evolutionary Biology LEC (3 crs.) Cross-listed as (BIO), GEO 572. A survey of modern evolutionary biology, including classic evolutionary theory, phylogenetics, evolution and development, adaptation, mass extinction and genomic evolution. (Lec./Sem. 3) Pre: BIO/GEO 272, graduate standing, or permission of instructor.

BIO 579 Advanced Genetics Seminar SEM (1 cr.) Cross-listed as (CMB), BIO 579. Current topics in genetics, including cytological, ecological, molecular, physiological, population, quantitative, and radiation genetics. (Seminar) Pre: CMB 352 and permission of instructor.

BIO 580 Community Ecology LEC (3 crs.) Explores community ecology, with an emphasis on interspecific interactions (competition, predation, mutualism), species diversity, succession, niche theory, and island biogeography. Format includes lecture, case studies, and discussion. (Lec. 3) Pre: BIO 262 or permission of instructor.

BIO 585 Salt Marsh Ecology LEC (4 crs.) Cross-listed as (BIO), NRS 585. Structure and function of salt marsh ecosystems, including biogeochemistry, in the context of global change. Seminar-style discussions, weekly assignments, written and oral presentations of independent proposal and research project. (Lec. 2, Lab. 4) Pre: permission of instructor. Prior undergraduate coursework equivalent to a course in ecology and 2 semesters of chemistry is expected.

BIO 586 Medical and Veterinary Entomology LEC (3 crs.) Cross-listed as (BIO), ENT 586. Life history, classification, habits, and control of insects and other arthropods affecting human and animal health. Topics will include public health significance, vector-parasite interactions, and survey and research methodologies. (Lec. 3, Lab. 4) Pre: ENT 331 or 381 or equivalent. In alternate years.

BIO 587 Seminar In Neurobiology SEM (1 cr.) Cross-listed as (BIO), NEU 587. Survey of current literature in the neurosciences. Topics include molecular and behavioral electrophysiology, ion channels, nerve net modeling, ultrastructure of excitable cells, receptor and pharmacological neurobiology of invertebrates and vertebrates. (Seminar) Pre: graduate standing or one advanced neuroscience course.

BIO 591 Independent Biological Research IND (1-6 crs.) Individualized laboratory, field, or literature research projects. May be repeated for a total of 6 credits. Pre: graduate standing and permission of instructor. S/U credit.

BIO 592 Independent Biological Research IND (1-6 crs.) Individualized laboratory, field, or literature research projects. May be repeated for a total of 6 credits. Pre: Graduate standing and permission of instructor. S/U credit.

BIO 593 Special Topics in Biological Sciences IND Selected areas pertinent to needs of individuals or small groups. Class, seminar or tutorial. Topics may include the following: biomechanics, cell biology, ecological morphology, functional morphology, ichthyology, molecular biology, morphology and mechanics, physiology, plant cell development and zoology. May be repeated for a total of 6 credits.

BIO 594 Special Topics in Biological Sciences IND Selected areas pertinent to needs of individuals or small groups. Class, seminar or tutorial. Topics may include the following: biomechanics, cell biology, ecological morphology, functional morphology, ichthyology, molecular biology, morphology and mechanics, physiology, plant cell development and zoology. May be repeated for a total of 6 credits.

BIO 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

BIO 642 Seminar In Physiology SEM (1-3 crs.) Reports and discussions on topics of current research in physiology. Subject matter adapted to meet interests of students. (Seminar) Pre: permission of instructor.

BIO 654 Seminar in Ichthyology SEM (2 crs.) Reading, library research, reports, and class discussion on problems of current research interest in the biology of fishes. (Seminar) Pre: BIO 563 or permission of instructor. In alternate years.

BIO 675 Advanced Ecology Seminars SEM (2 crs.) Specialized and advanced areas of ecological research and theory, including biogeography, Pleistocene ecology, population dynamics, energy flow in ecosystems, and radiation ecology. (Seminar) Pre: permission of instructor.

BIO 691 Biological Problems IND (1-6 crs.) Special work to meet the needs of individual students who are prepared to undertake special problems. (Independent Study) Pre: permission of chairperson. Open only to doctoral students.

BIO 692 Biological Problems IND (1-6 crs.) Special work to meet the needs of individual students who are prepared to undertake special problems. (Independent Study) Pre: permission of chairperson. Open only to doctoral students.

BIO 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

BIS | Bachelor of Interdisciplinary Studies

BIS 100 Pro-seminar SEM (3 crs.) Introduction to critical approaches to interdisciplinary thinking with emphasis on reading and rhetorical skills appropriate to college students. (Seminar)

BIS 199 (100) Engagement Seminar SEM (3 crs.) Introduction to critical approaches to interdisciplinary thinking with emphasis on reading and rhetorical skills appropriate to college students. (Seminar)

BIS 299 Integration Seminar SEM (2 crs.) Seminar format course where students pursue cohesiveness and draw connections through assignments and dialogue amongst their three minor areas of study. (Seminar 2) Pre: BIS 199.

BIS 350 Directed Study or Research IND (1-6 crs.) Directed research or study designed to meet the particular needs of individual students. (Independent Study) Pre: permission of the academic department chairperson and the B.I.S. coordinator. May be repeated for a maximum of 6 credits.

BIS 399 Supervised Senior Project IND (3 crs.) Culminating experience in which students prepare and present a project bringing together materials and methods from several disciplines. (Independent Study) Pre: BIS 100. (D1) (B1)

BIS 399 Supervised Senior Project IND (3 crs.) Culminating experience in which students prepare and present a project bringing together materials and methods from several disciplines. (Independent Study) Pre: BIS 199 (100) and 299. (D1) (B1)

BME | Biomedical Engineering

BME 181 Biomedical Engineering Seminar I SEM (1 cr.) Seminar series given by instructor, invited experts, and students with focus on biomedical electronics, medical devices, rehabilitation engineering, medical instrumentation, and biomedical ethics. (Seminar) Pre: credit or concurrent enrollment in MTH 141 or permission of instructor.

BME 207 Introduction to Biomechanics LEC (3 crs.) Engineering analysis of the human body in equilibrium, biological tissue mechanics (stress and strain), elementary beam theory (bending and torsion) applied to bones. (Lec. 3) Pre: (MTH 142 and PHY 204 and (credit or concurrent enrollment in BIO 220)) or permission of instructor.

BME 281 Biomedical Engineering Seminar II SEM (1 cr.) Seminar series given by instructor, invited experts, and students with focus on physiological system modeling, biomechanics, biomaterials, tissue engineering, artificial organs, and biosensors; assignments involving design and 3D printing. (Seminar) Pre: BME 181 or permission of instructor.

BME 307 Bioelectricity LEC (3 crs.) Quantitative analysis of electrical phenomena in biological cells, tissues, and organs. Action potentials and propagation in neurons, cardiac and skeletal muscle. (Lec. 3) Pre: ((ELE 212 or 220) and (MTH 243 or 362)) or permission of instructor.

BME 360 Biomeasurement LEC (3 crs.) Principles of biomeasurement, patient safety, embedded system design with microcontrollers, programming with assembly and C++ languages, interrupts, timer, real-time digital filters, electrocardiogram (ECG) instrumentation, QRS detection, heart rate meter. (Lec. 3) Pre: (concurrent enrollment in BME 361 and ELE 212) or permission of instructor.

BME 361 Biomeasurement Laboratory LAB (1 cr.) Constructing and experimenting with embedded systems using microcontrollers, implementing real-time digital filters with assembly and C++ languages, constructing an electrocardiogram (ECG) amplifier, implementing QRS detection and heart rate meter. (Lab.) Pre:Concurrent enrollment in BME 360 required.

BME 362 Biomedical Instrumentation Design LEC (3 crs.) Fundamentals of diagnostic and therapeutic devices, engineering standards, and regulations for medical devices; basic electronics, safety, noise rejection, and biomedical signal processing; design of embedded and handheld systems. (Lec. 3) Pre: (BME 360 and BME 361) or permission of instructor.

BME 363 Biomedical Instrumentation Design Laboratory LAB (1 cr.) Hands-on applications of electronics, embedded and handheld devices to biomedical instrumentation systems including electrocardiogram, photoplethysmogram, motion sensor, and electronic stethoscope. (Lab. 3) Pre: concurrent enrollment in BME 362 or permission of instructor.

BME 391 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. (Independent Study)

BME 461 Physiological Modeling and Control LEC (3 crs.) Cross-listed as (BME), ELE 461. Principles of physiological modeling and control of linear and nonlinear systems, stability analysis, root locus, Bode plots, linearization. (Lec 3) Pre: ELE 314, or permission of instructor. Not for graduate credit.

BME 463 Biomedical Instrumentation Laboratory LAB (1 cr.) Development of a portable heart function monitor that measures the electrocardiogram and photoplethysmogram; embedded system design using instrumentation amplifier, op-amp, graphic LCD module, and PIC microprocessor with C programming. (Lab. 1) Pre: (ELE (205 or 208) and ELE 313 and 341) or permission of instructor. Not for graduate credit. Not open to students who have credit in ELE 562.

BME 464 Medical Imaging LEC (3 crs.) Engineering and clinical applications of medical imaging systems including X-ray, computed tomography, radioisotope imaging, ultrasound, magnetic resonance imaging; picture archiving and communication system and medical image processing. (Lec. 3) Pre: (BME 207 and 360 and ELE 313) or permission of instructor. Not for graduate credit. Not open to students who have credit in ELE 564.

BME 465 Medical Image Processing Laboratory LAB (1 cr.) Development of medical imaging processing algorithms with graphical user interface in C++ under the Windows operating system; smoothing and sharpening filters, morphological filters, area measurement and edge tracer. (Lab. 1) Pre: credit or concurrent enrollment in 464. Not for graduate credit. Not open to students who have credit in ELE 564.

BME 466 Biomaterials Engineering LEC (3 crs.) Cross-listed as (BME), CHE 466. A biomaterial is any material designed to interact with a biological system. This course will examine the structure, properties, and processing of biomaterials in a wide variety of biomedical applications. (Lec. 3) Pre: (CHM 124 or CHM 227 and MTH 244 or 362) or permission of instructor.

BME 468 Neural Engineering LEC (3 crs.) Principles and technologies of neuroengineering and clinical applications; brain stimulator, spinal cord stimulation, functional electrical stimulation (FES), neural-machine interface for motor prosthesis control, artificial visual/auditory devices for augmented sensory perception. (Lec. 3) Pre: BME 360 or permission of instructor. Not for graduate credit.

BME 473 Brain Signal Processing and Applications LEC (4 crs.) Presents advanced techniques in brain signal processing including time-frequency analysis (e.g., wavelet), spatial filters (e.g., Laplacian filters), data reduction techniques (e.g., PCA), and machine learning algorithms (e.g., LDA). (Lec. 3, Rec. 1) Pre: {(MTH 243 or equivalent), and (MTH 451 or STA 409 or ISE 311 or equivalent), and (ELE 314 or equivalent), and Matlab programming} or permission of instructor. Familiarity with topics in ELE 501, 506, and 509 is highly recommended.

BME 482 Biomedical Engineering Seminar III SEM (1 cr.) Seminar series given by instructor, invited experts, and students with focus on biomedical signals and systems, computers in medicine, technologies for health care, and biomedical ethics. (Seminar) Pre: (BME 207 or ELE 205 or 208) and ELE 313 and 342) or permission of instructor.

BME 484 Biomedical Engineering Capstone Design I LEC (3 crs.) Applications of engineering skills; team projects in biomedical areas such as neuroengineering, assistive technology, cardiopulmonary measurements, medical imaging, and modeling of physiological systems. First of a two-course sequence. (Lec. 2, Lab. 3) Pre: (BME 207 and 362) or permission of instructor. Not for graduate credit. (D1)

BME 485 Biomedical Engineering Capstone Design II LEC (2 crs.) Applications of engineering skills; team projects in biomedical areas such as neuroengineering, assistive technology, cardiopulmonary measurements, medical imaging, and modeling of physiological systems. (Lec. 1, Lab. 3) Second of a two-course sequence. Pre: BME 484 or permission of instructor. Not for graduate credit. (D1)

BME 491 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. (Independent Study) Not for graduate credit.

BPS | Biomedical and Pharmaceutical Sciences

BPS 101 Criminal Investigation I LEC Specialized techniques of crime scene investigation including firearms, arson, sexual assault and homicide. Examination of physical evidence such as firearms, bloodstains, glass and other trace evidence. Use of digital photography, computer software, alternate light sources, fluorescent powders and other chemical fingerprint techniques. Fingerprint comparisons. Court presentation.

BPS 102 Criminal Investigation II LEC Specialized techniques of crime scene investigation including firearms, arson, sexual assault and homicide. Examination of physical evidence such as firearms, bloodstains, glass and other trace evidence. Use of digital photography, computer software, alternate light sources, fluorescent powders and other chemical fingerprint techniques. Fingerprint comparisons. Court presentation.

BPS 136 The Oceans and Human Health LEC (3 crs.) Integrates chemistry, biology, toxicology and biogeochemistry to understand the relationship between the oceans and their effect on human health. (Lec. 3) (A1) (B2)

BPS 201 How Drugs Work LEC (3 crs.) Drug actions, uses, and adverse effects of prescription and non-prescription medications, recreational drugs, and nutritional supplements. General audience. (Lec. 3/Online) Open to all students except health science and related majors. (A1)

BPS 202 Maintaining Health in the Age of Chemicals LEC (2 crs.) Introduction for the general student to the potential hazards posed by drugs, food additives, and pollutants to the maintenance of health. (Lec. 2) Not for program credit for nursing or pharmacy majors in the third year or beyond.

BPS 203 Herbal Medicines and Functional Food LEC (3 crs.) Study of traditional herbal medicines, commonly used medicinal plants, and modern plant-derived drugs. Medicinal foods, herbal supplements, and plant extracts (nutraceuticals) for health benefits beyond basic nutrition. (Lec. 3) Intended for freshmen and sophomores. (A1) (B4)

BPS 204G Nanotechnology: It's a Small World LEC (3 crs.) Cross-listed as (BPS), CHE 204G. Introduction to fundamental concepts of nanotechnology and its applications, while also providing a basic understanding of the social and ethical implications of implementing nanotechnology in everyday life. (Lec. 3) (A1) (B4) (GC)

BPS 205G The Challenged Brain LEC (3 crs.) Cross-listed as (BPS), PSY 205G. Equips students with knowledge about ways that central nervous system functioning can be challenged either by disease, injury, or alternate ways of functioning. (Lec. 3) (A1) (B4) (GC)

BPS 206 Foundations of Cannabis Studies ONL (3 crs.) The history, regulation, and ethics related to cannabis use are explored. The endocannabinoid system and cannabinoid pharmacology are introduced. (Accelerated Online Program) Pre: Open to students in the cannabis studies certificate program or by permission of program director.

BPS 240 Introduction to Biomedical Research LEC (3 crs.) Cross-listed as (CMB) BPS 240. Provide a comprehensive introduction to biomedical research, and will emphasize best practices in experimental design, data management and analysis, biomedical career preparation, and computational skills development. (Lec., Online, Workshop) Pre: BIO 101 or BIO 110 or permission of instructor.

BPS 250 Professional Development and Careers in Pharmaceutical Science SEM (1 cr.) Seminar discussions for the purpose of developing understanding of the fields of study, potential careers within the broad area of Pharmaceutical Sciences and fostering career and employment readiness skills. (Seminar) Pre: Sophomore standing in BSPS program or permission of instructor.

BPS 301 Pharmaceutics I: Biopharmaceutics LEC (2 crs.) Application of kinetics to stability, dissolution, absorption, and other biopharmaceutical processes. Bioavailability and generic equivalence. (Lec. 2) Pre: BSPS majors with junior standing and above. CHE students by permission number only.

BPS 306 Essential Pharmacokinetic Concepts LEC (2 crs.) Designed for students who are interested in careers in the pharmaceutical industry but who do not wish to become specialists in pharmacokinetics. (Lec. 2) Pre: Third-year standing in the Bachelor of Pharmaceutical Science Program or permission of instructor.

BPS 312 Cannabis Chemistry and Pharmacognosy ONL (3 crs.) Natural products produced by the cannabis plant will be described along with methods for their extraction/purification. The genetic basis for strain variability and the entourage effect will be explored. (Accelerated Online Program) Pre: BPS 206.

BPS 313 Principles of Medicinal Chemistry LEC (2 crs.) Physico-chemical properties of drug molecules; and principles needed to understand chemical basis of pharmacology and therapeutics, pharmacophores for drugs used to treat disease, and structure-activity relationships of drug-target interactions. (Lec. 2) Pre: CHM 228 and BSPS majors with junior standing or above.

BPS 314 Cannabis Therapeutics ONL (3 crs.) Therapeutic effects of cannabis on various medical conditions will be investigated by exploring physiology, pathophysiology, and cannabinoid pharmacodynamics. Adverse effects, drug interactions, and other precautions will be examined. (Accelerated Online Program) Pre: BPS 206.

BPS 315 Pharmaceutics II LEC (4 crs.) Students will learn the physicochemical properties of drug molecules and excipients as well as formulation, manufacturing, and quality control of sterile and non-sterile solid, semi-solid, liquid and specialty dosage forms. (Lec. 4) Pre: open to Pharmaceutical Science Students, Chemical Engineering students in the pharmaceutical track, or other students with permission of the instructor.

BPS 316 Cannabis Product Development ONL (3 crs.) The process of developing safe, reliable cannabis products will be examined from plant material to finished product. Extraction, separation, and analytical techniques will be discussed followed by formulation and GMPs. (Accelerated Online Program) Pre: BPS 206

BPS 318 Pharmacy Technology Laboratory LAB (2 cr.) Prescription processing and compounding techniques for pharmaceutical dosage forms. (Lab. 3, Rec. 1) Pre: first-year Doctor of Pharmacy professional student or permission of instructor.

BPS 319 ADME-PK Fundamentals LEC (3 crs.) Fundamental principles of drug Absorption, Distribution, Metabolism, Excretion, and Pharmacokinetics (ADME-PK) including concepts, processes, mechanisms and calculations which control the concentration of therapeutically active drug in the plasma and at the site of action. Application of kinetics to dissolution, absorption, and other biopharmaceutical processes. Mechanisms of individual variation (pharmacogenetics, inhibitors, inducers, metabolism, transport). (Lec. 3) Pre: First-year standing in the Pharm.D. program. Students of other majors with permission of the instructor.

BPS 320 Dosage Forms LEC (3 crs.) The course will provide an introduction to the fundamental physicochemical principles governing the preparation and performance of sterile and non-sterile solid, semi-solid, liquid and specialty dosage forms. (Lec. 3) Pre: This course is open to first year Doctor of Pharmacy students. Students from other majors require permission of the instructor.

BPS 321 Introduction to the Principles of Pharmacology LEC (3 crs.) Fundamental principles of drug action with emphasis on drug-receptor interactions. Introduction to aspects of biochemistry, cell biology, cell signaling and cell and neuronal physiology important in the actions of drugs. (Lec. 3) Pre: BIO 101 or NEU 101 or instructor permission

BPS 325 Human Drug Metabolism LEC (2 crs.) Chemical, biochemical, genetic, clinical and pre-clinical aspects of drug metabolism. (Lec. 2) Pre: BPS 301 and BSPS majors with junior standing and above.

BPS 333 Nursing Pharmacology LEC (3 crs.) Comprehensive course in nursing pharmacology that forms the basis for therapeutics. (Lec. 3) Pre: NUR 213 and 234, or RN student status or permission of instructor.

BPS 337 Foundational Pharmaceutical Sciences I LEC (4 crs.) Fundamental principles of major targets of drug therapy: Enzymes, G-protein-coupled-receptors, Membrane transport proteins, Steroid receptors.Mechanisms of action and drug design of medications used to treat hypertension and dyslipidemia. (Lec. 4) Pre: First professional year Doctor of Pharmacy student.

BPS 338 Biomedical & Pharmaceutical Sciences II LEC (3 crs.) A clear understanding of the physiology, pathophysiology, pharmacology. toxicology, medicinal chemistry, pharmaceutics, and pharmacokinetics of medications used to treat the disease indications covered in the CTS I-VI sequence. (Lec. 3) Pre: Doctor of Pharmacy professional student, P1 standing.

BPS 340 Veterinary Pharmacology LEC (3 crs.) Cross-listed as (BPS), AVS 340. Principles of pharmacology including pharmacokinetics and pharmacodynamics, drug indications, usages and side effects, practical applications of drugs including drug handling, dosing calculation and administration methods. (Lec. 3) Pre: for AVS students: AVS 331 and 333 or permission of instructor; Pre: for BSPS and Pharm.D. students: 2nd or 3rd year standing.

BPS 345 Introduction to Pharmaceutical Research LEC (3 crs.) Provide students with the basic skills necessary for entering the research laboratory environment and provide education for laboratory safety, compliance, ethical issues, and experimental design/analysis. (Lec. 2, Lab. 1) Pre: BSPS or INP major and at least sophomore standing.

BPS 352 Personal Cosmetics LEC (3 crs.) Formulation and manufacture of various types of personal cosmetics and toilet preparations. Examples of types studied are prepared in laboratory. (Lec. 2, Lab. 3) Pre: first-year Doctor of Pharmacy professional student in good standing or permission of instructor.

BPS 401 Pharmaceutical Pharmacology I LEC (3 crs.) Mechanisms underlying both the therapeutic and toxic actions of currently available drugs including Autonomic and Central Nervous system agents and Cardiovascular system agents. First of 2-semester sequence. (Lec. 3) Pre: BSPS majors with junior standing or above, and BIO 222, and CMB 311. Not for graduate credit.

BPS 402 Pharmaceutical Pharmacology II LEC (3 crs.) Mechanisms underlying both the therapeutic and toxic actions of most currently available drugs including Cholinergic nervous system, Eicosanoids, Bronchodilators, Endocrine hormones, Antibiotics/antifungal/antivirals, Cancer chemotherapy, Anticoagulants, Dyslipidemia. Second of 2-semester sequence. (Lec. 3) Pre: BS Pharmaceutical Sciences major and BPS 401.

BPS 403 Pharmacokinetics I LEC (3 crs.) Pharmacokinetics of drug distribution, metabolism, and elimination. Compartmental models, pharmacokinetic modeling, development of dosage regimens. (Lec. 3) Pre: second-year Doctor of Pharmacy student in good standing; or permission of the instructor.

BPS 409 Foundations of Human Disease III: Infectious and Pulmonary Processes LEC (2 crs.) Cross-listed as (BPS), PHP 409. The etiology, pathogenesis, epidemiology, symptomatology, and diagnosis of infections and pulmonary diseases. (Lec. 2) Pre: second-year Doctor of Pharmacy student in good standing; or permission of the instructor

BPS 410 Foundations for Human Disease V: GI, Endocrine LEC (2 crs.) Cross-listed as (PHP), BPS 410. The etiology, pathogenesis, symptomatology, and diagnosis of endocrine, and gastrointestinal diseases. (Lec. 2) Pre: P3 standing in the Doctor of Pharmacy program.

BPS 411 Biostatistics II LEC (4 crs.) Cross-listed as (STA), PHP, BPS 411. An overview of statistical methods with applications to health-related studies. Chi-square tests, effect measures, analysis of variances, multiple comparison procedures, linear and logistic regression, some nonparametric and survival tests. (Lec. 3, Rec. 1) Pre: STA 307, or 308, or 409, or permission of instructor.

BPS 412 Foundations of Human Diseases: CNS LEC (2 crs.) Cross-listed as (PHP), BPS 412. The etiology, pathogenesis, epidemiology, symptomatology, and diagnosis of diseases of the central nervous and musculoskeletal system. (Lec. 2) Pre: Doctor of Pharmacy student in good standing or permission of instructor. Not for graduate credit.

BPS 415 Immunology and Immunotherapeutics LEC (3 crs.) Cross-listed as (BPS), PHP 415. The pathogenesis, etiology, epidemiology, symptomatology, and diagnosis and treatment of autoimmune diseases. The pharmacology and medicinal chemistry of anti-inflammatory, immunosuppressives, and solid-organ graft rejection medications. (Lec. 3) Pre: Second-year Doctor of Pharmacy student (P2) or permission of the instructor. Open to BSPS students.

BPS 418 Self-Care Therapeutics and Nonprescription Drugs 2 LEC (3 crs.) Cross-listed as (PHP), BPS 418. Continued development of self-care principles, foundational knowledge about use of self-care products, and integration of clinical reasoning skills in development of a self-care plan. (Lec. 3) Pre: second-year Doctor of Pharmacy Student; PHP 315.

BPS 420 Biotechnology Products in Pharmacy LEC (2 crs.) Cross-listed as (BPS), PHP 420. Clinical, pharmaceutical, and economic impact of biotechnology products in pharmacy, including monoclonal antibodies, interleukins, human growth factors, antigens oligonucleotides, DNase, and interferons. (Lec. 2)

BPS 421 Pharmacology and Medicinal Chemistry of Anti-infective and Respiratory Agents LEC (2 crs.) Chemistry, mechanism of action, sensitivity, resistance and toxicity of anti-infections drugs, and an overview of antibacterial, antifungal, antiviral, antiprotozoal, respiratory drugs, and vaccines in current use. (Lec. 2) Pre: second-year Doctor of Pharmacy student in good standing; or permission of instructor.

BPS 422 Endocrine, Gastrointestinal, and Biotechnologic Drugs LEC (2 crs.) Mechanisms of action of drugs used to treat endocrine and gastrointestinal disorders. Biological and biotechnologic sources, isolation, design, and medicinal chemistry of biopolymer drugs. (Lec. 2) Pre: second-year Doctor of Pharmacy student in good standing; or permission of the instructor.

BPS 425 GMPs in the Manufacture of Pharmaceutical Products LEC (3 crs.) Application of current Good Manufacturing Practices to the manufacture and quality control of various pharmaceutical products. (Lec. 3) Pre: BSPS majors with junior standing or above and BPS 315. CHE majors with permission number. Not for graduate credit.

BPS 426 cGMP Environmental Risks, Control and Monitoring LEC (3 crs.) Principles of clean room design and operations for the pharmaceutical and biotechnology industry. Reviews clean room operations and monitoring fundamentals. Monitoring and sampling will be performed in a cGMP environment. (Lec. 3) Pre: Concurrent enrollment in the BSPS, PharmD or other related programs. Alternatively, prior experience in the pharmaceutical or biotechnology industry. Not for graduate credit.

BPS 432 CNS Drug Pharmacology and Medicinal Chemistry LEC (2 crs.) The pharmacologic and biochemical action and side effects of drugs used to treat neurologic, psychiatric, and skeletal muscle system diseases. (Lec. 2) Pre: Doctor of Pharmacy student in good standing or permission of instructor. Not for graduate credit.

BPS 436 Psychotropic Drugs and Therapy LEC (3 crs.) Cross-listed as (BPS), PSY 436. Interaction of drug and non-drug therapy and of physiological and psychological origins of psychopathology. Intended for advanced undergraduate and graduate students interested in clinical psychology. (Lec. 3) Pre: any one of the following--BIO 101, 104B, 113, 121, PSY 381, or permission of instructor. Not for graduate credit.

BPS 437 Biomedical & Pharmaceutical Sciences III LEC (3 crs.) A clear understanding of the physiology, pathophysiology, pharmacology. toxicology, medicinal chemistry, pharmaceutics, and pharmacokinetics of medications used to treat the disease indications covered in the CTS I-VI sequence. (Lec. 3) Pre: Doctor of Pharmacy professional student. P2 standing. Not for graduate credit.

BPS 438 Biomedical & Pharmaceutical Sciences IV LEC (3 crs.) A clear understanding of the physiology, pathophysiology, pharmacology. toxicology, medicinal chemistry, pharmaceutics, and pharmacokinetics of medications used to treat the disease indications covered in the CTS I-VI sequence. (Lec. 3) Pre: Doctor of Pharmacy professional student. P2 standing. Not for graduate credit.

BPS 442 Pharmacogenetics and Pharmacogenomics LEC (3 crs.) Principles of how genetic and genomic factors contribute to individual variation in drug response and how these principles can be used to produce effective and safe drugs. (Lec. 3) Pre: CMB 311 and BPS 321.

BPS 443 Formulation and Manufacturing Laboratory LAB (2 crs.) Provides general principles and hands-on experience in the preformulation, formulation, manufacturing, and quality control fields that are necessary in design, formulation, compounding and manufacturing of drug dosage forms. (Lab. 4) Pre: BSPS majors with junior standing or above and BPS315.

BPS 445 Natural Product Drugs LEC (3 crs.) Discovery, development, biosynthesis and general fundamental properties of natural product drugs. (Lec. 3) Pre: CHM 228; CMB 201 or equivalent.

BPS 446 Biotechnology, Biologics, and Biosimilars LEC (3 crs.) Provides basic knowledge on medical biologics. Covers a full spectrum of topics from general concepts, biologics production, manufacture, safety evaluation, regulatory affairs, pharmacodynamics and pharmacokinetics to therapeutic applications. (Lec. 3) Pre: BIO 101 and CMB 311. Not for graduate credit.

BPS 450 Practical Tools for Molecular Sequence Analysis LEC (3 crs.) Cross-listed as (CMB), BPS 450. Introduction to practical ways to analyze DNA, protein and genome datasets. Students will be intro-

duced to computing environments and publicly available software tools for analysis. (Lec. 2, Lab. 2) Pre: CMB 311 or BIO 352 (or CMB 352) or BIO 341 or permission of instructor. Not for graduate credit.

BPS 451 Techniques in Medicinal Chemistry and Molecular Biology LEC (4 crs.) Provides students with an understanding of medicinal chemistry, molecular biology, and drug analysis techniques commonly used in pharmaceutical industry. The course combines laboratory exercises with easy-to-understand lectures. (Lec. 3, Lab. 4) Pre: BSPS majors with senior standing.

BPS 455 Protein Molecular Modeling for Biomedical Sciences LEC (3 crs.) Cutting edge computer software to study the 3D-structure of proteins/RNA/DNA of biomedical interest. Application of course topics will be required via case study or research project. (Lec. 3) Pre: CMB 311 and CHM 227. Not for graduate credit.

BPS 460 Pharmaceutical Science Internship/Field Experience PRA (0, 3, 6, 9, or 12 crs.) Undergraduate BS Pharmaceutical Science majors completing approved Off Campus Experience. Fall, Spring, or Summer Semester. Registration is by permission number only. (Practicum) Pre: Permission number required. May be repeated for a maximum of 12 credits. Not for graduate credit. S/U only.

BPS 497 Special Problems IND (1-5 crs.) Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Independent Study) Pre: permission of chairperson. Not for graduate credit.

BPS 498 Special Problems IND (1-5 crs.) Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Independent Study) Pre: permission of chairperson. Not for graduate credit.

BPS 503 Pharmacokinetics and Pharmacodynamics for Scientists LEC (3 crs.) Presents the principles of pharmacokinetics and pharmacodynamics with specific emphasis on their application in pharmaceutical science. Pre: MTH 131.

BPS 504 Pharmacokinetics II LEC (3 crs.) Applied pharmacokinetics, principles of clinical pharmacology, therapeutic drug monitoring and dose individualization. (Lec. 3) Pre: BPS 403, third-year Doctor of Pharmacy student in good standing; or permission of the instructor. Offered every fall semester.

BPS 519 Self-Care II LEC (3 crs.) Cross-listed as (PHP), BPS 519. Expansion of nonprescription and complementary medicine therapeutics. Explore the implementation of pharmaceutical care programs in community pharmacy practice. (Lec. 3) Pre: PHP 418 (or BPS 418); third-year Doctor of Pharmacy professional student.

BPS 521 Cancer Chemotherapy and Toxicology LEC (3 crs.) Pharmacology and medicinal chemistry of oncology drugs. Principles of toxicology. (Lec. 3) Pre: third-year Doctor of Pharmacy student in good standing, or permission of the instructor.

BPS 525 Experimental Techniques in Biomedical Sciences LAB (4 crs.) Provides experience with a variety of techniques used in biomedical science research, including HPLC, NMR, polarimetry, biotransformations, solid-phase synthesis, cell fractionation, and isolation and purification of proteins. (Lab. 4)

BPS 526 Foundations of Human Disease VI: Hematology-Oncology LEC (2 crs.) Cross-listed as (PHP), BPS 526. The etiology, pathogenesis, symptomatology, and diagnosis of hematology and oncology diseases in people. Introduction to pharmacogenomics, gene-drug interactions, and genetic therapy in human disease. (Lec. 2) Pre: third-year Doctor of Pharmacy professional student standing. Taken concurrently with BPS 521 and PHP 513. Not for graduate credit.

BPS 530 Drug Metabolism LEC (3 crs.) Mechanisms of Phase 1 (oxidation, reduction, hydrolysis) and Phase 2 (conjugations and synthesis) of drug metabolism. (Lec. 3) Pre: CMB 581 or permission of instructor. Offered every spring.

BPS 533 Medicinal Plants LEC (3 crs.) Problems in drug plant chemotaxonomy with field work in the drug plant gardens. Emphasis is placed on certain alkaloid, glycoside and oil-yielding plants, weedicides and insecticides as related to measures for control. (Lec. 2, Lab. 3) Pre: third-year Doctor of Pharmacy student in good standing, or permission of the instructor.

BPS 535 Pharmaceutical Biotechnology LEC (3 crs.) Introduction to pharmaceutical biotechnology, including drug design, DNA sequencing, cloning, recombinant proteins, monoclonal antibodies, and drug-screening techniques. (Lec. 3) Pre: CMB 581 or permission of instructor.

BPS 536 Biotechnology Product Evaluation and Development LEC (3 crs.) Cross-listed as (MLS 571), BPS 536. The process through which candidate products produced using recombinant DNA technology are evaluated for safety and efficacy, including conductance of clinical trials, economic issues, and regulatory affairs. (Lec. 3/Online) Pre: graduate standing and permission of chairperson.

BPS 540 Advanced Drug Delivery Systems LEC (3 crs.) Cross-listed as (BPS), CHE 540. The course will present the design and principles of advanced drug delivery systems, which have specified drug delivery profiles and significant advantages in therapeutics over conventional dosage forms. (Lec. 3) Pre: Graduate standing or BPS 315.

BPS 542 Bioinformatics I LEC (3-4 crs.) Cross-listed as (CSC), STA, CMB 522, BPS 542. Integrates computing, statistical, and biological sciences, algorithms, and data analysis/management. Multidisciplinary student research teams. Modeling dynamic biological processes. Extra project work for 4 credits. (Lec. 3, Project 3) Pre: major in a computing, statistical, or biological science or permission of instructor.

BPS 544 Forensic Toxicology LEC (3 crs.) Theoretical and practical aspects of poisoning including the isolation and identification of toxic materials from pharmaceuticals, body fluids, and tissues. Isolation and identification of physiological fluids from stains, hairs, and tissue with application to forensic medicine. (Lec. 2, Lab. 3) Pre: permission of instructor.

BPS 545 Applied Toxicology LEC (2 crs.) A two-credit lecture course dealing with cases of common toxic syndromes caused by drug overdose or exposure to environmental agents.Antidotes/patient decontamination measures will be surveyed. patient case studies will be discussed. (Lec. 2) Pre: BPS 322, 455, 521 or permission of instructor.

BPS 546 Advanced Toxicology LEC (3 crs.) Toxic effects of selected drugs and other xenobiotics on physiological and biochemical processes. (Lec. 3) Pre: permission of instructor. Offered every third year.

BPS 550 Practical Tools for Molecular Sequence Analysis LEC (3 crs.) Cross-listed as (CMB), BPS 550. Students will be introduced to practical ways to analyze DNA, protein and genome datasets. Students will be introduced to computing environments and publicly available software tools for analysis. Pre: CMB 311 or BIO/CMB 352 or BIO 341 or permission of instructor.

BPS 551 Chemistry of Natural Products LEC (3 crs.) Introduction to chemistry of certain groups of natural products especially in relation to their chemotaxonomic position in plant classification. Topics limited to secondary metabolites; e.g., terpenoids, phenolic compounds, aromatic compounds, phytosterols, alkaloids. (Lec. 3) Pre: CHM 228 and CHM 230. In alternate years.

BPS 552 Advanced Medicinal Chemistry LEC (3 crs.) Covers didactic topics of medicinal chemistry: Drug Discovery, Design, and Development; Drug-Receptor Interactions; Mechanisms of Enzyme Catalysis and Cofactors; Enzyme Inhibition and Inactivation; DNA Interactive Agents; Drug Metabolism; Prodrugs and Drug Delivery Systems. Pre: Introductory Organic Chemistry and permission of instructor.

BPS 553 (550) Bionanotechnology LEC (3 crs.) Cross-listed as (CHE), BPS 553. Principles and applications of bionanotechnology. Intermolecular forces, self-assembly, biomolecular structure, biological processes, molecular manufacturing, and surface functionalization for designing biodevices and nanomaterials. Overview of current and emerging technologies, safety and ethics. (Lec. 3) Pre: Graduate standing; or BPS 315 and CHM 112.

BPS 555 Protein Molecular Modeling for Biomedical Sciences LEC (3 crs.) Cutting edge computer software to study the 3D-structure of

proteins/RNA/DNA of biomedical interest. Application of course topics will be required via a research project to create new knowledge. (Lec. 3) Pre: graduate standing.

BPS 557 Modern Spectroscopic Techniques in Drug Discovery LEC (3 crs.) Introduces spectroscopic techniques needed to understand data from contemporary biomedical science research, especially macromolecular NMR spectroscopy. Focused on developing data interpretation skills, and the ability to critically evaluate current practices. (Lec. 3) CHM 227 or equivalent, or permission of instructor. Open to undergraduates in Chemistry and BSPS program at the junior and senior levels.

BPS 560 Fundamentals of Cosmetic Science LEC (3 crs.) Study of the fundamentals of the function and behavior of skin, hair, and nails and their reactivity to cosmetic raw materials. Properties of cosmetic ingredients will also be addressed. (Lec. 3) Pre: permission of instructor.

BPS 561 Basic Research in Cosmetic Science LAB (2 crs.) Laboratory exercises in the form of individual projects designed to provide an understanding of the basic properties and behavior of skin, hair, and nails. Assessment of cosmetic product performance and the basic properties of cosmetic ingredients. (Lab. 2) Pre: permission of instructor.

BPS 562 Cosmetic Product Formulation LAB Provides a basic understanding of cosmetic products, technology, and quality control; improves formulation skills with a particular emphasis on the application of new technological developments in cosmetic preparation. (Lab. 2) Pre: permission of instructor.

BPS 565 Pharmacokinetics LEC (3 crs.) The principles and application of clinical pharmacokinetics for advanced pharmacy students. Developing, modifying, and evaluating dosage regimens. (Lec. 3)

BPS 572 Neural Bases of Drug Action LEC (3 crs.) Review of neuroanatomy, neurochemistry, and neurophysiology as they relate to drug action. (Lec. 3) Pre: BPS 446 or equivalent or permission of instructor. Offered every third year.

BPS 587 General Pharmacology LEC (3 crs.) An introduction to principles of pharmacology and major drug categories, for graduate students and advanced undergraduate students in biological sciences. (Lec. 3) Pre: permission of instructor

BPS 597 Special Problems IND (1-3 crs.) Special graduate student project assignments in research under the supervision of faculty. (Independent Study) Pre: graduate standing. May be repeated for a maximum of 6 credits.

BPS 598 Special Problems IND (1-3 crs.) Special graduate student project assignments in research under the supervision of faculty. (Independent Study) Pre: graduate standing. May be repeated for a maximum of 6 credits.

BPS 621 Manufacturing Pharmacy I LEC Theory and practice in the manufacture of pharmaceuticals and the principles of operation of the equipment used for their production. (Lec. 2) In alternate years.

BPS 622 Manufacturing Pharmacy II LEC (3 crs.) Theories applied to the manufacture of pharmaceuticals with an emphasis on formulation considerations and principles of operation of equipment used for their production. (Lec. 3) Pre: BPS 621. In alternate years.

BPS 623 Manufacturing Pharmacy Laboratory LAB (2 crs.) Practical application of the principles of all aspects of dose-form manufacture, including an emphasis on good manufacturing practices. (Lab.) Pre: credit or concurrent enrollment in 622.

BPS 625 Advanced Physical Pharmacy LEC (4 crs.) Theory and application of physical chemical principles to problems in pharmaceutical research, with emphasis on methods by which properties of new medicinal agents are determined. (Lec. 4) Pre: permission of instructor.

BPS 626 Advanced Physical Pharmacy Laboratory LAB (1 cr.) Laboratory exercises dealing with the physical-chemical principles used in the evaluation of pharmaceutical substances. (Lab. 4) Pre: permission of instructor.

BPS 633 Biosynthesis LEC (3 crs.) Biogenesis of medicinally active principles of biological origin. Emphasis given to organic acids, polysaccharides, glycosides, steroids, and certain nitrogenous compounds. (Lec. 3) In alternate years.

BPS 635 Pharmacognosy Techniques LEC (3-4 crs.) Physical and chemical factors influencing growth and development of active principles of drug plants. Certain biological analyses of results are performed. (Lec. 1, Lab. 6-9)

BPS 636 Pharmacognosy Techniques LEC (3-4 crs.) Physical and chemical factors influencing growth and development of active principles of drug plants. Certain biological analyses of results are performed. (Lec. 1, Lab. 6-9)

BPS 641 Biochemical Pharmacology LEC (3 crs.) Theory and application of pharmacological studies at the cellular and subcellular levels and their significance to drug action in the intact organism. (Lec. 2, Lab. 3) Pre: permission of instructor. Offered every third year.

BPS 642 Biochemical Toxicology LEC (3 crs.) Cross-listed as (BPS), CMB 642. Biochemical and molecular aspects of chemically induced cell injury and chemical carcinogenesis. (Lec. 3) Pre: permission of instructor. Offered every third year.

BPS 644 Cardiovascular Pharmacology LEC (3 crs.) Cellular mechanisms of drug action as a basis for understanding therapeutic effects. Emphasis on current developments in antihypertensive, antiarrhythmic, antianginal, and cardiotonic drug research. (Lec. 3) Pre: permission of instructor. Offered every third year.

BPS 660 Industrial Project (Pharmaceutics) LAB (3 crs.) A research project directed by the major professor on a topic in industrial pharmacy. A report must be submitted to the department faculty. The project will normally be conducted off campus. (Lab.) Pre: graduate standing in pharmaceutics.

BPS 670 Advanced Pharmacokinetics LEC (3 crs.) Application of classical compartmental and noncompartmental analyses to pharmacokinetics and pharmacodynamics emphasizing the use of PKPD analysis employed in the pharmaceutical industry. Pre: BPS 403 or permission of instructor. Graduate standing or in good standing in the P2-P4 years of the Pharm.D. curriculum.

BPS 691 Selected Topics in Medicinal Science LEC (3 crs.) Covers the following special research topics of interest: (a) heterocyclic chemistry, (b) nucleoside antibiotics, (c) prodrugs and isosteres, (d) nucleosides and nucleotides-synthesis and biological function, and (e) nucleic acid targeted drug design. (Lec. 3) Pre: permission of instructor. May be repeated for a maximum of 9 credits.

BPS 697 Research in Biomedical and Pharmaceutical Sciences IND (1-3 crs.) Literature survey, laboratory work, and a detailed research report on one or more assigned topics. (Independent Study)

BPS 698 Research in Biomedical and Pharmaceutical Sciences IND (1-3 crs.) Literature survey, laboratory work, and a detailed research report on one or more assigned topics. (Independent Study)

BTC | Biotechnology

BTC 102 Biotechnology Internship Preparation Seminar SEM (1 cr.) Speakers from the Biotech industry will inform students about current research and issues. Students will be able to network for internship placement with speakers. (Seminar) Pre: Biotechnology student

BTC 110 (CMB) Introduction to Biotechnology LEC (4 crs.) Introduction to the field of biotechnology including historical development, current technologies and future trends. Molecular and genetic principles and processes used to manipulate living organisms and their products are discussed. (Lec. 3, Lab. 1) Pre: BIO 101 and 103 or concurrent enrollment.

BTC 195 (MLS) Biotechnology Manufacturing Methods LEC (5 crs.) Introduction to biotechnology manufacturing methods including cell culture separation, purification. (Lec. 3, Lab. 4) Pre: enrollment in biotechnology manufacturing option.

BTC 199 (MLS) Biotechnology Manufacturing Internship PRA (1-12 crs.) Professional field experience in biotechnology manufacturing. The experience will be defined by a job description and learning contract arranged by the internship coordinator, student intern and relevant agency. (Practicum) Pre: enrollment in the biotechnology manufacturing option. May be repeated for a maximum of 12 credits.

BTC 405 (CMB) Drug Discovery and Development LEC (3 crs.) This course describes the processes underlying therapeutic drug development for the safe and efficacious treatment of human diseases such as cancer, AIDS, thrombosis and others. (Lec. 3) Pre: BTC (CMB) 110, CMB 211 and 311.

BUS | Business

BUS 601 Practicum In Business Teaching PRA (1 cr.) Course involves training and experience in teaching undergraduate business courses under the supervision of a full-time faculty member. Participation in the instructional development program is an essential component of the class. (Practicum) Pre: enrollment in Ph.D. program in business administration and permission of Ph.D. program director. S/U only. May be repeated.

BUS 602 Doctoral Colloquium in Business Research LEC (1 cr.) Course involves presenting the results of at least one piece of original research to faculty and other Ph.D. candidates. When not presenting, students are expected to play an active role in critiquing the presented research. (Lec. 1) Pre: permission of Ph.D. program director. S/U only. May be repeated.

BUS 603 Special Problems in Business Research LEC (1-6 crs.) Advanced research and writing of theoretical and empirical papers in business administration in the student's area of specialization under the supervision of a faculty advisor. All doctoral students in Phase II of the doctoral program in business administration who have completed their course work must register for this course. Pre: permission of Ph.D. Program Director. S/U only. May be repeated.

CCJ | Criminology and Criminal Justice

CCJ 200 Topics in Criminology & Criminal Justice LEC (3 crs.) Critical study of selected topics. Subject will vary according to the expertise and availability of instructors. May be repeated, with different topic, up to 6 credits. (Lec. 3) Pre: CCJ/SOC 230 and CCJ/SOC/PSC 274, or permission of instructor.

CCJ 230 Crime and Delinquency LEC (3 crs.) Cross-listed as (SOC), CCJ 230. Survey of the extent, distribution, trends and costs of delinquency and crime in the United States; examination of selected types of crime and delinquency; policy implications. (Lec. 3/Online) (A2)

CCJ 230H Honors Section of SOC/CCJ 230: Crime and Delinquency LEC (3 crs.) Honors Section of SOC/CCJ 230: Crime and Delinquency. Cross-listed as (SOC), CCJ 230. Survey of the extent, distribution, trends and costs of delinquency and crime in the United States; examination of selected types of crime and delinquency; policy implications. (Lec. 3/Online) (A2)

CCJ 274 Criminal Justice System LEC (3 crs.) Cross-listed as (CCJ), PSC 274. The American system of criminal justice, general processing of cases, principal actors, study of theories of criminal law, and pretrial detention and sentencing. (Lec. 3/Online)

CCJ 274H Honors Section of CCJ/PSC 274: Criminal Justice System LEC (3 crs.) Honors Section of CCJ/PSC 274: Cross-listed as (CCJ), PSC 274H. The American system of criminal justice, general processing of cases, principal actors, study of theories of criminal law, and pretrial detention and sentencing. (Lec. 3/Online) Pre: 3.40 or higher overall GPA.

CCJ 280 (330) Introduction to Policing LEC (3 crs.) Examines the development and history of policing as an institution. Other topics include police functions, legal issues, the role of discretion, use of force and accountability, and current policing issues. (Lec. 3/Online) Pre: CCJ major, C or better in CCJ/PSC 274, or permission of instructor.

CCJ 331 (SOC) Punishment and Corrections LEC (3 crs.) Overview and analysis of key societal forces shaping penal practices, with an emphasis on the U.S. Topics include histories/theories of punishment, carceral institutions, extreme punishments, community corrections, and collateral consequences. (Lec. 3) Pre: SOC or CCJ major, C or better in CCJ/PSC 274 and SOC/CCJ 230, and junior or senior standing, or permission of instructor.

CCJ 332 (SOC) Juvenile Justice LEC (3 crs.) A comprehensive look at the juvenile justice system in the United States. Topics include police work, pretrial procedures, court and correctional systems, treatment programs, and issues of inequality. (Lec. 3) Pre: SOC or CCJ major, C or better in CCJ/PSC 274 and SOC/CCJ 230, and junior or senior standing or permission of instructor.

CCJ 333 Ethics in Criminal Justice LEC (3 crs.) An overview of the study of ethics in criminal justice. Students will explore the concepts of ethical thought and decision making in the contexts of criminal justice professions and practices. (Lec. 3) Pre: SOC or CCJ major, C or better in CCJ/PSC 274 and SOC/CCJ 230, and junior or senior standing, or permission of instructor.

CCJ 370 (SOC) Theories of Crime and Delinquency LEC (3 crs.) Historical development of criminological theory; examination of the major sociological and social psychological theories of crime, criminality and delinquency; evaluation of competing theories. (Lec. 3) Pre: SOC or CCJ major, C or better in CCJ/PSC 274 and SOC/CCJ 230, and junior or senior standing or permission of instructor.

CCJ 400 Advanced Topics in Criminology & Criminal Justice SEM (3 crs.) Critical study of selected advanced topics. Subject will vary according to the expertise and availability of instructors. May be repeated, with different topic, up to 6 credits. (Seminar) Pre: C or better in CCJ/PSC 274 and SOC/CCJ 230; CCJ (SOC) 370, and junior/senior status, or permission of instructor. Not for graduate credit.

CCJ 403 (SOC) Gender, Crime, and Justice SEM (3 crs.) Gender differences in the extent and nature of crime and delinquency; sociological explanations of the gender differences in crime and delinquency; gender differences in formal and informal social control. (Seminar) Pre: C or better in CCJ/PSC 274 and SOC/CCJ 230, at least 18 credits in CCJ major (including CCJ 370 and research course) or permission of instructor. Not for graduate credit. (D1) (B1)

CCJ 410 (SOC) Race, Crime, and Justice SEM (3 crs.) Examination of the involvement of selected racial and ethnic groups in crime, both as victims and offenders; disparity and discrimination in the criminal justice system. (Seminar) Pre: SOC or CCJ major, C or better in CCJ/PSC 274 and SOC/CCJ 230, at least 18 credits in CCJ major (including research course) or permission of instructor. Not for graduate credit. (D1) (B1)

CCJ 450 (SOC) White Collar Crime SEM (3 crs.) An examination of white collar crime; its types, causes, consequences, and legal and public policies designed to control it. Topics include occupational, corporate, political and human rights crimes. (Seminar 3/Online) Pre: Open only to juniors and seniors; C or better in CCJ/PSC 274 and SOC/CCJ 230.

CCJ 476 Policy, Crime, and Justice SEM (3 crs.) Cross-listed as (CCJ), PSC 476. Examination of current and proposed criminal justice policies in light of social science theory and research, including capital punishment, community policing, gun control, intermediate sanctions, legalization of drugs, mandatory sentencing, privatization of prisons, restorative justice. (Seminar) Pre: SOC or CCJ major; C or better in CCJ/PSC 274 and SOC/CCJ 230; at least 18 credits in CCJ major (including research course) or permission of instructor. Not for graduate credit. (D1) (B1)

CCJ 480 Critical Issues In Policing SEM (3 crs.) In-depth examination of policing issues in the U.S. Topics include history of policing, legitimacy, use of force, misconduct and accountability, policing vulnerable populations, and current controversies. (Seminar) Pre: C or better in CCJ 280 or 330 and junior standing or permission of instructor.

CCJ 485 Independent Study IND (3-6 crs.) Advanced work in criminology and/or criminal justice under the discretion of a faculty member. Students may use 3 credits in place of a CCJ elective course, with the approval of the Program Director. Additional credits may be taken and counted toward graduation and upper level requirements. (Independent Study) Pre: Permission of instructor.

CHE | Chemical Engineering

CHE 204G Nanotechnology: It's a Small World LEC (3 crs.) Cross-listed as (BPS), CHE 204G. Introduction to fundamental concepts of nanotechnology and its applications, while also providing a basic understanding of the social and ethical implications of implementing nanotechnology in everyday life. (Lec. 3) (A1) (B4) (GC)

CHE 212 Chemical Process Calculations LEC (3 crs.) Orientation to chemical and biological engineering, material and energy balance computations on chemical processes, use of gas laws, vapor pressure, humidity, solubility, and crystallization. (Lec. 3) Pre: CHM 112 or 192 or permission of instructor.

CHE 213 (313) Chemical Engineering Thermodynamics I LEC (3 crs.) Applications of the first, second, and third laws of thermodynamics involving thermophysics, thermochemistry, energy balances, combustion, power cycles, refrigeration and properties of pure fluids. (Lec. 2, Lab. 3) Pre: C- or better in CHE 212 and credit or concurrent enrollment in MTH 243, or permission of instructor.

CHE 232 Materials Science and Engineering LEC (3 crs.) Fundamentals of physical metallurgy as they apply particularly to the engineering metals and their alloys. Properties, characteristics, and structure of metals, theory of alloys, thermal processing, and studies in corrosion. (Lec. 2, Lab. 3) Not open to students with credit in CHE 333. Pre: CHM 101, 103, or 191, or permission of instructor.

CHE 272 Introduction to Chemical Engineering Calculations LEC (3 crs.) Introduction to the use of computers and numerical methods, including numerical solution of differential equations as applied to chemical and biological engineering. (Lec. 3) Pre: C- or better in CHE 212 and credit or concurrent enrollment in MTH 243 or permission of instructor.

CHE 314 Chemical Engineering Thermodynamics II LEC (3 crs.) Continuation of CHE 313 with applications to thermodynamics of mixtures, phase and chemical equilibria. (Lec. 2, Lab. 3) Pre: C- or better in CHE 313 or permission of instructor.

CHE 322 Chemical Engineering Microlaboratory LAB (2 crs.) Use of microprocessors, A/D and D/A converters, sensors, and control hardware to analyze and control laboratory-scale processes. (Lab. 6) Pre: credit or concurrent enrollment in 348.

CHE 333 Engineering Materials LEC (3 crs.) First course in engineering materials devoted largely, but not exclusively, to physical metallurgy. Includes structure and properties of pure substances and binary systems at equilibrium and, when used intentionally, at nonequilibrium. (Lec. 2, Lab. 3) Pre: junior standing or permission of instructor. Not open to students with credit in CHE 232.

CHE 347 Transfer Operations I LEC (3 crs.) Dimensional analysis; fluid statics; mass, energy, and momentum balances for fluid systems, boundary layers, turbulence, incompressible flow; flow through fixed beds of solids and fluidized beds; filtration. (Lec. 3) Pre: MTH 243 or permission of instructor.

CHE 348 Transfer Operations II LEC (3 crs.) Heat and mass transfer: conduction, convection, radiation, diffusion, transport analogies and equipment design. Biological applications and some separations are covered. (Lec. 2, Lab. 3) Pre: CHE 347 or permission of instructor.

CHE 364 Chemical Kinetics and Reactor Design LEC (3 crs.) Mole balances in batch and continuous chemical reactors; reaction rate fundamentals; isothermal and non-isothermal chemical reactors. (Lec. 3) Pre: C- or better in CHE 212 and credit in CHE 314, or permission of instructor.

CHE 425 Process Dynamics and Control LEC (3 crs.) Principles involved in automatic control of processing plants. Modeling and responses of dynamic systems, feedback control. (Lec. 3) Pre: MTH 243, CHE 464, and credit or concurrent enrollment in CHE 347 or MCE 354 or permission of instructor. Not for graduate credit.

CHE 428 (328) Professional Experience SEM (1 cr.) Mandatory CHE seminar attendance and written reports. Plant trips may be included. (Seminar 3) Pre: CHE 348 or permission of instructor.

CHE 438 Failure Analysis and Prevention LEC (3 crs.) Failure analysis of engineering components. Examples of overload, fatigue, creep, corrosion, and electrical failures in metals, glasses, ceramics, composites, polymers, concrete, and semiconductors. Case studies, microscopic techniques, and prevention are emphasized. (Lec. 3) Pre: CHE 232 or 333.

CHE 445 (345) Chemical Engineering Laboratory LAB (2 crs.) Quantitative studies illustrating chemical engineering principles. Emphasis on report writing and the interpretation of experimental data. (Lab. 6) Pre: CHE 348 or permission of instructor. Not for graduate credit.

CHE 446 (346) Chemical Engineering Laboratory LAB (2 crs.) Quantitative studies illustrating chemical engineering principles. Emphasis on report writing and the interpretation of experimental data. (Lab. 6) Pre: CHE 348 or permission of instructor. Not for graduate credit.

CHE 449 (349) Transfer Operations III LEC (3 crs.) Theory, design and application of separation processes with a focus on equilibrium stage operations. Integrated processes and new technologies will be examined. (Lec. 3) Pre: CHE 348 or permission of instructor.

CHE 451 (351) Plant Design and Economics I LEC (3 crs.) Elements of plant and process design integrating the principles learned in previous courses. Emphasis is on optimum economic design and the writing of reports. (Lec. 1, Lab. 6) Pre: CHE 314 and CHE 348 and co-requisite of CHE 449, or permission of instructor. Not for graduate credit.

CHE 452 Plant Design and Economics II LEC (3 crs.) Elements of plant and process design integrating the principles learned in previous courses. Emphasis is on optimum economic design and the writing of reports. (Lec. 1, Lab. 6) Pre: CHE 364, 425, 449 (349), and 451 (351), or permission of instructor. (D1) (C2)

CHE 466 Biomaterials Engineering LEC (3 crs.) Cross-listed as (BME), CHE 466. A biomaterial is any material designed to interact with a biological system. This course will examine the structure, properties, and processing of biomaterials in a wide variety of biomedical applications. (Lec. 3) Pre: (CHM 124 or CHM 227 and MTH 244 or 362) or permission of instructor.

CHE 471 Nuclear Reactor Engineering LEC (3 crs.) Cross-listed as (MCE), CHE, NUE 471. Energy production from nuclear reactions, cross sections, number density, and binding energy. Fission process, neutron life cycle, criticality, neutron diffusion, reactor design, reactor kinetics and control, reactivity feedback, nuclear system design. (Lec. 3) Pre: MTH 244 or permission of instructor.

CHE 472 Power Plant System Design and Safety Analysis LEC (3 crs.) Cross-listed as (MCE), CHE, NUE 472. Energy production, power systems, energy conversion system design, safety engineering and design, phenomenological modeling and analysis, probabilistic risk assessment, risk-informed design, advanced power plant systems design. (Lec. 3) Pre: MCE 341 or CHE 313 or permission of instructor.

CHE 473 Nuclear Fuel Cycle and Performance LEC (3 crs.) Cross-listed as (CHE), MCE, NUE 473. Analysis and design of stages of the nuclear fuel cycle including mining, milling, conversion, enrichment, fuel fabrication, fuel burn-up, spent fuel interim storage, reprocessing, safety and aspects of high level waste. (Lec. 3/Online) Pre: MTH 244 or permission of instructor.

CHE 474 Nuclear Reactor Thermal-Hydraulics LEC (3 crs.) Cross-listed as (CHE), MCE, NUE 474. Nuclear heat generation, decay heat, heat transport, and conductive, convective, and phase change heat removal in nuclear reactor systems. (Lec. 3) Pre: MCE/CHE/NUE 471. Not for graduate credit.

CHE 476 Materials in Nuclear Applications LEC (3 crs.) Cross-listed as (MCE), CHE 476. Nuclear power systems, material microstructure, reactor core neutron-material interactions, radiation damage events, radiation damage effects, reactor materials selection. (Lec. 3) Pre: CHE 232 or 333, or permission of instructor.

CHE 491 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. CHE 491 and 492 may be repeated for a maximum of 12 credits, of which a total of 6 credits can be applied to professional electives. Not for graduate credit in chemical engineering.

CHE 492 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. CHE 491 or 492 may be repeated for a maximum of 12 credits, of which a total of 6 credits can be applied to professional electives. Not for graduate credit in chemical engineering.

CHE 501 Graduate Seminar SEM (1 cr.) Seminars presented by speakers from academia and industry. (Seminar) Required of all graduate students, with a maximum of 1 credit per year allowed. May be repeated for a maximum of 2 credits. S/U credit.

CHE 502 Graduate Seminar SEM (1 cr.) Seminars presented by speakers from academia and industry. (Seminar) Required of all graduate students, with a maximum of 1 credit per year allowed. May be repeated for a maximum of 2 credits. S/U credit.

CHE 503 Dynamics of Chemical Engineering Applications LEC (3 crs.) Emphasizes analytical and/or numerical techniques commonly used in analysis arising from classical chemical engineering applications; necessary for understanding more complex problems.

CHE 513 Advanced Chemical Engineering Thermodynamics I LEC (3 crs.) Applications of the first, second, and third laws of thermodynamics and their relation to chemical engineering processes. Emphasis on properties of fluids, chemical and physical equilibria, phase stability, and polymers. (Lec. 3) Pre: CHE graduate standing, or CHE 313 and CHE 314 or their equivalent, or permission of instructor. In alternate years.

CHE 529 Polymer Experimental Methods LEC (3 crs.) Theory and practice of experimental methods used to characterize and process polymer systems. Characterizations include chemical, thermal, and mechanical analysis. Lectures discuss methods beyond those applied in lab. (Lec. 2, Lab. 2) Pre: permission of instructor.

CHE 530 Polymer Chemistry LEC (3 crs.) Molecular weight distribution, polymer synthesis, chain conformation, solution properties and phase behavior, and characterization techniques. (Lec. 3) Pre: CHM 228 and CHE 232 or permission of instructor. In alternate years.

CHE 531 Polymer Engineering LEC (3 crs.) Glass and crystalline transitions, viscoelasticity, time-temperature superposition, polymer processing, and mechanical properties of plastics, fibers, and elastomers. (Lec. 3) Pre: CHE 348 or MCE 448 or permission of instructor. In alternate years.

CHE 532 Ceramic Engineering LEC (3 crs.) Properties of ceramic materials as related to starting materials and forming, densification, and finishing processes. Emphasis on resulting phases and microstructure. Application of physical and chemical principles to tailor properties to engineering needs. (Lec. 3) In alternate years.

CHE 534 Corrosion and Corrosion Control LEC (3 crs.) Cross-listed as (CHE), OCE 534. Chemical nature of metals, electrochemical nature of corrosion. Types of corrosion, influence of environment, methods of corrosion control. Behavior of engineering materials in corrosion with emphasis on industrial and ocean environments. (Lec. 3) Pre: permission of instructor.

CHE 537 Advanced Materials Engineering LEC (3 crs.) Engineering properties, molecular design, and applications of materials. Synthesis, fabrication, and processing of materials. Effects of environment on materials, materials products, devices, and systems. (Lec. 3) Pre: 437 and PHY 341.

CHE 539 Electron and Light Microscopy of Solids LEC (3 crs.) Theory and physical principles governing the design and use of light and electron optical systems in identification, analysis, and structural characterization of metals, ceramics, polymers, glasses, and composites. Emphasis on polarized light and scanning electron microscopy. (Lec. 3)

CHE 540 Advanced Drug Delivery Systems LEC (3 crs.) Cross-listed as (BPS), CHE 540. The course will present the design and principles of advanced drug delivery systems, which have specified drug delivery profiles and significant advantages in therapeutics over conventional dosage forms. (Lec. 3) Pre: Graduate standing or BPS 315.

CHE 541 Transport Phenomena I LEC (3 crs.) Analysis of transport processes including momentum, heat and mass transfer. Development of mathematical models and their solutions. (Lec. 3) Pre: CHE graduate standing, or CHE 347 and CHE 348 or their equivalent, or permission of instructor. In alternate years.

CHE 542 Advances in Interfacial Phenomena LEC (3 crs.) Topics will include capillarity, surface tension; surface thermodynamics, electrical aspects of surface chemistry; contact angles and wettability; emulsions and foams; adsorption from solutions; hydrodynamic stability of interfaces. (Lec. 3) Pre: CHM 431, 432 or equivalent, or permission of instructor. In alternate years.

CHE 548 Separations For Biotechnology LEC (3 crs.) A study of methods of concentration used in the biotechnology and pharmaceutical industries for production and isolation of products. (Lec. 3) Pre: CHE 348 or CHE 447. In alternate years.

CHE 553 (550) Bionanotechnology LEC (3 crs.) Cross-listed as (CHE), BPS 553. Principles and applications of bionanotechnology. Intermolecular forces, self-assembly, biomolecular structure, biological processes, molecular manufacturing, and surface functionalization for designing biodevices and nanomaterials. Overview of current and emerging technologies, safety and ethics. (Lec. 3) Pre: Graduate standing; or BPS 315 and CHM 112.

CHE 560 Fabrication Engineering at the Micro and Nanoscale LEC (3 crs.) Chemical and physical processes used in the fabrication of microscale and nanoscale devices including MEMS. Particular emphasis on crystal growth, oxidation, CVD, PVD, plasma processing, lithography, diffusion, metallization and packaging. (Lec. 3) Pre: CHM 431, CHE 449 (349), or equivalent. In alternate years.

CHE 564 Reaction Engineering LEC (3 crs.) Homogeneous and heterogeneous reactions in reactor models. Kinetics of multiple reactions industrial reactor analysis. Mechanistic models of catalytic reactors. Mathematical methods for calculation of reactor performance. (Lec. 3) Pre: CHE graduate standing or permission of instructor.

CHE 570 Research Methods in Engineering LEC (3 crs.) Cross-listed as (CHE), EGR 570. Provide experience, practice, and knowledge in engineering research methodology, including defining a research problem, writing a research paper, giving presentations, finding relevant literature, applying scientific knowledge in practice, ethics, professionalism. (Lec. 3) Pre: Engineering graduate standing or permission of instructor.

CHE 574 Biochemical Engineering I LEC (3 crs.) Application of chemical engineering principles to topics in bioprocessing and biotechnology, such as enzyme and cell-growth kinetics, enzyme and cell immobilization, bioreactors, medium sterilization. (Lec. 3) Pre: permission of instructor.

CHE 576 Process Engineering for Pollution Prevention LEC (3 crs.) Management of processes and development of techniques for waste minimization in the chemical process, machine tool coating, plating, plastics, and other industries. (Lec./Workshop) Pre: permission of instructor.

CHE 578 Seminar In Sensors And Surface Technology SEM (1 cr.) Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U only.

CHE 579 Special Topics on Emerging Contaminants LEC (2 crs.) Cross-listed as (PHC), CHE, OCG 579. Introduction to emerging contaminants such as PFASs, focusing on their chemistry, detection, epidemiology, human health, metabolism, and remediation, as well as interdisciplinary collaboration, research translation, community engagement, and professional development. (Lec. 2) Pre: graduate standing. S/U only.

CHE 591 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

CHE 592 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

CHE 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor. (Independent Study) S/U credit.

CHE 614 Advanced Chemical Engineering Thermodynamics II "LEC (3 crs.) Advanced topics in phase stability, phase and chemical equilibrium, and statistical thermodynamics. (Lec. 3) Pre: CHE 513. In alternate years. "

CHE 641 Transport Phenomena II LEC (3 crs.) Steady, unsteady, and multidimensional heat transfer. Mass transport at low and high fluxes; approximate methods for heat and mass transfer problems. (Lec. 3) Pre: CHE 541 or permission of instructor. In alternate years.

CHE 691 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

CHE 692 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

CHE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CHM | Chemistry

CHM 101 General Chemistry Lecture I LEC (3 crs.) Fundamental chemical concepts and principles. Topics include states of matter, stoichiometry, reactivity, atomic structure, thermochemistry, bonding, molecular structure and solutions. Not open to students with credit in CHM 103 or CHM 191. (A1)

CHM 102 Laboratory for Chemistry 101 LAB (1 cr.) Experimental applications of chemical concepts and reactivity emphasizing safety and technique. Experiments follow the content of CHM 101. Pre: credit or concurrent enrollment in CHM 101.

CHM 103 Introductory Chemistry Lecture LEC (3 crs.) One-semester general chemistry course designed for students whose curriculums require the one-semester organic chemistry course, CHM 124. (Lec. 3) Not open to students with credit in CHM 101 or CHM 191. (A1)

CHM 105 Laboratory for Chemistry 103 LAB (1 cr.) Fits course content of CHM 103. (Lab. 3) Pre: credit or concurrent enrollment in CHM 103.

CHM 112 General Chemistry Lecture II LEC (3 crs.) Chemical kinetics, equilibrium, elementary thermodynamics and electrochemistry integrated with descriptive chemistry and practical applications. Pre: CHM 101 with a grade of C- or better.

CHM 114 Laboratory for Chemistry 112 LAB (1 cr.) Experiments follow the content of CHM 112. (Lab. 2) Pre: CHM 102 and credit or concurrent enrollment in CHM 112.

CHM 124 Introduction To Organic Chemistry LEC (3 crs.) Elementary principles of organic chemistry with emphasis on aliphatic compounds, especially those of physiological significance such as amino acids and proteins, carbohydrates, fats, and waxes. (Lec. 3) Pre: CHM 101 with a grade of C- or better or CHM 103 with a grade of C- or better. Not open to chemistry or chemical engineering majors.

CHM 126 Laboratory for Chemistry 124 LAB (1 cr.) Introduction to chemistry procedures, with emphasis on properties of substances of physiological significance. (Lab. 3) Pre: CHM 102 or CHM 105, and credit for or concurrent enrollment in CHM 124. Not for chemistry or chemical enginnering majors.

CHM 191 General Chemistry LEC (5 crs.) Atomic theory and structure, stoichiometry, chemical reactions, thermo-chemistry, bonding and states of matter. Laboratory experiments illustrate basic procedures, concepts, and principles. (Lec. 4, Lab. 3) Pre: Chemistry major. Not open to students with credit in CHM 101.

CHM 192 General Chemistry LEC (5 crs.) Continuation of 191. Principles of kinetics, equilibrium, and thermodynamic integrated with descriptive chemistry and qualitative analysis. Laboratory experiments parallel lecture topics. (Lec. 4, Lab. 3) Pre: chemistry major, CHM 101 and 102 with grade of C- or better, or CHM 191 with grade of C- or better, prior or concurrent enrollment in MTH 141. Not open to students with credits in CHM 112.

CHM 212 Quantitative Analysis LEC (4 crs.) Principles of gravimetric and volumetric analysis with detailed attention to solution of stoichiometric problems. Laboratory analysis of representative substances by gravimetric or volumetric procedures. (Lec. 3, Lab. 3) Pre: CHM 112 and 114 with grade of C- or better or CHM 192 with grade of C- or better.

CHM 226 Organic Chemistry Laboratory LAB (2 crs.) Common techniques and typical preparative methods in both aliphatic and aromatic series. (Lab. 6) Pre: CHM 114 and credit or concurrent enrollment in CHM 228. Not open to students with credit in CHM 229 or 230.

CHM 227 Organic Chemistry Lecture I LEC (3 crs.) General principles and theories with emphasis on classification, nomenclature, methods of preparation, and characteristic reactions of organic compounds in aliphatic series. (Lec. 3) Pre: CHM 112 with grade of C- or better or CHM 192 with grade of C- or better.

CHM 228 Organic Chemistry Lecture II LEC (3 crs.) Continuation of 227 with emphasis on the aromatic series. (Lec. 3) Pre: CHM 227 with a grade of C- or better.

CHM 229 Organic Chemistry Laboratory I LAB (1 cr.) Common techniques and typical preparative methods in aliphatic series. (Lab. 3) Pre: credit or concurrent enrollment in 227.

CHM 230 Organic Chemistry Laboratory II LAB (1 cr.) Continuation of CHM 229 with emphasis on the aromatic series. (Lab. 3) Pre: CHM 229 or equivalent and credit or concurrent enrollment in CHM 228. Only for students requiring a second credit of organic laboratory.

CHM 291 Organic Chemistry LEC (3 crs.) Development of principles and theory through an examination of structure, nomenclature, and reactions of organic compounds. (Lec. 3) Pre: CHM 192 with grade of C- or better, and chemistry major. Not open to students with credit in CHM 227.

CHM 292 Organic Chemistry LEC (5 crs.) Continuation of CHM 291 with extension to several additional families of compounds. (Lec. 3, Lab. 6) Pre: CHM 291 with grade of C- or better, and chemistry major. Not open to students with credit in CHM 228.

CHM 335 Physical Chemistry Laboratory LAB (2 crs.) Physical chemical properties of gases, liquids, and solutions; electrochemical cells; phase diagrams of binary and ternary systems; and chemical kinetics. Designed for chemistry majors. (Lab. 4) Pre: 431. May be taken concurrently with CHM 431.

CHM 353 Undergraduate Research IND (1-12 crs.) Methods of approach to a research problem. Literature, laboratory work, and a report of an original problem or problems. (Independent Study)

Pre: permission of instructor. May be repeated for a maximum of 12 credits. Must earn a total of 3 or more credits to fulfill the general education outcome. (D1)

CHM 354 Undergraduate Research in Forensic Chemistry IND (1-12 crs.) Methods of approach to a research problem in forensic chemistry. Literature, laboratory work, and a report of an original problem or problems. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits. Must earn a total of 3 or more credits to fulfill the general education outcome. (D1)

CHM 391 Forensic Science Overview LEC (1 cr.) A seminar/discussion group designed to introduce students to the areas and issues in Forensic Science. Students seeking a forensic science minor should attend this weekly seminar two semesters. (Lec. 1) May be repeated for a total of 3 credits.

CHM 392 Introduction to Criminalistics LEC (3 crs.) Cross-listed as (CHM), FOS 392. A class designed to introduce students to the basic areas and issues in forensic science in criminalistics. It is required for students seeking a forensic science minor. May not be repeated for credit. May not be taken in the same semester as CHM 391. (Lec. 3)

CHM 401 Intermediate Inorganic Chemistry LEC (3 crs.) Principles of inorganic chemistry broadly related to structure and reactivity. Many-electron atoms bonding theories, acid-base concepts, coordination chemistry, reaction mechanisms. (Lec. 3) Pre: CHM 432.

CHM 402 Physical Inorganic Laboratory LAB (2 crs.) Synthesis of inorganic compounds emphasizing inert atmosphere and vacuum line techniques; characterization by spectroscopic and electrochemical techniques. (Lab. 6) Pre: CHM 401.

CHM 412 Instrumental Methods of Analysis LEC (3 crs.) Theory and application of optical and electrical instruments to solution of chemical problems: flame photometry, emission spectroscopy, ultraviolet, visible, and infrared spectrophotometry, colorimetry, turbidimetry, nephelometry, fluorometry, potentiometry, voltametric titration methods. (Lec. 3) Pre: CHM 228 or 292, credit in or concurrent enrollment in 432.

CHM 414 Instrumental Methods of Analysis Laboratory LAB (2 crs.) Applications of instrumental methods to the solution of problems in analytical chemistry. (Lab. 6) Pre: credit or concurrent enrollment in 412.

CHM 425 Qualitative Organic Analysis LAB (2 crs.) Techniques in organic chemical research, including handling air sensitive chemicals, flash chromatography, and instrumental methods of structure determination. Separation of mixtures and identification of components by infrared and nuclear magnetic resonance spectroscopies. (Lab. 6) Pre: CHM 292 or 226 and 228 and credit or concurrent enrollment in CHM 427.

CHM 427 Intermediate Organic Chemistry LEC (3 crs.) Intermediate organic chemistry with emphasis on organic reaction mechanism, stereochemistry, spectroscopic characterization, and newer synthetic methods. (Lec. 3) Pre: CHM 226 and 228 with a grade of C- or better, or CHM 292 with a grade of C- or better.

CHM 431 Physical Chemistry I LEC (3 crs.) Gas laws, laws of thermodynamics, chemical equilibrium, phase equilibria, and electrochemistry. (Lec. 3) Pre: CHM 112 and 114 with a grade of C- or better, or CHM 192 with a grade of C- or better, and MTH 142 with a grade of C- or better, and PHY 112 or PHY 204. May be taken for graduate credit by graduate students whose undergraduate programs do not require physical chemistry.

CHM 432 Physical Chemistry II LEC (3 crs.) Atomic theory, quantum chemistry, bonding, molecular interactions, chemical kinetics, kinetic theory, and spectroscopy. (Lec. 3) Pre: CHM 431with a grade of C- or better. May be taken for graduate credit by graduate students whose undergraduate programs do not require physical chemistry.

CHM 441 The Chemistry of Biological Systems LEC (3 crs.) Chemical biology, molecular aspects of biological structures, equilibria, energetics, reactions, and metabolism. (Lec. 3) Pre: CHM 228 or 292, 432.

CHM 477 Internship in Chemistry and Forensic Chemistry PRA (3 crs.) Supervised professional experience with a relevant company or organization. Activities and expectations to be determined between site supervisor and intern and approved by a faculty advisor, prior to registration. Course may be repeated once with permission of the course instructor and department chair, but not for department major/minor credit. A maximum 3 credits can be applied to a major/minor in Chemistry. Not for graduate credit. (Practicum) Pre: Instructor consent. S/U credit only.

CHM 492 Seminar In Chemistry SEM (1 cr.) Preparation and presentation of papers on selected topics in chemistry. Required of seniors in chemistry. (Seminar) Pre: credit or concurrent enrollment in CHM 432. Not for graduate credit.

CHM 500 Chemical Safety and Research Ethics LEC (1 cr.) This course will equip first-year graduate students with the necessary hygiene and safety skills, and ethical standards for performing chemical research. Essential skills for success as a professional scientist. (Lec. 1) Pre: Graduate standing or permission of instructor.

CHM 501 Advanced Inorganic Chemistry I LEC (3 crs.) Systematic analysis of bonding schemes and structural aspects of molecular systems encountered in inorganic chemistry. Special emphasis on electron density distributions, physical methods of analysis, and practical applications of quantum mechanics. (Lec. 3) Pre: CHM 401.

CHM 502 Advanced Inorganic Chemistry II LEC (3 crs.) Modern inorganic chemistry approached from experimental, theoretical, and descriptive points of view. Includes electronic structure and bonding in coordination chemistry, topology, thermodynamics of complex formation, mechanisms, lanthanides, and actinides. (Lec. 3) Pre: CHM401 or equivalent.

CHM 505 Chemical Synthesis and Mechanism LEC (3 crs.) The theory and design of modern synthetic schemes. Emphasis will be placed on broadly used reactions that can be applied to interdisciplinary bioorganic, organometallic and materials chemistry research. (Lec. 3) Pre: CHM 427 or permission of the instructor.

CHM 506 Chemical Analysis LEC (3 crs.) Fundamental principles governing methods and instrumentation used for chemical analysis. (Lec. 3) Pre: CHM 412 or permission of the instructor.

CHM 507 Chemical Structure and Material Property LEC (3 crs.) Fundamentals and applications of chemical thermodynamics, molecular structures, chemical transformations, principles and practice of computational chemistry. (Lec. 3) Pre: CHM 432 or permission of the instructor.

CHM 511 Advanced Analytical Chemistry I LEC (3 crs.) Complex Equilibria and Electrochemistry: Topics include solution theory; acid-base, precipitation and complexation reactions; redox chemistry, amperometry, voltammetry, specialized electrodes and electrochemical sensors. Statistical treatment of data. (Lec. 3) Pre: CHM 412 or permission of instructor.

CHM 512 Advanced Analytical Chemistry II LEC (3 crs.) Fundamentals of chromatographic and electrophoretic separations and major spectroscopic techniques. Basic theory, instrumentation, advantages, limitations, and applications of these techniques as well as new instrumental developments are discussed. (Lec. 3) Pre: CHM 412 and MTH 243.

CHM 513 Adv Analytical Lab (3crs.) LEC

CHM 519 Theoretical Concepts in NMR LEC (3 crs.) The physical concepts of NMR phenomena are presented, beginning with signals generated in the probe, carried through the spectrometer console, into the computer, and finally represented as a spectrum. (Lec. 3) Pre: CHM 292, PHY 112, and MTH 141, or equivalents, or permission of instructor.

CHM 521 Advanced Organic Chemistry I LEC (3 crs.) Emphasis on the structures, reactivities, and syntheses of organic molecules. (Lec. 3) Pre: CHM 226 and 228 or equivalent.

CHM 522 Advanced Organic Chemistry II LEC (3 crs.) Advanced fundamental organic chemistry including mechanism, synthesis, organometallics, bio-organic, organic materials, and/or molecular recognition. (Lec. 3) Pre: CHM 427 or 521 or equivalent.

CHM 532 Advanced Physical Chemistry II LEC (3 crs.) Principles and applications of quantum chemistry. Includes the formal development of quantum theory and applications to electronic structure as well as other problems of chemical interest. (Lec. 3) Pre: CHM 432 or permission of instructor.

CHM 551 Nonthesis Master's Research IND (3 crs.) Research on original problem for fulfillment of research requirement of nonthesis master's degree. Literature survey, laboratory work, and detailed report required. (Independent Study) Pre: permission of chairperson.

CHM 552 Nonthesis Master's Research IND (2-3 crs.) Research on original problem for fulfillment of research requirement of nonthesis master's degree. Literature survey, laboratory work, and detailed report required. (Independent Study) Pre: permission of chairperson.

CHM 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. A minimum of 6 credits is required of students who have chosen the thesis option for the master's degree. (Independent Study) S/U credit.

CHM 618 Surface Analysis LEC (3 crs.) In-depth presentation of theory of surface analysis methods. Emphasis on methods development, advanced topics, and current advances using electron spectroscopy, surface mass spectroscopy, and surface vibrational spectroscopy. (Lec. 3) Pre: CHM 505, 506, and 507 or permission of instructor

CHM 621 Advanced Topics in Physical Organic Chemistry LEC (3 crs.) Mechanistic aspects of organic chemistry: molecular orbital theory, thermal and photochemical cycloadditions and rearrangements. Consideration of carbenes, nitrenes, and free radicals. Evaluation of steric, stereoelectronic, and secondary orbital effects. (Lec. 3) Pre: CHM 521 and 522 or permission of instructor.

CHM 642 Graduate Seminar SEM (1 cr.) Results of detailed literature surveys are presented orally and in writing. Required for candidates for advanced degrees in chemistry. (Seminar) S/U credit.

CHM 643 Graduate Seminar SEM (1 cr.) Results of detailed literature surveys are presented orally and in writing. Required for candidates for advanced degrees in chemistry. (Seminar) S/U credit.

CHM 644 Graduate Seminar SEM (1 cr.) Results of detailed literature surveys are presented orally and in writing. Required for candidates for advanced degrees in chemistry. (Seminar) S/U credit.

CHM 691 Special Topics IND (1-3 crs.) Covers special research topics of interest. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 6 credits.

CHM 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CHN | Chinese

CHN 101 Beginning Chinese I LEC (3 crs.) Fundamentals of grammar and pronunciation, exercises in reading, writing, and conversation. (Lec. 3/Online) Pre: no prior Chinese is required. (C2) (A3)

CHN 101H Honors Section of CHN 101: Beginning Chinese I LEC (3 crs.) Honors Section of CHN 101: Beginning Chinese I. (Lec. 3/Online) Pre: no prior Chinese is required. (FC) [D] Must have 3.40 overall GPA. (C2) (A3)

CHN 102 Beginning Chinese II LEC (3 crs.) Continuation of CHN 101. Students enrolling in this course should have taken CHN 101 or equivalent. (Lec. 3/Online) (A3) (C2)

CHN 103 Intermediate Chinese I LEC (3 crs.) Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. Students enrolling in this course should have taken CHN 102 or equivalent. (Lec. 3) (A3) (C2)

CHN 104 Intermediate Chinese II LEC (3 crs.) Continuation of CHN 103. Students enrolling in this course should have taken CHN 103 or equivalent. (Lec. 3)

CHN 111 Intensive Beginning Chinese I LEC (4 crs.) The fundamentals of Chinese with special emphasis on listening and speaking structures. (Lec. 4) (A3) (C2)

CHN 111H Honors Section of CHN 111: Intensive Beginning Chinese I LEC (4 crs.) Honors Section of CHN 111: Intensive Beginning Chinese I. (Lec. 4) Pre: 3.40 overall GPA. (A3) (C2)

CHN 112 Intensive Beginning Chinese II LEC (4 crs.) The fundamentals of Chinese with special emphasis on listening and speaking structures. (Lec. 4) Pre: CHN 111 or equivalent. (C2) (A3)

CHN 112H Honors Section of CHN 112: Intensive Beginning Chinese II LEC (4 crs.) Honors Section of CHN 112: Intensive Beginning Chinese II. (Lec. 4) Pre: CHN 111 or equivalent and 3.40 overall gpa. (C2) (A3)

CHN 121 Conversational Chinese I LEC (1 cr.) This course will improve beginning speaking proficiency in Chinese, using communicative methods to practice different functions and topics in conversational Chinese. Intended only for students at CHN 101 level. (Lec. 1)

CHN 122 Conversational Chinese II LEC (1 cr.) This course will improve beginning speaking proficiency in Chinese, using communicative methods to practice different functions and topics in conversational Chinese. Intended only for students at the CHN 102 level. (Lec. 1)

CHN 123 Conversational Chinese III LEC (1 cr.) This course will improve intermediate speaking proficiency in Chinese, using communicative methods to practice different functions and topics in conversational Chinese. Intended only for students at the CHN 103 level. (Lec. 1)

CHN 124 Conversational Chinese IV LEC (1 cr.) This course will improve intermediate speaking proficiency in Chinese, using communicative methods to practice different functions and topics in conversational Chinese. Intended only for students at the CHN 104 level. (Lec. 1/Online)

CHN 205 Composition and Conversation I LEC (3 crs.) Development of facility in spoken and written Chinese using contemporary topics; emphasis on general classroom discussion. (Lec. 3) Pre: CHN 104 or permission of instructor. (C2) (A3)

CHN 206 Composition and Conversation II LEC (3 crs.) Development of facility in spoken and written Chinese using contemporary topics; emphasis on general classroom discussion. (Lec. 3) Pre: CHN 205 or permission of instructor. (C2) (A3)

CHN 211 (113) Intensive Intermediate Chinese I LEC (4 crs.) Intensive Chinese language intermediate courses. Focus on proficiency competence. Development of listening and speaking, reading and writing skills. Intermediate-level grammatical structures. (Lec. 4) Pre: CHN 112, 112H or equivalent, or permission of instructor. (C2) (A3)

CHN 211H (113) Honors Section of CHN 211 (113): Intensive Intermediate Chinese I LEC (4 crs.) Honors Section of CHN 211 (113): Intensive Intermediate Chinese I. Intensive Chinese language intermediate courses. Focus on proficiency competence. Development of listening and speaking, reading and writing skills. Intermediate-level grammatical structures (Lec. 4) Pre: 3.40 overall gpa and CHN 112, 112H or equivalent, or permission of instructor. (C2) (A3)

CHN 212 (114) Intensive Intermediate Chinese II LEC (4 crs.) Intensive Chinese language intermediate courses. Focus on proficiency competence. Development of listening, speaking, reading and writing skills. Intermediate-level grammatical structures. (Lec. 4) Pre: CHN 211, 211H or equivalent, or permission of instructor. (C2) (A3)

CHN 212H (114H) Honors Section of CHN 212 (114): Intensive Intermediate Chinese II LEC (4 crs.) Honors Section of CHN 212 (114): Intensive Intermediate Chinese II. Intensive Chinese language intermediate courses. Focus on proficiency competence. Development of listening, speaking, reading and writing skills. Intermediate-level

grammatical structures. (Lec. 4) Pre: 3.40 overall gpa and CHN 211, 211H or equivalent, or permission of instructor. (C2) (A3)

CHN 231 Chinese Calligraphy LEC (1 cr.) Students learn to appreciate this traditional Asian art, and practice writing with the writing brush. The course is in English; no Chinese language background is necessary. (Lec. 1)

CHN 232 Chinese Culture through Tai Chi LEC (1 cr.) An introduction to the practice of Tai Chi, a Chinese cosmological concept involving the flux of yin and yang, for health benefits and meditation. The course will be taught in English. (Lec. 1)

CHN 233 Chinese Culture through Calisthenics LAB (1 cr.) An introduction to the practice of Chinese calisthenics and square dance. The course will be taught in English and no language background is necessary for this course. (Lec. 1)

CHN 305 Advanced Composition and Conversation I LEC (3 crs.) Intensive practice in spoken and written Chinese using contemporary writings and topics in Chinese-speaking countries. Emphasis on classroom discussion. (Lec. 3) Pre: CHN 206 or permission of instructor.

CHN 306 Advanced Composition and Conversation II LEC (3 crs.) Intensive practice in spoken and written Chinese using contemporary writings and topics in Chinese-speaking countries. Emphasis on classroom discussion. (Lec. 3) Pre: CHN 305 or permission of instructor. (C2) (B4)

CHN 311 (215) Intensive Conversation and Composition I LEC (4 crs.) Intensive course in further development of proficiency in speaking, listening, reading and writing Chinese. Advanced-low level grammatical structures. (Lec. 4) Pre: CHN 212, 212H or equivalent, or permission of instructor. (C2) (A3)

CHN 311H (215H) Honors Section of CHN 311 (215): Intensive Conversation and Composition I LEC (4 crs.) Honors Section of CHN 311 (215): Intensive Conversation and Composition I. Intensive course in further development of proficiency in speaking, listening, reading and writing Chinese. Advanced-low level grammatical structures. (Lec. 4) Pre: 3.40 overall gpa and CHN 212, 212H or equivalent, or permission of instructor. (C2) (A3)

CHN 312 (216) Intensive Conversation and Composition II LEC (4 crs.) Intensive course in further development of proficiency in speaking, listening, reading and writing Chinese. Advanced-low level grammatical structures. (Lec. 4) Pre: CHN 311, 311H or equivalent, or permission of instructor. (C2) (A3)

CHN 312H (216H) Honors Section of CHN 312 (216): Intensive Conversation and Composition II LEC (4 crs.) Honors Section of CHN 312 (216): Intensive Conversation and Composition II. Intensive course in further development of proficiency in speaking, listening, reading and writing Chinese. Advanced-low level grammatical structures. (Lec. 4) Pre: 3.40 overall gpa and CHN 311, 311H or equivalent, or permission of instructor. (C2) (A3)

CHN 401 Topics on Chinese Culture and Civilization LEC (3 crs.) Students will study various topics on Chinese culture, society and civilization through selected readings and multimedia. (Lec. 3) Pre: CHN 306 or 316 or 316H or permission of instructor. May be repeated for up to 6 credits. Not for graduate credit.

CHN 411 (315) Intensive Advanced Chinese for the Chinese Flagship Program I LEC (4 crs.) Survey of Chinese literature, Media Chinese and Classical Chinese. Part 1 of intensive course for Flagship students. (Lec. 4) Pre: CHN 312 or 312H or equivalent, or permission of instructor.

CHN 412 (316) Intensive Advanced Chinese for the Chinese Flagship Program II LEC (4 crs.) Survey of Chinese literature, Media Chinese and Classical Chinese. Part 2 of intensive course for Flagship students. (Lec. 4) Pre: CHN 411 or equivalent.

CHN 413 Advanced Technical Chinese LEC (3 crs.) Cross-listed as (CHN), EGR 413. Lectures and seminar on advanced scientific and engineering topics in an international context. All reading, writing, and discussion will be conducted in Chinese. (Lec. 3) Pre: CHN 306 (or EGR 306) or permission of instructor. Not for graduate credit.

CHN 421 Modern Chinese Literature I LEC (3 crs.) Advanced literature course focusing on readings and discussions of major modern Chinese writers and their masterpieces from the end of the Imperial Era through the Chinese Civil War in 1949. (Lec. 3) Pre: CHN 306 or permission of instructor. Not for graduate credit.

CHN 422 Modern Chinese Literature II LEC (3 crs.) Literary works of famous writers in contemporary China. Students will read and discuss representative literary selections from the start of the New China, through the Cultural Revolution to the present. (Lec. 3) Pre: CHN 421 or permission of instructor. Not for graduate credit.

CHN 485 Chinese Studies Seminar I LEC (4 crs.) Advanced literature and civilization course focusing on major modern and contemporary Chinese writers and their works. Readings and discussions focus on Chinese literary masterpieces and movies from the Chinese Civil War through the early 20th century (Lec. 4). Pre: CHN 306, 307, 316 or equivalent. Not for graduate credit.

CHN 486 Chinese Studies Seminar II LEC (4 crs.) Advanced literature and civilization course focusing on major modern and contemporary Chinese writers and their works. Readings and discussions focus on Chinese literary masterpieces and movies from the early 20 century to the present. Pre: CHN 485, 421, 401 or equivalent. Not for graduate credit.

CHN 497 Directed Study IND (1-3 crs.) Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of a project by a faculty member and approval of section head. May be repeated for up to 6 credits. Not for graduate credit.

CHN 498 Directed Study IND (1-3 crs.) Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of a project by a faculty member and approval of section head. May be repeated for up to 6 credits. Not for graduate credit.

CHS | College of Health Sciences

CHS 491 Directed Study in Health Sciences IND (3 crs.) Development of an approved project supervised by a member of the College of Health Sciences faculty. (Independent Study) Pre: Permission of instructor. May be repeated for a total of 6 credits. Not for graduate credit. S/U only.

CHS 601 Seminar in Health Sciences SEM (1 cr.) Reports and discussions of current topics in health sciences, as well as oral reports of dissertation research topics in progress. May be repeated for a maximum of 3 credits.(Seminar) Pre: Enrolled in the Ph.D. in Health Sciences program or permission of instructor.

CLA | Classics

CLA 110 Ancient Greece: History and Archaeology LEC (3 crs.) Cross-listed as (HIS), CLA 110. An introduction to the history and archaeology of ancient Greece and Greek Civilization from the Bronze age to the death of Alexander the Great. (Lec. 2, Rec. 1) (A3) (B1)

CLA 301 The Hellenistic World LEC (3 crs.) Cross-listed as (HIS), CLA 301. The history, archaeology, and civilization of the Hellenistic World from Alexander the Great to the Death of Cleopatra VII. (Lec. 3) Pre: sophomore standing or permission of instructor.

CLA 302 The Roman Empire LEC (3 crs.) Cross-listed as (HIS), CLA 302. The history, archaeology, and civilization of the Roman Empire from Augustus to Constantine. (Lec. 3) Pre: sophomore standing or permission of instructor.

CLA 391 Ancient Laughter: The Comic Tradition in Greece and Rome LEC (3 crs.) Introduction to the comic tradition in Western literature through its origins in Greece and Rome. Readings in English translation include examples of comic drama, novel, and satire. (Lec. 3/Online) (A3) (C2)

CLA 395 Greek Mythology: Gods, Heroes, and Humans LEC (3 crs.) Nature and function of myth in the ancient world and today: ideas of divinity, relationship of divine to human, origins of cosmos and human society, male and female principles, power hierarchies, coming of age, the heroic experience. Theories of myth analysis. Readings in English translation. (Lec. 3/Online) (A3) (C2)

CLA 396 Myths of Rome LEC (3 crs.) Nature and function of myth in Roman society; origins and influence of Romanitas as found in Roman literature: history, epic, lyric, novel. Roman religion: magic, animism, anthropomorphism, gods and goddesses. Readings in English translation. (Lec. 3/Online) (A3) (C2)

CLA 397 Greek Myth and Tragedy LEC (3 crs.) Relationship between Greek myth and classical tragedy, birth and evolution of tragedy (ancient, medieval, French, English, American), employment of the same myth for different dramatic and political purposes. Readings in English translation. (Lec. 3/Online) (A3) (C2)

CLA 497 Directed Study IND (1-6 crs.) Individual research. (Independent Study) Pre: faculty acceptance of project. Prior or concurrent registration in a LAT or GRK or CLA course recommended. May be repeated for credit with different topic. Not for graduate credit. Must be taken for at least 3 credits for General Education credit. (B4) (C2)

CLS | Comparative Literature Studies

CLS 160 Literatures of the World LEC (4 crs.) Cross-listed as (ENG), CLS 160. Introduction to significant works of world literature. (Lec. 3, Rec.1, Online 1) (A3) (C2)

CLS 451 Advanced Topics in International Film Media LEC (4 crs.) Cross-listed as (FLM), ENG, CLS 451. Study of international film genres from one or more national, regional or diasporic cultures and traditions. Emphases on theoretical, historiographic and media research methods. (Lec. 3, Lab. 2) Pre: junior standing or permission of instructor. FLM 204 or 205 recommended. May be repeated for a maximum of 8 credits with change of emphases or topics. (A4) (C2)

CLS 597 Special Problems IND (1-6 crs.) Group and/or individual investigation of special problems in comparative literature studies. (Independent Study)

CMB | Cell and Molecular Biology

CMB 190 Issues in Biotechnology LEC (3 crs.) Cross-listed as (AFS), CMB, NRS, PLS 190. Introduction to modern biotechnology in medical, pharmaceutical, forensic, agricultural, marine, and environmental applications. Consideration of ethical, environmental, health, and social issues. (Lec. 3/Online) (A1)

CMB 201 Introductory Medical Microbiology LEC (4 crs.) Required of all students in nursing, dental hygiene, and pharmacy. Lecture and laboratory designed to illustrate microbiological principles and techniques. For students in allied health professions. (Lec. 3, Lab. 3) Pre: one semester of biology and one year of chemistry. Not open to students with credit in CMB 211.

CMB 210 Biochemical Aspects of Nutrition and Physiology LEC (3 crs.) Chemistry of biological transformations in the cell. Chemistry of carbohydrates, fats, proteins, enzymes, vitamins and hormones integrated into a general discussion of energy-yielding and biosynthetic reactions in the cell. (Lec. 3) Pre: one year college biology and one year of chemistry including CHM 124.

CMB 211 Integrative Microbiology LEC (4 crs.) Introduction to microorganisms. Integrating their morphology, structure, metabolism, genetics, growth, populations in natural habitat, and their effect on the environment. For Cell and Molecular Biology and Biological Science majors. (Lec. 3, Lab. 1) Pre: one semester of biology, one year of chemistry. Restricted to CELS and nutrition majors. Not open to students with credit in CMB 201. (D1)

CMB 211 Integrative Microbiology LEC (4 crs.) Introduction to microorganisms. Integrating their morphology, structure, metabolism, genetics, growth, populations in natural habitat, and their effect on the environment. Restricted to certain majors. (Lec. 3, Lab. 1) Pre: One semester of biology, one year of chemistry. Restricted to CELS, nutrition and chemical engineering majors.Not open to students with credit in CMB 201.(D1)

CMB 240 Introduction to Biomedical Research LEC (3 crs.) Cross-listed as (CMB) BPS 240. Provide a comprehensive introduction to biomedical research, and will emphasize best practices in experimental design, data management and analysis, biomedical career preparation, and computational skills development. (Lec., Online, Workshop) Pre: BIO 101 or BIO 110 or permission of instructor.

CMB 242 Human Genetics and Human Affairs LEC (3 crs.) Basic principles of genetics including patterns of inheritance, mitosis and meiosis, sex determination and sex linkage. Genetic diseases, their cause and cures. Recombinant DNA and genetic engineering. Human diversity and evolution. (Lec. 3)

CMB 245 Food Safety and Microbiology LEC (3 crs.) Cross-listed as (NFS), CMB 245. This course covers the scientific principles that underpin food safety, including biological and chemical contamination, and addresses the safety of the food supply, regulatory agencies and current food safety issues. (Lec. 3)

CMB 260G Sequencing Our Genomes: From Ancestry to Disease LEC (3 crs.) Course to educate students across disciples about modern genomic approaches that have revolutionized many aspects of human lives. (Lec. 3) (A1) (B4) (GC)

CMB 265G Science and Pseudoscience LEC (3 crs.) Course designed to introduce students to a variety of current subjects that are hotly debated between the scientific community and the public. (Lec. 3) (A1) (B4) (GC)

CMB 311 Introductory Biochemistry LEC (3 crs.) Chemistry of biological transformations in the cell. Chemistry of carbohydrates, fats, proteins, nucleic acids, enzymes, vitamins, and hormones integrated into a general discussion of the energy-yielding and biosynthetic reactions in the cell. (Lec. 3) Pre: CHM 124 or equivalent.

CMB 311H Honors Section of CMB 311: Introductory Biochemistry LEC (3 crs.) Honors Section of CMB 311: Introductory Biochemistry. (Lec. 3) Pre: CHM 124 or equivalent, and 3.40 overall GPA.

CMB 311H Honors Section of CMB 311: Introductory Biochemistry LEC (3 crs.) Honors Section of CMB 311: Introductory Biochemistry. (Lec. 3) Pre: CHM 124 or equivalent, and 3.40 overall GPA.

CMB 312 Introductory Biochemistry Laboratory LAB (2 crs.) Laboratory exercises illustrate chemical and physical properties of biomolecules, separation techniques, enzyme catalysis, symptoms of nutritional deficiency, quantification of metabolic end-products, and drug detoxification. (Lab. 4) Pre: credit or concurrent enrollment in 311.

CMB 320 Introduction to Computational Biology LEC (3 crs.) Cross-listed as (CMB), BIO 320. Introduction to the current topics of computational biology. Students will obtain hands-on experiences in navigating biological databases and analyzing biological data. (Lec. 3) Pre: CMB 201 or CMB 211.

CMB 333 Immunology and Serology LEC (3 crs.) Introduction to the immune response; host resistance to infection; immunopathology; antibodies, antigens, and use of serological techniques. (Lec. 3) Pre: CMB 201 or 211.

CMB 334 Virology LEC (3 crs.) An introduction to the basic aspects of virus structure, classification, and replication as these relate to viruses as agents of infectious disease. (Lec. 3) Pre: CMB 201 or 211.

CMB 341 Principles of Cell Biology LEC (3 crs.) Cross-list as (BIO), CMB 341. An introduction to the structure and organization of eukaryotic cells. Topics include membranes and organelles, gene expression, protein synthesis and secretion, energy utilization, the cytoskeleton, and signal transduction. (Lec. 3) Pre: one semester of biological sciences and one semester of organic chemistry.

CMB 352 General Genetics LEC (4 crs.) Cross-listed as (BIO), CMB 352. Introduction to basic genetic principles and concepts leading to an understanding of genes, heredity, and the nature of inherited variation. Applications and implications for animals, plants, fungi and bacteria. (Lec. 3, Rec. 1) Pre: BIO 101 and BIO 102.

CMB 353 Genetics Laboratory LAB (1 cr.) Cross-listed as (CMB), BIO 353. Basic principles and concepts of genetics demonstrated with microorganisms, plants, and animals. (Lab. 2) Pre: credit or concurrent enrollment in CMB/BIO 352.

CMB 412 Advanced Biochemistry Laboratory I LAB (3 crs.) An introduction to laboratory biochemical techniques and methods for the purification and analysis of biological macromolecules, in particular, DNA and protein. (Lab. 6) Pre: CMB 311 and CMB 312 or 211, or by permission of instructor.

CMB 413 Advanced Microbiology Lecture I LEC (3 crs.) The physiology, genetics, developmental, and molecular biology of microorganisms. (Lec. 3) Pre: CMB 211, credit or concurrent enrollment in CMB 311 and BIO 352, or permission of instructor.

CMB 414 Advanced Microbiology Lecture II LEC (3 crs.) The structural, developmental, and physiological diversity of microorganisms; symbiotic relationships, molecular basis of ecology, and the role of microorganisms in the soil and water environment. (Lec. 3) Pre: CMB 211, credit or concurrent enrollment in CMB 311, or permission of instructor.

CMB 415 Advanced Microbiology Laboratory I LAB (2 crs.) Introduction to techniques and methods for advanced study of microbial genetics, physiology, molecular, and developmental biology of microorganisms. (Lab. 6) Pre: concurrent enrollment in CMB 413 or permission of instructor.

CMB 416 Advanced Microbiology Laboratory II LAB (2 crs.) Techniques and methods for the advanced study of microorganisms with emphasis on the study of representative groups of microorganisms and the application of these techniques to soil and aquatic environments. (Lab. 6) Pre: concurrent enrollment in CMB 414 or permission of instructor.

CMB 420 Microbiomes, Biofilms and Bacterial Communities LEC (3 crs.) A study of bacterial microbiomes and their interaction with hosts and/or their environment. Emphasis will be placed on attached bacterial communities in environmental and disease contexts. (Lec. 3) Pre: Either CMB 201 or CMB 211 or graduate standing with permission of instructor.

CMB 421 Physical Biochemistry LEC (3 crs.) Focuses on life science application of physical chemistry covering: Bioenergetics, Thermodynamics, Equilibrium, Kinetics, Quantum Theory, and Photochemistry (Lec. 3). Pre: CHM 124 or 227, MTH 103 or 111, PHY 111 or 203, or graduate standing. Not for undergraduate chemistry program credit.

CMB 426 Structural Biochemistry LEC (3 crs.) Introduction to the theoretical foundations underlying protein and nucleic acid structure and experimental methods for three-dimensional structure determination. (Lec. 3) Pre: CMB 311 or permission of instructor.

CMB 432 Pathogenic Bacteriology LEC (3 crs.) Principles of bacterial pathogenesis with an emphasis on cellular and molecular mechanisms of diseases caused by clinically relevant bacteria. Laboratory focus on diagnostic methods (Lec. 2, Lab. 1) Pre: CMB 201 or CMB 211.

CMB 435 Introduction to the Biology and Genetics of Cancer LEC (3 crs.) Comprehensive instruction in the biology, genetics and biochemistry of cellular transformation and cancer. (Lec. 3) Pre: CMB 311 or CMB 352, or permission of instructor.

CMB 437 Fundamentals of Molecular Biology LEC (3 crs.) Cross-listed as (BIO), CMB 437. Biochemical basis of heredity as seen through the structure and function of nucleic acids. Includes DNA replication, transcription, translation, gene regulation, and gene organization in prokaryotes and eukaryotes. Current methods emphasized. (Lec. 3) Pre: CMB 211, BIO 352, and CMB 311, or permission of instructor.

CMB 450 Practical Tools for Molecular Sequence Analysis LEC (3 crs.) Cross-listed as (CMB), BPS 450. Introduction to practical ways to analyze DNA, protein and genome datasets. Students will be introduced to computing environments and publicly available software tools for analysis. (Lec. 2, Lab. 2) Pre: CMB 311 or BIO 352 (or CMB 352) or BIO 341 or permission of instructor. Not for graduate credit.

CMB 451 Laboratory in Cell Biology LAB (1 cr.) Analysis of subcellular processes, structures, and molecules using techniques including gel electrophoresis, spectrophotometry ultracentrifugation, and protein purification. Topics range from analysis of gene expression to subcellular localization of enzymatic activity. (Lab. 2) Pre: concurrent enrollment in CMB 453 or permission of instructor.

CMB 452 Advanced Topics In Genetics LEC (3 crs.) Cross-listed as (CMB), BIO 452. More detailed treatment of topics introduced in the general genetics course (352) including aspects of transmission genetics, molecular genetics, cytogenetics, biotechnology, developmental genetics, and the impact of genetics on society. (Lec. 3) Pre: BIO 352.

CMB 453 Cell Biology LEC (3 crs.) Structure, replication, and function of eukaryotic cells at subcellular level. Topics considered include cell membranes, cytoplasmic organelles and nuclei, cell division, cellular differentiation, and methods. Emphasis on recent publications. (Lec. 3) Pre: two semesters of biological sciences, CMB 311, junior standing, or permission of instructor.

CMB 460 Experimental Approaches in Molecular and Cell Biology LEC (3 crs.) Addresses modern approaches to studying problems in advanced biochemistry, molecular and cell biology, including experimental design, genetics-based tools, fluorescence-based methodology, functional interactions, high-resolution microscopy and single molecule studies. (Lec. 3) Pre: CMB 311 or permission of instructor or graduate standing.

CMB 464 Biochemistry of Metabolic Disease LEC (3 crs.) A study of the primary and secondary molecular changes in human metabolic diseases. Topics include aging, alcoholism, arteriolosclerosis, diabetes, depression, and genetic diseases. (Lec. 3) Pre: CMB 311 or 481.

CMB 482 Proteins and Enzymes LEC (3 crs.) Advanced discussions of selected topics in protein structure and function, enzyme catalysis and regulation, and case studies of proteins and enzymes in biological processes and diseases. (Lec. 3) Pre: CMB 311 or equivalent.

CMB 483 Introductory Diagnostic Microbiology LEC (3 crs.) Cross-listed as (CMB), MLS 483. Diagnosis of infectious diseases by use of microbiology, immunology, and hematologic and clinical chemical methods; organisms covered include viruses, bacteria, fungi, and parasites. (Lec. 3) Pre: CMB 201 or 211. Open only to medical laboratory science, microbiology, and cell and molecular biology majors or permission of instructor. (D1)

CMB 491 Research in Cell and Molecular Biology IND (1-6 crs.) Special problems in cell and molecular biology. Student required to outline a problem, carry on experimental work, and present conclusions in a report. (Independent Study) Pre: Permission of instructor. Open to majors in Cell and Molecular Biology. A maximum of 6 credits can be taken for major credit.

CMB 495 Seminar in Cell and Molecular Biology SEM (1 cr.) Preparation and presentation of papers on selected subjects in cell and molecular biology. (Seminar) S/U credit.

CMB 499 Biotechnology Internship PRA (3-12 crs.) Professional field experience in biotechnology. The experience will be defined by a job description and learning contract arranged by the CMB internship coordinator, student intern, and relevant agency. (Practicum) Pre: junior or senior standing and approval by the CMB internship coordinator and department chairperson. A maximum of 12 credits can be taken as major credit. Not for graduate credit.

CMB 501 Advanced Clinical Microbiology I LEC (3 crs.) Cross-listed as (CMB), MLS 501. Current methodology employed in the processing of clinical microbiology specimens, isolation and identification of pathogenic microorganisms, and determination of antimicrobial susceptibility. (Lec. 3) Pre: MLS 409 or CMB 432 or equivalent.

CMB 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

CMB 513 Advanced Clinical Immunology LEC (3 crs.) Cross-listed as (MLS), CMB 513. Theory, application, and techniques used in clinical immunology: immunochemistry, serology, immunohematology, immunopathology. (Lec. 3) Pre: MLS 406 or CMB 533 or equivalent.

CMB 521 Advanced Physical Biochemistry LEC (3 crs.) Use of Chromatography, UV-vis-fluorescence-luminescence, and circular dichroism spectroscopy, calorimetry, electrophoresis, electron microscopy, mass spectrometry, and nuclear magnetic resonance to characterize biologically important macromolecules, such as proteins, DNA/RNA, carbohydrates, and lipids. (Lec. 3) Pre: credit or concurrent enrollment in CMB 581 and graduate status, or permission of instructor.

CMB 522 Bioinformatics I LEC (3-4 crs.) Cross-listed as (CSC), STA, CMB 522, BPS 542. Integrates computing, statistical, and biological sciences, algorithms, and data analysis/management. Multidisciplinary student research teams. Modeling dynamic biological processes. Extra project work for 4 credits. (Lec. 3, Project 3) Pre: major in a computing, statistical, or biological science or permission of instructor.

CMB 523 Special Topics in Cell and Molecular Biology IND (1-3 crs.) Advanced work arranged to suit the individual needs of the student. Lecture and/or laboratory according to the nature of the problem. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits.

CMB 533 Immunology LEC (3 crs.) Introduction to the cellular, molecular, and genetic basis of the immune system, and the role of the immune system in immunity to infection, tumor and transplantation immunobiology, and immunopathology. (Lec. 3) Pre: CMB 201 or 211.

CMB 534 Animal Virology LEC (3 crs.) Cross-listed as (AFS), CMB 534. Basic properties, classification, and evolution of animal viruses. Individual agents are studied in detail. (Lec. 3) Pre: CMB 432, 533, or permission of chairperson.

CMB 538 Epidemiology of Infectious Diseases LEC (3 crs.) Cross-listed as (CMB), AVS 538. Principles of epidemiology, interrelationships of host, environment, and agent in infectious diseases. (Lec. 3)

CMB 550 Practical Tools for Molecular Sequence Analysis LEC (3 crs.) Cross-listed as (CMB), BPS 550. Students will be introduced to practical ways to analyze DNA, protein and genome datasets. Students will be introduced to computing environments and publicly available software tools for analysis. Pre: CMB 311 or BIO/CMB 352 or BIO 341 or permission of instructor.

CMB 551 Topics in Biochemistry for the Clinical Scientist LEC (3 crs.) Cross-listed as (CMB), MLS 551. Description of the major components of biochemistry as it relates to the medical sciences. Major concepts include molecular genetics, regulatory biochemistry, and medically related applied biochemistry. (Lec. 3) Offered every third year.

CMB 552 Microbial Genetics LEC (3 crs.) Recent research on the mechanism of mutation, genetic recombination, the genetic code, transposons, regulations, genetic engineering and regulation of DNA, RNA, and protein synthesis in microbial systems. (Lec. 3) Pre: CMB 201, BIO 352, and CMB 311.

CMB 561 Recent Advances in Molecular Cloning LEC (1 cr.) Reports of readings concerning the latest developments in techniques of molecular cloning and their applications in the study of various biological systems. (Lec. 1) Pre: CMB 552 or permission of instructor. May be repeated.

CMB 571 Insect Microbiology LEC (3 crs.) Cross-listed as (ENT), CMB 571. A two-part investigation of insect-microbe associations, concentrating on the comparative pathobiology of microbial agents in the insect host and the transmission of disease organisms by the insect vectors. (Lec. 3) Pre: ENT 385 and CMB 211, or permission of instructor. In alternate years.

CMB 576 Marine Microbial Ecology LEC (4 crs.) Cross-listed as (OCG), CMB 576. Examines role of microbes in the oceans and their impact on oceanographic processes and biogeochemical cycles. Emphasis is on bacteria and their interactions with other marine organisms and the marine environment. Laboratory exercises make use of modern techniques to study metabolic rates and community structure. (Lec. 3, Lab. 3) Pre: permission of instructor.

CMB 579 Advanced Genetics Seminar SEM (1 cr.) Cross-listed as (CMB), BIO 579. Current topics in genetics, including cytological, ecological, molecular, physiological, population, quantitative, and radiation genetics. (Seminar) Pre: CMB 352 and permission of instructor.

CMB 581 General Biochemistry I LEC (3 crs.) First semester of a two-semester course on the principles of biochemistry. Topics include: bioenergetics, protein structure, enzymology, glycolysis, the tricarboxylic acid cycle, and oxidative phosphorylation. (Lec. 3) Pre: CHM 228 and 229.

CMB 582 General Biochemistry II LEC (3 crs.) Second semester of a two-semester course on the principles of biochemistry. Topics include: photosynthesis, membranes, hormones, metabolism, the biosynthesis of DNA, RNA, and proteins. (Lec. 3) Pre: CMB 581 or permission of instructor.

CMB 591 Special Problems in Clinical Microbiology IND (1-6 crs.) Cross-listed as (MLS), CMB 591. Intensive tutorial work, research, and readings in clinical microbiology. (Independent Study) Pre: graduate standing and permission of chairperson.

CMB 593 The Literature of Cell and Molecular Biology IND (1 cr.) Thorough study of original literature of some aspect of cell and molecular biology. Written abstracts or papers on assigned topics are discussed in weekly conferences with instructor. (Independent Study)

CMB 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CMB 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CMB 642 Biochemical Toxicology LEC (3 crs.) Cross-listed as (BPS), CMB 642. Biochemical and molecular aspects of chemically induced cell injury and chemical carcinogenesis. (Lec. 3) Pre: permission of instructor. Offered every third year.

CMB 651 Research in Cell and Molecular Biology IND (3 crs.) Students are required to outline a research problem, conduct necessary literature survey and experimental work, and present the observations and conclusions in a substantial written report. (Independent Study) Pre: graduate standing.

CMB 654 Advances in Immunology LEC (2 crs.) Reports on assigned readings concerning latest developments in the field of cellular and humoral immunity presented and discussed by students. Research paper and critical review of a scientific paper required. (Lec. 2) Pre: CMB 533, CMB 311, or permission of instructor. May be repeated for a maximum of 4 credits. In alternate years.

CMB 656 Mechanisms of Bacterial Pathogenesis LEC (3 crs.) Study of recent research on the molecular mechanisms of pathogenesis. Students expected to participate in roundtable discussions of recent pertinent literature. (Lec. 3) Pre: CMB 432, 552, and CMB 311. In alternate years.

CMB 691 Special Problems in Cell and Molecular Biology IND (3 crs.) Assigned research on an advanced level. Student required to outline problem, conduct the necessary literature and experimental work, and present observations and conclusions in a report. (Independent Study) Pre: graduate standing.

CMB 696 Graduate Seminar SEM (1 cr.) Reports of research in progress or completed. (Seminar) Required of all graduate students in microbiology. S/U credit.

CMB 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CMD | Communicative Disorders

CMD 160 Introduction to Communicative Disorders LEC (3 crs.) Survey of speech, language, and hearing disorders. Discussion includes etiology, symptomatology, and the profession of SLP and audiology. (Lec. 3)

CMD 175 Gestural Communication LEC (3 crs.) Visual language systems with emphasis on the chirology and syntax of Ameslan, and levels of language among deaf communicators; finger spelling and sign language for educational, rehabilitative, and artistic goals studied. (Lec. 3)

CMD 272 Auditory and Speech Mechanisms LEC (3 crs.) Structure and function of the organs of hearing and speech as they relate to normal and pathological communication; theories of cortical involvements, central and peripheral nervous systems relevant to rehabilitation procedure. (Lec. 3) Pre: sophomore standing.

CMD 273 Phonetics LEC (3 crs.) International Phonetic Alphabet; analysis of phonetic and phonemic elements in major American English dialects; practice in transcription of standard and defective speech. (Lec. 3) Pre: sophomore standing.

CMD 276 Introduction to Speech Science LEC (3 crs.) Physical properties of the speech signal, analysis of the physical bases of speech production, instrumentation used to assess speech output, theories of speech perception. (Lec. 3) Pre: CMD 272 and 273.

CMD 278 Introduction to Hearing Science LEC (3 crs.) Overview of the measurement of sound, acoustic properties of the sound wave, and perception of sound by human beings. Psychophysical methods of sound perception, psychoacoustics, use of instrumentation to measure sounds. Anatomy and physiology of the normal auditory mechanism. (Lec. 3) Pre: CMD 276

CMD 280G The Real Reason for Brains LEC (3 crs.) This course provides a foundation in normal anatomy and physiology of communication and movement and the impact of neurological disorders with an emphasis on clinical relevance. (Lec. 3) Pre: Sophomore standing and one of the following: BIO 101, CMD 160, KIN 122, or PSY 113. (D1) (GC)

CMD 361 Introduction to Audiology LEC (3 crs.) Pathologies of the hearing mechanism, methods of audiological assessment, interpretation of the audiogram, recommendations based on diagnostic audiology results. Methods of middle ear and retrocochlear assessment. Training in the administration of basic audiological evaluations. (Lec. 3) Pre: CMD 160 and 278.

CMD 375 Language Development LEC (3 crs.) Development phenomena in speech and language; causal factors of delayed speech and language; survey of evaluative and habilitative programs for children with deviant language development. (Lec. 3/Online) Pre: CMD 273.

CMD 377 Functional Neuroanatomy LEC (3 crs.) Examination of the brain and spinal cord, emphasizing connection and functions of the neural system. This course is designed for communicative disorders majors. (Lec. 3) Pre: CMD 272 and junior standing.

CMD 440 Head and Neck Anatomy LEC (3 crs.) Cross-listed as (PHT), CMD 440. Study of structure and function of human head and neck anatomy, supplemented by dissection laboratory. Emphasis on the musculoskeletal, visceral, nervous, and vascular systems related to dental hygiene and communicative disorders. (Lec. 2, Lab. 2)

CMD 454 Rehabilitative Audiology LEC (3 crs.) Theoretical and methodological approaches to aural rehabilitation of the adult with impaired hearing. Topics include use of amplification, speechreading, assistive listening devices, auditory training, and case management. . (Lec 3) Pre: CMD 160 and three of the following-CMD 372, 373, 374, 375, 376, and senior or graduate standing with 551 as prerequisite for graduate standing.

CMD 460 Speech and Language Disorders LEC (3 crs.) Survey of developmental and acquired speech and language disorders. Discussion includes etiology, symptomatology, and assessment. (Lec. 3) Pre: senior standing.

CMD 465 Clinical Methods in Communicative Disorders LEC (4 crs.) Observation of diagnosis and treatment of communicative disorders; developing interviewing, report writing, and counseling techniques; introduction to diagnostic procedures; establishing therapeutic goals, treatment, and remediation of various disorders. (Lec. 4/Online) Pre: Senior or graduate standing only; not for graduate credit in communicative disorders. (D1)

CMD 491 Special Problems IND (1-3 crs.) Selected areas of study pertinent to communicative disorders. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) 491: S/U credit.

CMD 492 Special Problems IND (1-3 crs.) Selected areas of study pertinent to communicative disorders. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) 491: S/U credit.

CMD 493G Cultural and Linguistic Diversity in Communicative Disorders LEC (3 crs.) Application of concepts and information from the study of cultural and linguistic diversity to issues involving communicative incompetence and disorder. (Lec. 3) Pre: CMD 375. (C3) (GC)

CMD 494 Autism and Pervasive Developmental Disorders LEC (3 crs.) Current perspectives on diagnosis, etiology, and core challenges in social communication and emotional regulation for children with autism and PDD. Role of speech-language pathologists within a comprehensive intervention framework. (Lec. 3) Pre: Senior standing or CMD 375, or permission of instructor.

CMD 504 Research in Communicative Disorders LEC (3 crs.) Types of research in speech pathology, audiology, and communication science; critiques of representative models with special emphasis on experimental research; individual pilot projects or master's thesis. (Lec. 3) Pre: 372, 373, 374, 375, graduate standing, or permission of instructor.

CMD 550 Audiology for Speech Pathologists LEC (2 crs.) Introduction to audiology for the speech-language pathology graduate student. Hearing disorders, hearing assessment, child and adult aural rehabilitation. Modular format with variable credits. (Lec. 2) Pre: graduate standing. Offered once per year.

CMD 551 Measurement of Hearing I LEC (4 crs.) Diagnostic protocols for routine audiologic assessment including pure tone, speech, and immittance procedures. Discussion of etiology and symptomatology of hearing disorders. (Lec. 4) Pre: CMD 372, 373, 374, 375, and 376; graduate standing or permission of instructor.

CMD 553 Pediatric Audiology LEC (3 crs.) Theoretical and methodological approaches to the identification and management of children with auditory disorders. Topics discussed include auditory development, audiometric evaluation, and hearing aids. (Lec. 3) Pre: graduate standing and CMD 551 or permission of instructor. In alternate years.

CMD 554 Advanced Rehabilitative Processes for Hearing Impaired LEC (3 crs.) Advanced techniques and technology in aural rehabilitation including family-based management, multidiscipline approaches and complex assistive devices. (Lec. 3) Pre: CMD 454 and CMD 551, and graduate standing. Offered Spring.

CMD 556 Hearing Aids LEC (3 crs.) Application of technological and behavioral strategies in fitting hearing aids, including aid selection and delivery, counseling, assessment of wearer performance, marketing, and legal issues. (Lec. 3) Pre: CMD 555. In alternate years.

CMD 557 Electrophysiological Measures In Audiology LEC (4 crs.) Basic electrophysiological assessment procedures and instrumentation. Otoacoustic emissions, electrocochleography, auditory brainstem response, and middle, late, and steady-state auditory evoked potentials. (Lec. 4) Pre: graduate standing and CMD 551 or permission of instructor. In alternate years.

CMD 560 Voice Disorders LEC (3 crs.) Etiology and symptomology of vocal pathology for adults and children: intervention strategies for organic, behavioral and psychological voice disorders: rehabilitation team approach to voice-resonance problems associated with cleft palate. Pre: Graduate standing or permission of instructor.

CMD 561 Phonological Disorders LEC (3 crs.) Assessment, design, and implementation of therapeutic management programs for various speech production disorders at the articulatory and phonological levels. (Lec. 3) Pre: CMD 372, 373, 374, 375, or equivalent, or permission of instructor.

CMD 562 Speech-Language Pathology for Audiologists A,B,C LEC (1-3 crs.) Speech-language pathology for audiology students. Language disorders in children, speech sound disorders, speech/language change and disorders in adults. Modular format with variable credits (Lec. 1-3) Pre: graduate standing. Offered alternate years in the spring semester.

CMD 563 Language Disorders in Infants and Toddlers LEC (3 crs.) The speech-language pathologist's role and responsibilities in the diagnosis and treatment of infants and toddlers (0-3 yrs.) either at risk for or exhibiting bona fide communication delays or disorders; family-centered approaches to intervention. (Lec. 3) Pre: graduate standing, completion of CMD 375 (Language development) or equivalent or permission of instructor. Offered alternate years in the spring semester.

CMD 564 Language Disorders In School-Aged Children LEC (3 crs.) Study of communication deficits in learning-disabled school-aged children; differential diagnoses; assessment of cognitive functioning; language processing and discourse; and therapeutic strategies for training abstract and functional language. (Lec. 3) Pre: graduate standing or permission of instructor.

CMD 565 Pre-Practicum in Speech-Language Pathology SEM (1 cr.) Case study methodology to facilitate students' transition from coursework to clinic. Solve open-ended real world problems. Apply course knowledge to analyze issues and formulate workable solutions. (Seminar, 1) Pre: Graduate standing. S/U

CMD 569 Test and Measurement in Speech-Language Pathology LEC (3 crs.) Procedures for evaluation and diagnosis in speech-language pathology. Psychometric considerations in testing. Implications of evaluation information for differential diagnosis, prognosis, referrals, and therapeutic programs. Multicultural considerations in the diagnostic process. (Lec. 3) Pre: CMD 372, 373, 374, 375, 465 or equivalent; graduate standing or permission of instructor.

CMD 570 Clinical Practicum In Communicative Disorders PRA (1-5 crs.) Supervised assessment and rehabilitation procedures with persons experiencing communicative disorders in speech-language pathology and/or audiology. Practicum sites scheduled on campus and within hospital, school, institutional, and private settings. (Practicum) Pre: graduate standing, 25 observation hours, and appropriate course work.

CMD 571 Medical Speech-language Pathology SEM (2 crs.) Teaches evaluation, diagnosis, and treatment of adults and children seen in a medical setting. Appropriate for clinicians working in a medical setting or treating people discharged from a medical setting. (Seminar) Pre: graduate standing.

CMD 574 Hearing Conservation LEC (2 crs.) The auditory and non-auditory effects of noise on human beings. Hearing conservation plan development and monitoring as well as legal issues will be reviewed. (Lec. 2) Pre: permission of instructor. Offered Spring.

CMD 575 Management of Deaf and Special Populations LEC (3 crs.) Identification of needs related to health, communication, and quality of life in deaf and special populations. Management strategies and the audiologists role will be described. (Lec. 3) Pre: CMD 454 and 551, graduate standing. Offered Spring.

CMD 576 Cochlear Implants LEC (2 crs.) Concepts and issues related to cochlear implantation as a remediation for deafness in adults and children. Hardware, programming, rehabilitative, and surgical issues will be addressed. (Lec. 2) Pre: graduate standing in audiology or permission of instructor. Offered fall every third year.

CMD 577 Vestibular Rehabilitation and Tinnitus Management LEC (2 crs.) Management of the vertiginous patient to reduce symptoms and restore function. Tinnitus assessment and therapeutic strategies are reviewed. (Lec. 2) Pre: CMD 454, 551, and 572, graduate standing. Offered Spring.

CMD 580 Augmentative and Alternative Communication ONL (2 crs.) Review of unaided (manual) approches to communication. Discussion of aided methods using communication boards or other mechanical electronic devices. (Lec. 2/Online) Pre: graduate standing or permission of instructor.

CMD 581 Dysphagia LEC (3 crs.) Basic introduction to the knowledge and skills needed by speech- language pathologists providing clinical services to dysphagic patients in medical settings. (Lec. 3) Pre: graduate standing or permission of instructor.

CMD 582 Motor Speech Disorders LEC (3 crs.) Neurosystem pathologies and mechanisms affecting speech. Prepares students to diagnose, assess, and treat adults with acquired motor speech disorders. (Lec. 3) Pre: Graduate standing and a neuroanatomy course or concurrent registration in CMD 377.

CMD 583 Acquired Cognitive Communication Disorders LEC (3 crs.) Cross-listed as (CMD) NEU 583. Study of acquired cognitive problems resulting from neurological disorders and diseases; differential diagnoses; assessment of the domains of cognition; and therapeutic strategies for cognitive rehabilitation. (Lec. 3) Pre: graduate standing.

CMD 584 Language Disorders in Developmentally Young Children LEC (3 crs.) Study of communication deficits in developmentally young and multi-handicapped children; types of language problems; differential diagnoses; assessment of conceptual requisites and concrete language skills; and interactive therapeutic strategies. (Lec. 3) Pre: graduate standing or permission of instructor.

CMD 585 Language Disorders in Adults LEC (3 crs.) Provides basic information on the characteristics, assessment, and treatment of adults with acquired language disorders secondary to stroke, head injury, and progressive neurological diseases. (Lec. 3) Pre: graduate standing or permission of instructor.

CMD 586 Multisensory Instruction in Language and Literacy SEM (3 crs.) Intervention for reading, spelling, and written expression based on principles of Orton-Gillingham approach for working with individuals with dyslexia and other learning disabilities. (Seminar 3). Pre: matriculated graduate student in Speech-Language Pathology or permission of instructor.

CMD 592 Disorders of Fluency LEC (3 crs.) Study of nature and causes of stuttering; analyses of current theories and research concerning stuttering and cluttering; development of a rationale for diagnosis, case selection, and intervention. (Lec. 3) Pre: graduate standing and/or permission of instructor.

CMD 594 Counseling in Communicative Disorders LEC (1 cr.) Considerations in counseling in speech-language pathology and audiology. Multiple factors influencing communication between client/family and professionals. Study of clinical skills in counseling. Ethical and professional issues. (Lec. 1) Pre: graduate standing or permission of instructor. In alternate years.

CMD 595 Instrumentation and Computer Use in Communicative Disorders LAB (1 cr.) Topics in applied instrumentation and computer use for students in speech-language pathology and audiology. Practical experience in calibration of instruments and the use of current professional software. (Lab. 2) Pre: graduate standing or permission of instructor. In alternate years.

CMD 598 Special Problems IND (1-6 crs.) Selected areas of study pertinent to communicative disorders. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) Pre: graduate standing.

CMD 599 Master's Thesis Research IND (1-6 crs.) Number of credits

is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: graduate standing. S/U credit.

CMD 658 Advanced Electrophysiological Assessment of Hearing LEC (4 crs.) Study of the most current research regarding electrophysiological assessment of hearing. Detailed consideration of such issues as stimulus variables, age, sex, sleep state, etc. Consideration of the neurophysiology underlying the measured electrical potentials. Must be taken concurrently with CMD 659. (Lec. 4) Pre: graduate standing in audiology or permission of instructor. Offered fall every third year.

CMD 670 Audiology Residency EXT (6 crs.) Full-time equivalent off campus clinical residency in audiology. Direct clinical experience with on-site supervision plus oversight by URI faculty. Placements may vary and combine more than one site. (Externship) May be repeated for a total of 12 credits. Pre: graduate standing in audiology and completion of CMD 570.

CMD 691 Research in Communicative Disorders IND (1-3 crs.) Assigned research on an advanced level. Students are required to outline the problem, conduct the necessary literature survey and experimental work, and present their observations and conclusions in a report. (Independent Study). Pre: Enrollment in the Doctoral Program in Health Sciences. May be repeated for up to 6 credits.

CMD 698 Capstone Project in Audiology SEM (3 crs.) This registration purposes to tie together classroom and clinical experiences. Discussions will be based on externship experiences. A major paper on one clinical problem chosen by the student will be presented to students and faculty in audiology. (Seminar) Pre: graduate standing in audiology.

CMD 699 Doctoral Dissertation Research IND (1-12 crs.) (1-12 credits) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study). Pre: Enrollment in the Doctoral Program in Health Sciences. S/U credit.

COM | Communication Studies

COM 1B2C1 COM-General Education/Elective Communicate Effectively (B2), Civic Knowledge & Responsibility (C1) LEC COM-General Education/Elective Communicate Effectively (B2), Civic Knowledge & Responsibility (C1). For Transfer only.

COM 100 Communication Fundamentals LEC (3 crs.) Integrates basic theory and experience in a variety of communication contexts including public speaking, small groups, and interpersonal communication. Examines human differences in order to develop more effective communication skills. Not open to students with credit in 110. (Lec. 3) (B2) (C1)

COM 100H Honors Section of COM 100: Communication Fundamentals LEC (3 crs.) Honors Section of COM 100: Communication Fundamentals. Not open to students with credit in COM 110. (Lec. 3) Pre: Must have a 3.40 overall GPA. (B2) (C1)

COM 108G Spaceship Earth: An Introduction to Systems LEC (4 crs.) Cross-listed as (COM), SUS 108G. Through in-depth study of films, readings and web sites, students will explore the economic and ecological principles of sustainability and the rhetorical strands linking scientific evidence, public policies and individual behavior. (Lec. 3, Rec. 1/Online) (B4) (C1) (GC)

COM 191 Topics in Communication Studies LEC (1-3 crs.) Study of select topics in Communication Studies. Subjects vary by availability. May be taken twice with different topics. (Lec. 1-3) Pre: permission of instructor.

COM 202 Public Speaking LEC (3 crs.) Theory, attitudes and skills essential to effective and ethical public communication. Focus on research, selection and use of evidence, construction of arguments, organization, audience analysis and presentational skills. (Lec. 3/Online) Pre: COM 100 or 100H or 110.

COM 203 Introduction to Sport Media & Communication LEC (3 crs.) This course provides an overview of the use of media and communication in sport. It covers a survey of perspectives and addresses the changing 24/7 landscape of media and communication. (Lec. 3) Pre: COM 100 or PRS 100 or permission of the instructor.

COM 204 Introduction to Sports Broadcasting LEC (3 crs.) The study & practice of sports broadcasting with emphasis on producing sports feature reports, play-by-play & analyst production for television and radio, production of sports radio talk shows, and anchoring television sportscasts. (Lec. 3) Pre: COM 100.

COM 207 Forensic Workshop PRA (1 cr.) Open to students participating in speech or debate activities. (Practicum) Pre: COM 100 or 100H or 110 and permission of the director of debate. May be repeated for a maximum of 4 credits.

COM 208 Argumentation and Debate LEC (3 crs.) Introduces argumentation theory through the model of academic debate. Stresses critical-thinking skills including analysis, research, organization, and written and oral presentations. Debates are conducted on important social and political issues. (Lec. 3) Pre: COM 100 or 100H or 110.

COM 208H Honors Section: Argumentation and Debate LEC (3 crs.) Honors Section of COM 208: Argumentation and Debate. Introduces argumentation theory through the model of academic debate. Stresses critical-thinking skills including analysis, research, organization, and written and oral presentations. Debates are conducted on important social and political issues. (Lec. 3) Pre: 3.40 or better overall GPA, and COM 100 or 100H or 110.

COM 209 Great American Speeches LEC (3 crs.) The study of historically significant ideas, issues, and causes through the critical analysis of selected American speeches. (Lec. 3) Pre: COM 100 or 100H or 110.

COM 210 Persuasion: The Rhetoric of Influence LEC (3 crs.) Analysis of communication influencing beliefs, attitudes, and/or behavior. Investigation of rhetorical elements of logical, emotional, and ethical appeals. Study of elements critical for effective producers and consumers of persuasion. (Lec. 3/Online) Pre: COM 100 or 100H or 110.

COM 221 Interpersonal Communication LEC (3 crs.) Examines basic theory and skills, including impart of perception, self-concept, listening, nonverbal messages, and language on interpersonal communication, including conflict, relationship development, friendship, family and romantic relationships. (Lec. 3/Online) Pre: COM 100 or 100H or 110.

COM 230 The Art of Storytelling LEC (3 crs.) Recognition and appreciation of content and communication of thought and emotion through storytelling. Practice in the creation and delivery of stories through oral performance and digital storytelling. (Lec. 3) Pre: COM100.

COM 243G Advertising and Consumerism LEC (3 crs.) Critical studies course examining the role of advertising in American consumerism. Course examines the strategies of the adverting industry as well as its effects on our personal, cultural, global, and environmental landscapes. (Lec. 3) (A2) (GC)

COM 243GH Honors Section of COM 243G: Advertising and Consumerism LEC (3 crs.) Honors Section of COM 243G: Advertising and Consumerism. Critical studies course examining the role of advertising in American consumerism. Course examines the strategies of the adverting industry as well as its effects on our personal, cultural, global, and environmental landscapes. (Lec. 3) Pre: 3.40 overall GPA. (A2) (GC)

COM 246 New Media and Society LEC (3 crs.) Introduction to basic practices and theories necessary for understanding and contributing to digital culture. Combines new media theory and practice on topics including blogging, social networking, and virtual reality. (Lec. 3)

COM 246H Honors Section of COM 246: New Media and Society LEC (3 crs.) Honors section of COM 246: New Media and Society. (Lec. 3) Pre: 3.40 overall GPA.

COM 250 Digital and Media Literacy ONL (3 crs.) Explores how life, work and citizenship have been impacted by digital media and culture & how to critically analyze and create media in a variety of forms. (Online) (B2) (C1)

COM 251 Small Group Communication LEC (3 crs.) The study of communicative functions in the small group setting. Includes group dynamics, leadership, problem solving, and decision making. Emphasis on theory and application. (Lec. 3/Online) Pre: COM 100 or 100H or 110.

COM 271 Web Design and Programming LEC (4 crs.) Cross-listed as (CSC), COM 271. Learn to communicate effectively using principles and technologies of client-side web design and programming. Explores HTML, CSS, and JavaScript; current and evolving web capabilities accessibility and usability; and workflow tools. (Lec. 2, Lab. 4)

COM 291 Communication Teaching Practicum PRA (1 cr.) Supervised participation in instructional practice for students in communication. Provides exposure to pragmatic classroom issues and experience in various aspects of teaching at a college level. (Practicum) Pre: permission of instructor. May be repeated for a maximum of 2 credits. S/U only.

COM 302 Advanced Public Speaking LEC (3 crs.) Advanced study of public speaking and speech writing. Speaking in television and business settings. Speaking with a manuscript, writing speeches for others, and speech criticism. (Lec. 3) Pre: COM 202 and junior standing in a degree-granting college or permission of instructor.

COM 306 Audio Media LEC (4 crs.) Cross-listed as (COM), FLM 306. Basic audio production concepts and techniques for radio, film, and music. Students completing this course are eligible to take the Pro Tools 101 pre-certification exam. (Lec. 3, Online 1)

COM 308 Advanced Argumentation and Debate LEC (3 crs.) Analysis of the theories of argumentation through specialized forms of debate. Use of legislative, legal, and other situationally specific forms of debate to apply the theories of argumentation. (Lec. 3) Pre: COM 208 and junior standing in a degree-granting college or permission of instructor.

COM 310 Topics in Communication LEC (3 crs.) Analysis of contemporary rhetorical theories as they relate to speaking in business, civil rights, education, government, labor, law, and religion. Focus each semester on a critical contemporary issue. (Lec. 3/Online) Some topics are offered online. Pre: junior standing in a degree-granting college or permission of instructor. May be repeated for credit.

COM 310H Honors Section of COM 310H: Topics in Communication LEC (3 crs.) Honors Section of COM 310H: Topics in Communication: Analysis of contemporary rhetorical theories as they relate to speaking in business, civil rights, education, government, labor, law, and religion. Focus each semester on a critical contemporary issue. (Lec. 3/Online) Some topics are offered online. Pre: junior standing in a degree-granting college and a 3.40 overall GPA or higher, or permission of instructor. May be repeated for credit.

COM 312 Introduction to Video Games: Design and Development LEC (4 crs.) Cross-listed as (SCM), ART, COM, FLM 312. Introduces video game development through the perspective of artistic design and production. Projects include pitches, storyboards and mock-ups, narratives and scripts, and prototypes. Entails substantial collaborative work. (Lec. 3, Studio 2) Pre: sophomore standing.

COM 315 Environmental Dimensions of Communication LEC (3 crs.) Cross-listed as (COM), SUS 315. Investigation of individual and mediated sustainability messages, impact of communication on environmental knowledge, attitudes and behavior; design of communication campaigns to affect resource use, community engagement and ecological responsibility. (Lec. 3/Online) Pre: COM 100, junior standing in a degree-granting college or permission of instructor. (D1) (C1)

COM 316A Rhetorical Criticism LEC (3 crs.) Study of select methods in the evaluation of communication. Critical methods include but are not limited to rhetorical, media, cultural and various critical theories of race and gender. May be offered online. (Lec. 3/Online)Pre: junior standing in degree-granting college or permission of instructor. May not be repeated as COM 316A or COM 316B.

COM 316B Television Criticism LEC (3 crs.) Study of select methods in the evaluation of communication. Critical methods include but are not limited to rhetorical, media, cultural and various critical theories of race and gender. Pre: junior standing in degree-granting college or permission of instructor. May not be repeated as COM 316A or COM 316B.

COM 320 Health Communication LEC (3 crs.) Cross-listed as (HLT), COM 320. Communication is critical in disease prevention, health promotion and healthcare delivery. Ecological and systems perspectives guide the examination of health communication messages in individual, interpersonal, group, organizational, and mass/mediated contexts. (Lec. 3) Pre: HLT200 or HDF357 or COM221 or COM251 or COM210 or permission of instructor.

COM 321G Social Media and Interpersonal Communication LEC (3 crs.) Explore theories and research on interpersonal communication and social media. Examine social media uses and impact on communication, perceptions, identity construction, relationships, and society. (Lec. 3/Online) Pre: COM 100 or permission of instructor. (A2) (GC)

COM 321GH Honors Section of COM 321G: Social Media and Interpersonal Communication LEC (3 crs.) Honors Sections of COM 321G: Social Media and Interpersonal Communication. Explore theories and research on interpersonal communication and social media. Examine social media uses and impact on communication, perceptions, identity construction, relationships, and society. (Lec. 3) Pre: COM 100 and overall GPA of 3.4 or higher, or permission of instructor. (A2) (GC)

COM 322 Gender and Communication LEC (3 crs.) Survey of theories and research on gender and communication. Examines interface of gender and human interaction in interpersonal, group (including family), educational, organizational, mass media, and social movement contexts. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

COM 324 Nonverbal Communication LEC (3 crs.) Examines nonverbal communication codes, including their structures, usages, and interrelationships. Stresses student understanding, analysis, and application of nonverbal communication through lecture, discussion, and experiential activities. (Lec. 3) Pre: COM 202 or 221, and junior standing in a degree-granting college or permission of instructor.

COM 325 Communication in Interviewing LEC (3 crs.) Theory and practice of interviewing as planned communication in different settings for various purposes, including research, professions, and employment. Human diversity, ethics, interpersonal dynamics, and writing are emphasized. (Lec. 3) Pre: COM 202 and junior standing in a degree-granting college or permission of instructor.

COM 326 Family Communication LEC (3 crs.) Examines family communication from a symbolic interaction and systems theory perspective. Focuses on primary family functions including cohesion, and case studies. (Lec. 3/Online) Pre: COM 202 and 221 and junior standing in a degree-granting college or permission of instructor.

COM 334 Orality and Ancient Greece LEC (3 crs.) Integration of the significant role of rhetoric, orality, presentation skills/styles, literature and history with the culture of the time. (Lec. 3) Pre: COM 100 and junior standing in a degree-granting college or permission of instructor.

COM 335 Orality and Ancient Rome LEC (3 crs.) Integration of the significant role of rhetoric, orality, presentation skills/styles, literature and history with the culture of the time. (Lec. 3) Pre: COM 100 and junior standing in a degree-granting college or permission of instructor.

COM 340 Electronic Media Programming LEC (3 crs.) Overview of various aspects of the operation of radio, television, and cable TV, including industry structure, audience measurement (ratings), programming, and promotion. (Lec. 3) Pre: Junior standing in a degree-granting college or permission of instructor.

COM 341 Documentary Pre-production LEC (3 crs.) Understanding the documentary form in both its historic and modern context. Basic camera, shooting, and interviewing techniques are studied. Research

and writing a documentary proposal required. (Lec. 3) Pre: Junior standing in a degree-granting college or permission of instructor.

COM 342 Documentary Production LEC (3 crs.) Builds on work completed in 341. Field camera operation, lighting, archival materials, writing, directing, producing, and editing a documentary short on a topic researched and pre-produced in 341. (Lec. 3) Pre: COM 341 and junior standing in a degree-granting college or permission of instructor.

COM 344 The Athlete: Short Films LEC (4 crs.) Cross-listed as (COM), FLM 344. Students shall study and produce short films representing stories of student athletes past & present. The course will prepare students to engage approaches to documentary, commercials, narrative and experimental films. (Lec. 4) Pre: COM 342 or FLM 351 or FLM 445 or permission of instructor.

COM 346 Social and Cultural Aspects of Media LEC (3 crs.) Explores social and cultural dimensions of media. Includes case studies of print, television, film, video, and computer-mediated communication. (Lec. 3) Pre: Junior standing in a degree-granting college or permission of instructor.

COM 351 Organizational Communication Skills LEC (3 crs.) Examination of business and organizational communication. Emphasis on channels of communication, communication barriers, leadership, and the development of communication skills for business and professions. (Lec. 3) Pre: Junior standing in a degree-granting college or permission of instructor.

COM 354 (BUS) International Business Communications Exchange LEC (3 crs.) Cross-listed as (MGT (BUS) 317), COM 354. Examination of effective international business communication. Use of worldwide email network to exchange views on business topics with counterparts abroad. (Lec. 3/Online) Pre: permission of instructor.

COM 361 Intercultural Communication LEC (3 crs.) Study of cultural similarities and differences as they affect communication within and across cultural boundaries. (Lec. 3/Online) Pre: Junior standing in a degree-granting college or permission of instructor.

COM 361H Honors Section of COM 361: Intercultural Communication LEC (3 crs.) Honors Section of COM 361: Intercultural Communication. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor and 3.40 overall GPA.

COM 369G Technologies and Music LEC (3 crs.) Cross-listed as (ELE), MUS, COM 369G. Introduction to 12-tone music; orchestra instruments; mathematics and physics of musical acoustics; physiology of auditory system; audio engineering; microphones, amplifiers and speakers; software for synthesis; ethics in music industry. (Lec. 3) Pre: Junior standing or permission of instructor. (A1) (GC)

COM 372 Dynamic Web Design and Programming LEC (4 crs.) Cross-listed as (CSC), COM 372. Web-based information technology for communication and delivery of dynamically generated content. Technology will include current practice and tools for server-side programming, client-side programming, third-party services, data storage, and security concerns. (Lec. 2, Lab. 4) Pre: CSC / COM 271 and junior standing in a degree-granting college or permission of instructor.

COM 381 Research Methods in Communication LEC (3 crs.) Basic concepts and techniques of communication research. Emphasis on analysis of existing communication research and on application of research processes to communication problems or phenomena. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

COM 382 Communication Theory LEC (3 crs.) A critical survey of social science based communication theories; an examination of the nature, processes and functions of communication theory in a variety of contexts. (Lec. 3/Online) Pre: COM 100, COM 202 or COM 221 and junior standing in a degree-granting college or permission of instructor.

COM 383 Rhetorical Theory LEC (3 crs.) Surveys and analyzes rhetorical communication theories and theorists from classical to contemporary times and focuses on rhetoric's relationship with philosophy, knowledge, reason, science, technology, and culture. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

COM 385 Crossover: Sports Communication Research LEC (3 crs.) This class will introduce sports analytics research methods and investigate how human communication affects individual performance, team success, and profits. (Lec. 3) Pre: COM 100, COM 202 or COM 221 and junior standing in a degree-granting college or permission of instructor. Recommended: COM 381. (B3) (B2)

COM 392 Communication Honors Work IND (1-3 crs.) Thesis work or an equivalent independent project under faculty supervision for honor students. (Independent Study) Pre: Junior standing in a degree-granting college or permission of instructor.

COM 402 Leadership and Motivation LEC (3 crs.) Examination of theory and research in the areas of leadership and motivation in organizational settings. Emphasis on application of theory in developing essential leadership skills within individuals and in creating effective motivational programs within organizations. (Lec. 3) Pre: MGT (BUS) 340, MGT (BUS) 341 or COM 251 and junior standing in a degree-granting college or permission of instructor.

COM 406 Advanced Audio Media LEC (4 crs.) Cross-listed as (COM), FLM 406. Advanced audio production for media including radio, music, and film. Upon completing, students with Pro Tools 101 pre-certification will be eligible for Pro Tools 110 certification. (Lec. 3, Online 1) Pre: COM/FLM 306.

COM 410 Advanced Topics in Communication Studies LEC (3 crs.) Advanced study of selected topics. Subject will vary according to the expertise and availability of instructors. (Lec. 3/Online) Pre: COM 100 and any 300-level COM course and junior standing in a degree-granting college or permission of instructor. May be repeated for a total of 9 credits with different topics. Not for graduate credit.

COM 411 Advanced Rhetorical Theory LEC (3 crs.) Advanced study of select contemporary rhetorical theories and their relevance to current topics in language, knowledge, philosophy, culture, modernity and postmodernity. (Lec. 3) Pre: COM 383 and junior standing in a degree-granting college or permission of instructor.

COM 414 The Rhetoric of Sports in Film LEC (3 crs.) Studies the rhetoric of sports in film. Students identify and analyze rhetorical messages embedded in films that deal with sports as reflections of the filmmaker's vision by applying film and rhetorical theory. (Lec. 3/Online) Pre: COM 381 and 383 and junior standing in a degree-granting college or permission of instructor. Not for graduate credit.

COM 415 The Ethics of Persuasion LEC (3 crs.) Relation of persuasion to ethics is examined. Purposes, means, results, and contexts are considered in making rhetorical judgments of interpersonal, political, and institutional communication. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

COM 416 Propaganda LEC (3 crs.) Examines the history, theory and practice of propaganda. (Lec. 3/Online) Pre: COM 383 and junior standing in a degree-granting college or permission of instructor.

COM 417 Media Industry History & Practice LEC (4 crs.) Cross-listed as (FLM) COM 417. Examines the industrial parameters of current and past media industries. The key economic and commercial factors and how these have influenced the shape of the current industry are highlighted. (Lec. 4) Pre: junior standing or permission of instructor.

COM 421 Advanced Interpersonal Communication LEC (3 crs.) Critical study of major issues and theories of interpersonal communication. Focuses on history, models, and research, including conversation, influence, intimacy, language, and relationships. (Lec. 3) Pre: COM 221 and junior standing in a degree-granting college or permission of instructor.

COM 422 Communication and Conflict Intervention LEC (3 crs.) An examination of the role of communication theories in conflict intervention in interpersonal, group, and organizational settings. Emphasis on applying theories through simulations, role plays, case studies, and

discussions. (Lec. 3) Pre: COM 221 or COM 251 and junior standing in a degree-granting college or permission of instructor.

COM 435 Directing Group Performance of Nondramatic Literature LEC (3 crs.) Practice in Reader's Theatre and Chamber Theatre. Emphasis on direction as a rhetorical device in group work with nondramatic literature and compilation of scripts for individual and group performance. (Lec. 3) Pre: COM 230 and junior standing in a degree-granting college or permission of instructor. In alternate years. Not for graduate credit.

COM 440 Telecommunications Processes and Audience Behavior LEC (3 crs.) Surveys theories and research concerning role of electronic mass media in contemporary society. Focuses on interplay between mass media content and audience behavior; provides framework for analyzing current telecommunications issues. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor.

COM 441 Race, Class, and Gender in the Media LEC (3 crs.) Exploration of the complex dynamics of race relations and political discourse as contexted in the media. Rhetorical methods of analysis are used to study contemporary media coverage of race issues. (Lec. 3/Online) Pre: COM 316A or COM 383 and junior standing in a degree-granting college or permission of instructor.

COM 442 Strategic Media Communication LEC (3 crs.) Cross-listed as (PRS), WRT, COM 442, JOR 443. Introduces strategic media relation tactics when responding to the media, specifically crisis communication situations. Students gain practical experience in various writing and speaking opportunities to effectively work with the media. (Lec. 3) Pre: Junior standing; open only to majors in Communication Studies, Public Relations, Journalism, and Writing.

COM 445 Media Advertising LEC (3 crs.) Examination of theory and practice in media advertising. Students will acquire and analyze commercials made by professionals and create and produce media advertisements. (Lec. 3) Pre: COM 210 and junior standing in a degree-granting college or permission of instructor.

COM 446 Media Theory LEC (3 crs.) Examines major theoretical approaches to the study of media. Includes perspectives on media institutions, media texts, and media audiences. (Lec. 3)

COM 447 Entertainment Media Research LEC (3 crs.) Examines the practice and development of market research across a range of media industry products, including TV, movies, and digital entertainment. (Lec. 3) Pre: Junior standing or permission of instructor.

COM 450 Organizational Communication Theory LEC (3 crs.) Surveys theory and practice of communication in organizations. Examines interface of organizational, management, and communication theories. Explores human interaction, flows and formats in organizations; stresses student analysis of organizational communication. (Lec. 3) Pre: junior standing in a degree-granting college or permission of instructor.

COM 455 Science and Communication in a Century of Limits LEC (3 crs.) Communication of scientific observations and projections of global resource and environmental limits is focused on persuading formation of publics and social movements needed for widespread action in the 21st century. (Lec. 3) Pre: seniors with varied backgrounds in science and communications.

COM 460 Environmental Communication: Local & Global LEC (3 crs.) Cross-listed as (COM) SUS 460. Address local and global environmental issues through communication. Target key audiences and move them towards sustainable change and active involvement, improved environmental conditions and quality of life. (Lec. 1, Seminar 2/Online) Pre: junior standing. (C1) (B4)

COM 461 Managing Cultural Differences in Organizations LEC (3 crs.) Exploring how to manage cultural differences in organizations and to adapt to culturally diverse organizations by applying the skills of intercultural sensitivity and intercultural competence. (Lec. 3/Online) Pre: junior standing in a degree-granting college or permission of instructor. Not open to students who have credit for MGT (BUS) 448, MBA 579.

COM 462 Communication and Global Society LEC (3 crs.) Exploring various aspects of the relationship between communication and globalization, including a new sense of community, cultural diversity, cultural identity, global media, and global citizenship. (Lec. 3/Online) Pre: six credits in communication and junior standing in a degree-granting college or permission of instructor.

COM 472 Internship in Communication Studies PRA (1-3 crs.) Provides the student with direct supervised participation in a variety of communication situations and occupations. (Practicum) Pre: 18 credits in communication studies and junior standing in a degree-granting college and permission of instructor. S/U only.

COM 477 Internship in Communication Studies PRA (1-6 crs.) Provides the student with direct supervised participation in a variety of communication situations and occupations. May be repeated; maximum of 6 credits allowed toward graduation. (Practicum) Pre: 18 credits in communication studies and junior standing in a degree-granting college and permission of instructor. S/U only.

COM 491 Special Problems IND (1-3 crs.) Selected areas of study pertinent to communication. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) Pre: junior standing in a degree-granting college and permission of instructor.

COM 492 Special Problems IND (1-3 crs.) Selected areas of study pertinent to communication. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Independent Study) Pre: junior standing in a degree-granting college and permission of instructor.

COM 501 Communication Theory SEM (3 crs.) Discusses the significance of theory to the understanding of communication. Gives an overview of select major theories applicable to the study of communication. Explores the relationship between theory and research and investigates emerging theories and applications of theory to emerging forms of communication. (Seminar)

COM 502 Communication Methods SEM (3 crs.) Explores research methods to understand communication phenomena, critique and analyze the value of communication studies, and independently conduct research to answer communication questions and problems. (Seminar)

COM 503 Graduate Practicum Teaching Communication Seminar SEM (1 cr.) Practicum for students teaching postsecondary courses in communication. Provides pedagogical training through discussion, observation, and critique. Development and practice of skills, strategies, and pragmatic aspects of teaching in a university community. Must be taken for a total of 3 credits. (Seminar) Pre: communication studies graduate teaching status. S/U only.

COM 510 Seminar In Interpersonal Communication SEM (3 crs.) In-depth examination of a topic in interpersonal communication. Students review and discuss appropriate literature and author a major research paper. (Seminar) Pre: graduate standing or permission of instructor.

COM 520 Seminar in Media Studies SEM (3 crs.) In-depth examination of a topic in mass or electronic media, or new information technologies. Students review and discuss appropriate literature and author a major research paper. May be repeated under a different topic. (Seminar) Pre: graduate standing or permission of instructor.

COM 522 Seminar in Media and the Environment SEM (3 crs.) Cross-listed as (COM), MAF 522. Employs core concepts and theories of media studies in the analysis of environmental issues. Fulfills COM 520 requirement. (Seminar) Pre: Graduate standing or permission of instructor.

COM 530 Seminar in Organizational Communication SEM (3 crs.) In-depth examination of a topic in organizational communication. Students will review and discuss appropriate literature and author a major research paper. May be repeated once under a different topic. (Seminar)

COM 540 Seminar in Public Discourse SEM (3 crs.) In-depth examination of a topic in public discourse. Students will review and discuss appropriate literature and author a major research paper. May be repeated once under a different topic. (Seminar)

COM 591 Independent Study IND (1-3 crs.) Students will work with faculty on independent research projects designed to enhance their research skills and further emphasize the content area most germane to the student.

COM 592 Independent Study IND (1-3 crs.) Students will work with faculty on independent research projects designed to enhance their research skills and further emphasize the content area most germane to the student.

COM 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CPL | Community Planning

CPL 202 Introductory Urban Geography: Understanding Cities LEC (3 crs.) Cross-listed as (CPL), GEG 202. Introduction to the origin and development of cities in the U.S.; contemporary urban issues as well as the planning and governance of cities in the U.S. (Lec. 3/ Online) (A2) (C1)

CPL 391 Directed Study in Community Planning IND (1-3 crs.) Independent work in planning for individual students or groups. (Independent Study) Pre: CPL 410 and permission of instructor.

CPL 392 Directed Study in Community Planning IND (1-3 crs.) Independent work in planning for individual students or groups. (Independent Study) Pre: CPL 410 and permission of instructor.

CPL 397 Field Work In Community Planning PRA (1-3 crs.) Student works as a part-time intern in a planning agency under the supervision of a faculty advisor. Fieldwork must be pre-arranged with agency and instructor. (Practicum) Pre: CPL 410 and permission of instructor.

CPL 410 Fundamentals of Community Planning Practice LEC (3 crs.) Survey of the planning profession and its different functional areas: land use, environment, urban design, transportation, housing, economic development, and growth management. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

CPL 434 Introduction to Environmental Law LEC (3 crs.) Cross-listed as (CPL), LAR 434. Surveys issues arising out of laws designed to protect the environment and manage resources: right to a decent environment, government regulation versus private property rights, citizen participation in planning environmental controls. (Lec. 3) Pre: sophomore standing (45 credits completed) and above.

CPL 450 Urban Design LEC (3 crs.) Concepts of contemporary urban landscapes, ranging from entire cities to specific building sites. Includes private development, public spaces, transportation systems, aesthetics, and sprawl. Emphasis on urban design processes and standards. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

CPL 483 Land Development LEC (3 crs.) Study of land development including land acquisition, development and project effectiveness. Techniques focus on land suitability and project viability, as well as environmental considerations. Focus on coastal development. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

CPL 485 Environmental Planning LEC (3 crs.) Theories, methodologies, and substantive concerns of environmental resource analysis with attention given to coastal environmental issues. Focus on land, soils, watersheds, water quality, vegetation, air quality, wildlife, noise pollution. (Lec. 3) Pre: junior, senior, or graduate standing, or permission of instructor.

CPL 501 Introduction to Community Planning Practice LEC (3 crs.) The development of community planning in the United States, history of governmental planning and evaluation of the planning profession, and the elements of planning practice. (Lec. 3)

CPL 510 Community Planning and Political and Social Change SEM (3 crs.) Introduction to systems and central theories of determinants for social and planned change in urban and urbanizing communities. Focus on methodologies for political and social assessments. (Seminar) Pre: CPL 523 or permission of instructor.

CPL 516 Seminar On The Urban Waterfront SEM (3 crs.) Cross-listed as (MAF), CPL 516. The urban environment and its evolution, structure, and function as it pertains to metropolitan waterfronts and small recreational harbors. Emphasis on the permitting process, public participation, marine recreation, and management issues. Field trip and student project required. (Seminar)

CPL 522 Planning Law LEC (3 crs.) General review and discussion of legal principles and thought concerned with property rights, political power, and the legal aspects pertinent to the planning and development of public and private activities. (Lec. 3) Pre: second-year graduate standing or permission of instructor.

CPL 523 Planning Theory SEM (3 crs.) Critical survey of planning theories and contemporary planning concepts. Values, assumptions, and processes of various planning paradigms as related to decisions in community planning. Specific emphasis on values and ethics in planning theory. (Seminar) Service Learning.

CPL 525 Introduction To Planning Methods LEC (4 crs.) Application of basic quantitative methods in planning: collection, analysis, and presentation of demographic, housing, and economic data. Introductory survey techniques. Introduction to computer applications in planning. (Lec. 3, Lab. 2) Pre: one course in statistics or permission of instructor.

CPL 526 Planning & Policy Analysis LEC (3 crs.) Elementary social science research methods. Introduction to methodological approaches, research design, quantitative and qualitative data collection, and computerized data analysis in community planning and related urban social science. (Lec. 3, Lab. 2) Pre: CPL 525.

CPL 536 International Comparisons In Urban And Regional Planning SEM (3 crs.) Urban and regional development issues and policies in advanced and developing countries. Emphasis on population growth, urbanization, and spatial development. (Seminar) In alternate years.

CPL 537 Land Resource Economics LEC (3 crs.) Cross-listed as (CPL 537), EEC 532. The study of economic relationships of human and scarce natural and human-made resources. Supply and demand, rent theory, resources conservation, and the impact of public policy and law. (Lec. 3)

CPL 538 Site Planning LEC (3 crs.) Site analysis, planning, and design processes. Principles and techniques addressing residential, commercial, and mixed-use developments. Presents techniques to review site plans and evaluate post-development impacts. (Lec. 3) Pre: graduate standing or permission of instructor.

CPL 539 Environmental Law LEC (3 crs.) Analysis of specific environmental issues and policies including facility siting, land use and constitutional issues, comprehensive planning, public trust doctrine, concurrence and state impact assessments. Independent research and presentation required. (Lec. 3)

CPL 546 Urban and Rural Transportation LEC (3 crs.) Cross-listed as (CPL), CVE 546. Issues confronting planning for urban and rural transportation systems; the variety of policies that governments pursue in addressing issues and problems; technical and political constraints, transportation studies, and demand analysis techniques. (Lec. 3) Pre:CPL 410 or 501 or permission of instructor. In alternate years.

CPL 549 Seminar In Ecological Planning SEM (3 crs.) Advanced seminar in ecological planning. Topics include hazardous waste, power plant siting, major transportation facilities, solid waste, aquifer protection, among others. Particular emphasis on wetlands and marine and coastal settings. (Seminar) Pre: CPL 511 or permission of instructor.

CPL 591 Special Problems in Planning IND (1-6 crs.) Individual investigation of special problems in planning. (Independent Study)

CPL 592 Special Problems in Planning IND (1-6 crs.) Individual investigation of special problems in planning. (Independent Study)

CRG | Continuous Registration

CRG 999 Continuous Registration LEC CRG 999 is to be used by Graduate students who have completed all requirements except for making up grades of Incomplete, taking the masters comprehensive exam, or submitting the final version of a research project, thesis or dissertation. For Graduate students maintaining continuous enrollment and registered for no credit only. There is a fee for this registration. Please review tuition and fee information found at: http://www.uri.edu/es/acadinfo/acadyear/tuition.html

CSC | Computer Science

CSC 101 Computing Concepts LEC (4 crs.) Capabilities and limitations of computers. Applications of computers in today's society. Overview of computing systems and programs. Students will complete several projects using a computer. (Lec. 3, Lab. 2/Online) Not open to students who have credit in any college-level computer science course, or to computer science majors. (B3) (B4)

CSC 104 Puzzles + Games = Analytical Thinking LEC (4 crs.) Cross-listed as (CSC), MTH 104. Introduces mathematical problem solving and computational thinking through puzzles and games. Students work in small groups on activities to enhance their analytic abilities. Topics include numbers, probability, logic, algorithms, and graphs. (Lec. 4) Pre: High school mathematics. No programming required. (B3)

CSC 106 The Joy of Programming LEC (4 crs.) The art of problem solving through computer programming. Students explore innovative and cutting edge applications that may include mobile apps, multimedia, computer games, puzzles, robotics, graphics and animation, social networking, physical computing. (Lec. 3, Lab. 1/Online) Pre: Not open to students with credit in CSC courses at 200-level or above. (B3)

CSC 106H Honors Section of CSC 106: The Joy of Programing LEC (4 crs.) Honors Section of CSC 106, The Joy of Programming. The art of problem solving through computer programming. Students explore innovative and cutting edge applications that may include mobile apps, multimedia, computer games, puzzles, robotics, graphics and animation, social networking, physical computing. (Lec. 3, Lab. 1/Online) Pre: 3.40 overall GPA or higher. Not open to students with credit in CSC courses at 200-level or above. (B3)

CSC 110 Survey of Computer Science LEC (4 crs.) Broad introduction to computer science, with an emphasis on problem solving. Algorithm discovery. Algorithm analysis. Algorithmic solutions to problem in various sub-fields including operating systems, digital forensics, computer graphics, artificial intelligence, and bioinformatics. (Lec. 3, Lab. 2) Pre: C- or better in CSC 106 or approval of instructor.

CSC 120G The Impacts of Technology on American Society LEC (4 crs.) Explore how technology can be a tool for both shrinking the equity gap and reinforcing oppression, depending on the context and who wields the greatest influence. (Lec. 3, Rec. 1) (A2) (C3) (GC)

CSC 192 Introductory Topics in Computing LEC (1-4 crs.) Introductory topics of current interest in computing. This course may be repeated under different topics. (Lec., Project) Pre: permission of instructor.

CSC 200 Computer Problem Solving For Science and Engineering LEC (4 crs.) An integrated symbolic, numerical, and graphical approach to computer problem solving. Structured design; fundamental programming techniques. Computer algebra systems. Scientific, engineering, and mathematical applications. (Lec. 3, Lab. 2/Online) Pre: credit or concurrent enrollment in MTH 131 or 141. Not for major credit in computer science. May not be taken for credit by students with credit in CSC 201 or 211.

CSC 201 Introduction to Computer Programming LEC (4 crs.) Computer characteristics, algorithms, data representation, program development. Students will write several programs to solve numerical and nonnumerical problems. (Lec.3, Lab. 2) Pre: May not be taken for credit by students with credit in 200 or 211. (B3)

CSC 203 Computer Programming for Ocean Engineers LEC (3 crs.) Cross-listed as (OCE 213), CSC 203. Computer programming, with an emphasis on ocean engineering problems; developing codes in MATLAB /Python, covering standard topics including algorithms, procedural programming, OOP, conditional statements, Inputs/Outputs, Monte-Carlo methods, and optimization problems. (Lec 3.) Pre: MTH 243) or permission of instructor

CSC 210 Introduction to App Programming ONL (4 crs.) Android and/or Apple app programming. User interfaces, app algorithms, device interaction, app marketing. Students create fully functional apps. (Online) Pre: CSC106, or CSC201, or CSC211, or previous programming experience through permission of instructor.

CSC 211 Computer Programming LEC (4 crs.) Problem specification, solution design, and algorithm development. Topics may include data types, functions, iteration, recursion, object-oriented programming, functional programming, built-in data structures, file operations, numerical and string-based operations. (Lec. 3, Lab. 2) Pre: (C- or better in CSC 110) or (B or better in CSC 106 or in CSC 201 or in CSC 200) or ELE 208 or permission of instructor.

CSC 212 Data Structures and Abstractions LEC (4 crs.) Abstract data types and data structures. Pointers, linked lists, stacks, queues, binary trees, and tables. Fundamentals of software engineering. Development of object-oriented programming techniques. (Lec. 3, Lab. 2/Online) Pre: C- or better in CSC 211; and MTH 180 or Computer Engineering major.

CSC 220 Exploring Global Health Crisis Data LEC (1 cr.) Cross-listed as (CSC), DSP 220. Public health and recovery from global health crisis like COVID-19 depends on collection and analysis of accurate data. Publicly available health crisis datasets provide an opportunity to introduce students to data science through data exploration, while gaining a better understanding of the global crisis. The course focuses on interactive ways to introduce data exploration through 1-hour weekly working sessions and talks by data scientists who are working on these health crisis data. (Lec. 1)

CSC 271 Web Design and Programming LEC (4 crs.) Cross-listed as (CSC), COM 271. Learn to communicate effectively using principles and technologies of client-side web design and programming. Explores HTML, CSS, and JavaScript; current and evolving web capabilities accessibility and usability; and workflow tools. (Lec. 2, Lab. 4)

CSC 292 Topics in Computing LEC (1-4 crs.) Topics of current interest in computing. This course may be repeated under different topics. (Lec., Project) Pre: permission of instructor.

CSC 301 Fundamentals of Programming Languages LEC (4 crs.) Organization of programming languages, data and control structures, syntax and semantics, compilers and interpreters. Block structured languages, recursion, parameter passing, run-time storage management. Procedural, functional, object-oriented, and logical languages. (Lec. 3, Lab. 2/Online) Pre: CSC 212.

CSC 305 Software Engineering LEC (4 crs.) Programming environments and methodologies for the design, development, testing, and maintenance of large software systems. Student teams will develop a substantial software product from requirements to delivery using disciplined techniques. (Lec. 3, Project 3) Pre: CSC 212. (D1)

CSC 310 Programming for Data Science LEC (4 crs.) Cross-listed as (CSC), DSP 310. Data driven programming; data sets, file formats and meta-data; descriptive statistics, data visualization, and foundations of predictive data modeling; accessing web data and data bases; distributed data management. (Lec. 3, Lab. 2) Pre: CSC201 or CSC211 or equivalent, or permission of instructor. Computer Science majors must take as CSC 310; Data Science majors must take as DSP 310.

CSC 320 Social Issues in Computing LEC (4 crs.) Discussion of the social and ethical issues created by the use of computers. The problems that computers solve and those that they produce. Ethics and responsibilities of computer and data professionals. (Lec. 4) Pre: CSC 110 or must be in a degree-granting college

CSC 340 Applied Combinatorics LEC (4 crs.) Combinatorial problem-solving for computer science. Set theory and logic, proofs by induction and contradiction, elementary probability; arrangements, selections, distributions, binomials, inclusion-exclusion; recurrence relations and their solution; graph theory, trees, networks. (Lec. 4) Pre: (MTH 180 or MTH 141) and CSC 212, and student must be admitted to a degree-granting college. Student may not receive credit for this course and CSC 447.

CSC 372 Dynamic Web Design and Programming LEC (4 crs.) Cross-listed as (CSC), COM 372. Web-based information technology for communication and delivery of dynamically generated content. Technology will include current practice and tools for server-side programming, client-side programming, third-party services, data storage, and security concerns. (Lec. 2, Lab. 4) Pre: CSC / COM 271 and junior standing in a degree-granting college or permission of instructor.

CSC 392 Intermediate Topics in Computing LEC (1-4 crs.) Intermediate-level topics of current interest in computing. This course may be repeated under different topics. (Lec., Project) Pre: permission of instructor.

CSC 399 Capstone for Programming Minors LEC (4 crs.) Teams of students will integrate the knowledge acquired in previous programming courses and apply it to implement a real-world software project in consultation with local industry. Students will communicate effectively both within their teams and with project stakeholders, creating written reports, technical documentation, and giving oral presentations. (Lec. 3, Lab. 2) Pre: CSC 211 or 372. May not be taken for credit by students with credit in CSC 305. NOT intended for students majoring in computer science. (B2) (D1) S/U only.

CSC 402 Programming Language Implementation LEC (4 crs.) Grammars and languages; lexical analysis and parsers; interpreters, translators, and virtual machines; symbol tables and type systems; code generation for real and virtual machines. Students will implement a number of interpreters, translators, and virtual machines for various small languages. (Lec. 3, Project 3) Pre: CSC 301, and student must be admitted to a degree-granting college.

CSC 406 Computer Graphics LEC (4 crs.) Interactive raster graphics; hardware, software, and algorithms. Point plotting, line drawing, geometrical transformations, clipping and windowing. Three-dimensional graphics including curves, surfaces, perspective, hidden objects, shading. User interfaces; graphical programming environments. (Lec. 3, Project 3) Pre: CSC 212 and either MTH 215 or MTH 362, and student must be admitted to a degree-granting college.

CSC 411 Computer Organization LEC (4 crs.) Logical structure of computer systems viewed as a hierarchy of levels. Assembly language programming, assemblers, linkers, loaders. Computer architecture including digital logic, processor organization, instruction sets, addressing techniques, virtual memory, microprogramming. (Lec. 3, Project 3) Pre: CSC 212 and student must be admitted to a degree-granting college.

CSC 412 Operating Systems and Networks LEC (4 crs.) General concepts underlying operating systems and computer networks. Topics include process management, concurrency, scheduling, memory management, information management, protection and security, modeling and performance, networking and communication. (Lec. 3, Project 3/Online) Pre: CSC 212 and student must be admitted to a degree-granting college.

CSC 415 Introduction to Parallel Computing LEC (4 crs.) Programming techniques to engage a collection of autonomous processors to solve large-scale numerical and non-numerical problems. Processor interconnections. Parallel programming languages and models. Performance measures. (Lec. 3, Project 3) Pre: CSC 411 or ELE 305, and student must be admitted to a degree-granting college. In alternate years.

CSC 417 Introduction to Computer Networks LEC (3 crs.) Cross-listed as (ELE 437), CSC 417. Computer networks, layering standards, communication fundamentals, error detection and recovery, queuing theory, delay versus throughput trade-offs in networks, multiple-access channels, design issues in wide and local area networks. (Lec. 3) Pre: ((ELE 205 or 208 or CSC 211), and (ELE 436 or MTH 451 or ISE 311 (411))), or permission of instructor.

CSC 418 Information and Network Security LEC (4 crs.) Cross-listed as (ELE 438), CSC 418. Elementary cryptography, public key, private key, symmetric key, authentication protocols, firewalls, virtual private networks, transport layer security, and wireless network security. (Lec. 3, Project 3) Pre: ELE 208 or MTH 362 or MTH 451 or ISE 311 (411) or junior or senior standing in computer engineering or computer science or permission of instructor.

CSC 436 Database Management Systems LEC (4 crs.) Construction and management of large data systems. Data modeling, relational and object-oriented systems, main memory databases, query languages, query optimization, concurrency control, transaction management, distributed systems, disk organization, indexes, and emerging technologies. (Lec. 3, Project 3/Online) Pre: CSC 212, and student must be admitted to a degree-granting college.

CSC 440 Design and Analysis of Algorithms LEC (4 crs.) Algorithm design and analysis, advanced data structures, computational complexity. Sorting, searching including hashing and balanced trees, string pattern matching, polynomial and matrix calculations, graph and network algorithms, NP-completeness and intractability. (Lec. 3, Project 3) Pre: CSC 212 and (CSC 340 or MTH/CSC 447) and student must be admitted to a degree-granting college.

CSC 445 Models of Computation LEC (4 crs.) Abstract models of computational systems. Classical models for uniprocessor, sequential, and stored program computers. New models based on recent advances in hardware, software, and communications and their implications in practice. (Lec. 3, Project 1) Pre: CSC 340 or CSC/MTH 447 and student must be admitted to a degree-granting college. In alternate years.

CSC 447 Discrete Mathematical Structures LEC (3 crs.) Cross-listed as (MTH), CSC 447. Concepts and techniques in discrete mathematics. Finite and infinite sets, graphs, techniques of counting, Boolean algebra and applied logic, recursion equations. (Lec. 3) Pre: junior standing or better in physical or mathematical sciences, or in engineering, or permission of instructor.

CSC 450 Scientific Computing LEC (4 crs.) Symbolic, numerical, and graphical approaches to mathematical computation. Pitfalls in numerical computation. Root finding. Numerical integration and differentiation. Approximation of functions. Interpolation and curve fitting. Linear systems. Ordinary differential equations. Multidimensional numerical optimization. (Lec. 3, Lab. 2) Not for graduate credit. Pre: CSC 212 and MTH 215 and 243.

CSC 451 Symbolic Logic LEC (3 crs.) Cross-listed with (PHL), CSC 451. Selected topics in modern symbolic logic including calculus of propositions, predicate calculus, and modal logics. Philosophical and mathematical aspects of the subject. (Lec. 3) Pre: Any one of PHL 101, CSC 340, CSC/MTH 447, or MTH 180, or permission of instructor.

CSC 461 Machine Learning LEC (4 crs.) Cross-listed as (CSC), DSP 461. Broad introduction to fundamental concepts in machine learning. Survey of traditional and newly developed learning algorithms, as well as, their application to real-world problems. (Lec. 3, Lab. 1) Pre: CSC 310 and MTH 215. Computer Science majors must take as CSC 461. Data Science majors must take as DSP 461.

CSC 462 Secure Programming LEC (4 crs.) Cross-listed as (CSF), CSC 462. This class will present the basic topics in computer security and their relation to secure programming. Security models, threats, design principles and secure coding practices will be discussed. We will also look at programming language features and semantics to evaluate whether they help or hurt the ability to write secure programs. (Lec. 3, Lab. 1) Pre: CSC 305.

CSC 477 Computer Science Internship PRA (4 crs.) Supervised internship in computer science that prepares students for careers in industry. (Practicum) Pre: Advanced standing in computer science and departmental approval. May be repeated for a maximum of 8 credits.

CSC 491 Directed Study in Computer Science IND (1-4 crs.) Advanced work in computer science. Conducted as supervised individual projects. (Independent Study) Pre: permission of instructor. S/U credit.

CSC 492 Special Topics in Computer Science LEC (1-4 crs.) Advanced topics of current interest in computer science. (Lec.1-4, Project 1-3) Pre: permission of instructor.

CSC 493 Computer Science Topics with Programming LEC (1-4 crs.) Advanced topics of current interest in computer science where course involves substantial programming projects. May be used to fulfill major programming elective requirement. (Lec., Lab.) Pre: permission of instructor.

CSC 499 Project In Computer Science PRA (4 crs.) Supervised work on a capstone project in computer science that prepares students for careers in industry and graduate study. (Practicum) Pre: advanced standing in computer science and departmental approval. May be repeated for a maximum of 8 credits. Not for graduate credit. S/U credit.

CSC 501 Programming Language Semantics LEC (4 crs.) Design, analysis, implementation, and comparative study of major programming language families. Topics include procedural and block-structured languages, interpretive languages, concurrency, functional languages, object-oriented programming, logic programming, dataflow languages and machines. (Lec. 3, Project 3) Pre: CSC 301.

CSC 502 Theory of Compilers LEC (4 crs.) An advanced course in compiler construction covering advanced parsing techniques, compiler-writing tools, type checking and type inference, code optimization, and compiling nonstandard language features. (Lec. 3, Project 3) Pre: CSC 402. In alternate years.

CSC 505 Advanced Topics in Software Engineering LEC (4 crs.) Lifecycle models; software development environments; project management. Metrics, performance, and testing. Paradigms for software design and architecture. Legal and ethical issues. (Lec. 3, Project 3) Pre: CSC 305. In alternate years.

CSC 509 Object-Oriented System Design LEC (4 crs.) Object-oriented design and programming, the software engineering process. Traditional and current object-oriented design methods. Software reuse. Design tools. Impact of the technology on traditional software engineering. (Lec. 3, Project 3) Pre: CSC 305 and working knowledge of an object-oriented language. In alternate years.

CSC 511 Advanced Computer Organization LEC (4 crs.) Evaluation of high-performance computer systems with respect to architectures, operating systems, and algorithms. High-speed conventional machines; array processors; multiprocessors; data flow machines; RISC architectures; VLSI-based machines. (Lec. 3, Project 3) Pre: CSC 411. In alternate years.

CSC 512 Topics In Distributed Systems LEC (4 crs.) Advanced topics in distributed systems. Networking; standard distributed computing environments. Distributed computing algorithms. Concurrency and threading. Real-time computing, scheduling, concurrency control, load allocation. (Lec. 3, Project 3) Pre: CSC 412. In alternate years.

CSC 519 Computer Networks LEC (4 crs.) Cross-listed as (ELE 543), CSC 519.Computer network architectures, data link control and access protocols for LANs, internet protocols and applications, software and hardware issues in computer communication, delay analysis, and current research in computer networking. (Lec. 4) Pre: ELE 437 or equivalent or CSC 412 or equivalent.

CSC 522 Bioinformatics I LEC (3-4 crs.) Cross-listed as (CSC), STA, CMB 522, BPS 542. Integrates computing, statistical, and biological sciences, algorithms, and data analysis/management. Multidisciplinary student research teams. Modeling dynamic biological processes. Extra project work for 4 credits. (Lec. 3, Project 3) Pre: major in a computing, statistical, or biological science or permission of instructor.

CSC 525 Systems Simulation LEC (3 crs.) Cross-listed as (ISE), CSC 525, ELE 515. Simulation of random processes and systems. Continuous and discrete simulation models. Data structures and algorithms for simulation. Generation of random variates, design of simulation experiments for optimization and validation of models and results. Selected engineering applications. (Lec. 3) Pre: CSC 212 or ISE 325, ISE 333 (433) or ELE 509, or permission of instructor.

CSC 536 Topics in Data Management Systems LEC (4 crs.) Current research and developments in database management systems. Relational, semantic, object-oriented, real-time, distributed, heterogeneous, and logic databases. Concurrency control, security, active rules, recovery, and integrity subsystems. (Lec. 3, Project 3) Pre: CSC 436 or permission of instructor. In alternate years.

CSC 541 Advanced Topics In Algorithms LEC (4 crs.) Algorithm design techniques such as dynamic programming, greedy method, branch and bound. Linear programming; NP-completeness; graph algorithms; number theoretic algorithms; approximation algorithms for NP-complete problems; probabilistic and parallel algorithms. (Lec. 3, Project 3) Pre: CSC 440 or 445. In alternate years.

CSC 542 Mathematical Analysis of Algorithms LEC (4 crs.) Mathematical techniques for the analysis of algorithms. Sums and products; finite difference calculus; properties of binomial coefficients; Stirling, harmonic, and Fibonacci numbers; recurrence relations; generating functions; asymptotic approximation. Case studies. (Lec. 3, Project 3) Pre: CSC 440. In alternate years.

CSC 544 Theory Of Computation LEC (4 crs.) Finite automata, pushdown automata, formal grammars and Chomsky hierarchy, Turing machines, computability, basics of complexity theory. Advanced topics including some of the following: cryptography, interactive proofs, circuit complexity, completeness for various complexity classes, relations among complexity classes, new models of computation. (Lec. 3, Project 3) Pre: CSC 440 or 445. In alternate years.

CSC 547 Combinatorics LEC (3 crs.) Cross-listed as (MTH), CSC 547. Enumeration: generation functions, recurrence relations, classical counting numbers, inclusion-exclusion, finite set systems and designs. Polya theory, coding theory, and Ramsey theory. Finite fields and algebraic methods. (Lec. 3) Pre: MTH 316. Offered alternate fall semesters.

CSC 548 Graph Theory LEC (3 crs.) Cross-listed as (MTH), CSC 548. Basic concepts and techniques of graph theory as well as some of their applications. Topics include: connectivity, matchings, colorings, extremal problems, Ramsey theory, planar graphs, algebraic techniques. (Lec. 3) Pre: MTH 316.

CSC 550 Computer Algebra LEC (4 crs.) Symbolic mathematical computation; history, use, representation of information, algorithms and heuristics. Big number arithmetic, manipulation of polynomials and rational expressions; algebraic simplification; factoring; symbolic integration. Organization and implementation of computer algebra systems. (Lec. 3, Project 3) Pre: CSC 440. In alternate years.

CSC 581 Special Topics in Artificial Intelligence LEC (3 crs.) Cross-listed as (CSC), ELE 581. Topics of specialized or current interest, which may change. Topics may include expert systems, natural language processing, neural network models, machine learning. AI applications in remote sensing. (Lec. 3) Pre: CSC 481 or permission of instructor. May be repeated with permission. In alternate years.

CSC 583 Computer Vision LEC (3 crs.) Cross-listed as (ELE), CSC 583. Algorithms used to extract information from two-dimensional images. Picture functions. Template matching. Region analysis. Contour following. Line and shape descriptsions. Perspective transformations. Three-dimensional reconstruction. Image sensors. Interfactin. applications. (Lec. 3) Pre: MTH 362 or equivalent.

CSC 585 Statistical Analysis of Network Data LEC (4 crs.) Cross-listed as (STA), CSC 585. Foundation of the statistical analysis of network data: visualization, node and edge characterization, inference, and sampling, mathematical and statistical network modeling and inference, modeling of static and dynamic network processes. (Lec. 3, Rec. 1) Pre: MTH 215; STA 411, or STA 412, or STA 441; or permission of instructor.

CSC 591 Directed Study in Computer Science IND (1-4 crs.) Advanced work in computer science conducted as supervised individual projects. (Independent Study) Pre: permission of instructor. S/U credit.

CSC 592 Special Topics in Computer Science LEC (1-4 crs.) Advanced topics of current interest in computer science. (Lec. 1-4, Project 1-3) Pre: permission of instructor. May be taken more than once.

CSC 593 Programming for Scientists LEC (3 crs.) Scientific programming. Algorithmic thinking. Scripting, language comparisons, code design, programming resources and communities. Not for graduate or undergraduate credit in Computer Science. Not for graduate or undergraduate computer science majors. (Lec. 3) Pre: Permission of instructor.

CSC 599 Master's Thesis Research IND (1-8 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CSC 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CSF | Digital Forensics and Cyber Security

CSF 102G Cyber Security Technology and Issues in a Global Society LEC (4 crs.) Provides an overview of the technology, threats, and social impact of cybersecurity. (Lec. 3, Lab 1/Online). (C2) (B3) (GC)

CSF 202 Fundamentals for Cyber Security ONL (4 crs.) Overview of technical background required for cyber security. Including: binary/hex number systems, operating systems concepts and installation, Python, file systems, OSI model, network topologies and protocols. (Online) Pre: credit or concurrent enrollment in CSC 201 or CSC 110 or permission of the Instructor.

CSF 410 Digital Forensics I ONL (4 crs.) The science, technology, procedures, and law of acquiring and analyzing digital evidence from computers and devices. (Online 4) Pre: C- or better in CSF 202 or permission of instructor.

CSF 412 Digital Forensics II ONL (4 crs.) Selected focused topics on acquiring and analyzing evidence from digital devices. Details on analysis of specific operating system artifacts. (Online) Pre: CSF 410. Not for graduate credit.

CSF 430 Introduction to Information Assurance ONL (4 crs.) Fundamental concepts to understand threats to security; various defenses against those threats. Planning for security; technology used to defend computer systems; implementing security measures and technology. (Online 4) Pre: C- or better in CSF 202 or permission of instructor.

CSF 432 Introduction to Network and Systems Security ONL (4 crs.) This course provides an overview of network and systems security. It provides the underlying theory of computer security. It further introduces hands-on skills and techniques that are essential to effectively secure the networks and systems of large and small organizations. (Online 4) Pre: C- or better in CSF 202 or permission of instructor.

CSF 434 Network and Systems Security ONL (4 crs.) Advanced security topics including intrusion detection, penetration testing, incident response, malware analysis, and risk management. (Online) Pre: CSF 432. Not for graduate credit.

CSF 462 Secure Programming LEC (4 crs.) Cross-listed as (CSF), CSC 462. This class will present the basic topics in computer security and their relation to secure programming. Security models, threats, design principles and secure coding practices will be discussed. We will also look at programming language features and semantics to evaluate whether they help or hurt the ability to write secure programs. (Lec. 3, Lab. 1) Pre: CSC 305.

CSF 512 Advanced Digital Forensics ONL (4 crs.) New and emerging techniques for identifying, acquiring, and analyzing new and emerging sources of digital evidence. Current research in Digital Forensics. (Online 4) Pre: CSF 410.

CSF 516 File System Analysis ONL (4 crs.) The structure and implementation of computing device file systems. Forensic analysis and reconstruction of digital evidence found in modern file systems. (Online 4) Pre: CSF 410.

CSF 524 Advanced Incident Response ONL (4 crs.) Presents advanced techniques and research for incident response and live forensics. Topics may include live forensics in cloud environments, visualization of security incidents, and live forensics in the smart grid. (Online) Pre: CSF 432 or CSF 410.

CSF 534 Advanced Topics in Network and System Security ONL (4 crs.) Advanced topics in network security including intrusion detection, penetration testing, incident response, malware analysis, and risk management. Students will learn relevant skills and research emerging solutions to these problems. (Online 4) Pre: CSF 432.

CSF 536 Advanced Intrusion Detection and Defense ONL (4 crs.) Presents advanced techniques and research on intrusion detection and network defense. Topics may include network traffic analysis, intrusion analysis, machine learning techniques for intrusion detection, data mining for intrusion detection, advanced persistent threats. (Online 4) Pre: CSF 432.

CSF 538 Penetration Testing ONL (4 crs.) Advanced techniques used in assessing the security of networks and identifying vulnerabilities. Network traffic analysis; session hijacking; social engineering; application exploitation; rootkits; network sniffers; developing threats. (Online 4) Pre: CSF 432

CSF 560 Cyber Threat Intelligence ONL (4 crs.) Introduction to cyber threat intelligence and how it is applied across public and private sector organizations. Topics include stages of intelligence life cycle, cyber security frameworks, tradecraft skills. (Online) Pre: CSF 534.

CSF 580 Professional Skills for Cyber Security ONL (4 crs.) This course provides each student with a framework for understanding organizational behavior in the context of organizational decision making and leadership in a cyber security work environment. It examines the theory, research, and practice of organizational behavior in work settings, focusing on individual differences, communications, group dynamics, motivation, and leadership. Through course discussion, analytical writing, and exercises, students will learn to apply professional skills in a technical working environment to promote both individual and organizational success. (Online) Pre: CSF 430.

CSF 590 Cyber Security Internship ONL (4 crs.) This course provides each student with a professional experience working on an internship, applying technical and professional cyber security skills. (Online) Pre: CSF 580 or permission of instructor. S/U only.

CSF 591 Directed Study in Cyber Security IND (1-4 crs.) Advanced work in cyber security conducted as supervised individual projects. (Independent Study) Pre: permission of instructor. S/U only.

CSV | Community Service

CSV 301 Course-based Community Service PRA (1-3 crs.) Learning through a community service experience related to course content. Experience defined by a job description and learning contract; includes orientation and reflection. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. Concurrent enrollment in a course that offers community service experience. May be repeated for a maximum of 6 credits. S/U only.

CSV 302 Community Service at URI PRA (1-4 crs.) Learning through a community service project that addresses a specific community need at the University. Project proposed and supervised by an instructor, and varies each semester. Includes mandatory seminar. (Practicum) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 9 credits.

CSV 302 Community Service at URI PRA (1-4 crs.) Learning through a community service project that addresses a specific community need at the University. Project proposed and supervised by an instructor, and varies each semester. Includes mandatory seminar.

(Practicum/Online) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 9 credits.

CSV 302H Honors Section of CSV 302: Community Service at URI PRA (1-4 crs.) Honors Section of CSV 302: Community Service at URI. (Prac. 3) Pre: Must have a 3.40 overall GPA.

CSV 302H Honors Section of CSV 302: Community Service at URI PRA (1-4 crs.) Honors Section of CSV 302: Community Service at URI. (Prac. 3/Online) Pre: Must have a 3.40 overall GPA.

CSV 303 Service In The Community PRA (1-4 crs.) Learning through a community service project that addresses a specific need in the off-campus community. Project proposed and supervised by an instructor and varies each semester. (Practicum/Online) Service learning. Pre: junior standing or above, or permission of instructor. May be repeated for a maximum of 8 credits. S/U only.

CSV 306 Sustainability & Service Leadership ONL (3 crs.) Cross-listed as (CSV), SUS 306. Students will learn to identify and examine critical sustainability issues and develop communication skills, campaigns, and peer education events that lead to behavior change and a shift in campus culture. (Online) Pre: Junior Standing.

CSV 400 Community Based Field Experience PRA (0 cr.) Undergraduate students completing approved community based Field Experience for zero credit. Fall, Spring, Summer, and Winter J Semester. Miminum 40 hours field experience. Registration by permission number only. (Practicum) Pre: permission of instructor. S/U only.

CVE | Civil and Environmental Engineering

CVE 205 Basic Surveying LAB (1 crs.) This course focuses on teaching conventional survey techniques for field measurement and preparation of topographic maps and site plans (Lab. 1) Pre: EGR 106 and MTH 142.

CVE 220 Mechanics of Materials LEC (3 crs.) Mechanical properties of materials; analysis of members under axial, torsional, and transverse loads; stress and strain; beam deflections, and introduction to statically-indeterminate beams and buckling of columns. (Lec. 3/Online) Pre: MCE 262.

CVE 230 Mechanics of Materials Laboratory LAB (1 cr.) Introduction to the physical and mechanical properties of civil engineering construction materials including steel, wood, and Portland cement concrete. Cement properties, mix design, testing of fresh and hardened concrete. (Lab. 3) Pre: credit or concurrent enrollment in CVE 220. Required for civil engineering students only.

CVE 250 CADD for Civil Engineers LEC (3 crs.) Operating system issues, basic elements of Computer-Aided Design and Drafting (CADD): creation of 2-D and 3-D models, solid modeling, rendering and animation, applications of CADD in civil engineering design. (Lec. 3) Pre: EGR 106. Preference given to students enrolled in the CVE undergraduate degree program.

CVE 323G Humanitarian Engineering LEC (3 crs.) Focuses on creating awareness about the challenges that under-served communities are facing locally and globally and how to solve them using appropriate and sustainable technologies. (Lec. 3) Pre: (EGR 106 and MTH 243) or permission of instructor. (A1) (C1) (GC)

CVE 323GH Honors Sections of CVE 323: Humanitarian Engineering LEC (3 crs.) Honors Section of CVE 323: Humanitarian Engineering. Focuses on creating awareness about the challenges that under-served communities are facing locally and globally and how to solve them using appropriate and sustainable technologies. (Lec. 3) Pre: 3.40 overall GPA and (EGR 106 and MTH 243) or permission of instructor. (A1) (C1) (GC)

CVE 325G Connecting Dots: The Water-Energy-Health Nexus LEC (3 crs.) Focuses on inter-linkages between sustainable water practices, energy production and needs to ensure public health, and designing engineering systems to meet such demands in a changing global environment. (Lec. 3) Pre: MCE 354 or CHE 347 or permission of instructor. (A1) (C2) (GC)

CVE 334 Construction Management LEC (3 crs.) Introduction to construction planning; procedures involved in construction activities with major emphasis on heavy construction. (Lec. 3) Pre: CVE 220.

CVE 340 Geomatics LEC (3 crs.) Technologies to obtain measurement data using level, transit, EDM, total station, and GPS instrument. Data collection, sorting, storage, analysis and presentation of data for civil engineering purposes. Practical surveying experiences. (Lec. 2, Lab. 3) Pre: MTH 141 and permission of instructor.

CVE 346 Transportation Engineering LEC (3 crs.) Concepts of transportation planning and design as well as traffic analysis techniques are covered with respect to Multi-Mode travel within transportation systems. (Lec. 3) Pre: At least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, PHY 204, and CHM 101.

CVE 347 Highway Engineering LEC (3 crs.) Design of modern highways and streets including planning, location, geometric layout, drainage structures, bituminous materials, pavement structure, construction, operation, maintenance and rehabilitation. (Lec. 3) Pre: CVE 346.

CVE 348 Highway Engineering Laboratory LAB (1 cr.) Capacity analysis, computerized geometric design, soil resilient modulus, aggregates toughness, rheological properties of asphalt binder, Superpave asphalt mix-design, material input parameters for pavement design, pavement evaluation, and field trip. (Lab. 1) Pre: credit or concurrent enrollment in 347.

CVE 354 Structural Engineering LEC (3 crs.) Loads and load paths; analysis of statically determinate beams, trusses, frames; deflections of beams and trusses; influence lines; and indeterminate beams and trusses. (Lec. 3) Pre: CVE 220 with C or better and at least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, PHY 204, and CHM 101.

CVE 355 Structural Engineering Laboratory LAB (1 cr.) Introduction to plane stress under combined loading, gravity and lateral loads, structural analysis and design software, structural instrumentation, and dynamics of structures. (Lab. 3) Pre: credit or concurrent enrollment in CVE 354.

CVE 370 Hydraulic Engineering LEC (3 crs.) Applied hydraulics of flow in closed conduits and open channels: river and groundwater hydraulics. Analysis of hydraulic structures. Reservoir design. Principles of hydrology. (Lec. 3) Pre: MCE 354 or equivalent and at least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, PHY 204, and CHM 101.

CVE 374 Environmental Engineering LEC (3 crs.) Water supply and treatment systems, sewerage treatment of municipal and industrial waste waters, stream pollution, groundwater analysis, air pollution and disposal of solid waste materials. (Lec. 3) Pre: MTH 243 or permission of chairperson and at least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, PHY 204, and CHM 101.

CVE 375 Environmental Engineering Laboratory LAB (1 cr.) Laboratory studies in environmental engineering and water resources. Measurement of environmental contaminants, closed conduit flow, and open channel flow. Treatment processes, pipe networks, and centrifugal pump characteristics. Computer implementation for design. (Lab. 3) Pre: MCE 354, CVE 374, and credit or concurrent enrollment in CVE 370.

CVE 381 Geotechnical Engineering LEC (3 crs.) Engineering properties of soils, seepage, consolidation theory, calculation of stresses, failure theories, shear strength of sand, shear strength of clay. (Lec. 3) Pre: CVE 220 and at least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, PHY 204, and CHM 101.

CVE 382 Geotechnical Engineering Laboratory LAB (1 cr.) Laboratory studies of physical properties and behavior of soils: index properties, compaction, consolidation, and shear strength. Interpretation, evaluation, and engineering applications of test data. (Lab. 3) Pre: credit or concurrent enrollment in 381.

CVE 400 Civil Engineering Professional Licensure LEC (1 cr.) Preparation of students to take the civil engineering oriented Fundamentals of Engineering examination. Overview of the civil engineering licensure process and importance. (Lec. 1) Pre: Civil engineering major with senior standing. Not for graduate credit. S/U only.

CVE 422 Offshore Structure Design LEC (3 crs.) Cross-listed as (OCE), CVE 422. Introduction to offshore structures, structural modeling, structural dynamic analysis, structural design for storms, structural design against fatigue failure. (Lec. 3) Pre: OCE 421. Not for graduate credit.

CVE 442 Traffic Engineering LEC Highway traffic characteristics and methods of providing for an effective, free, and rapid flow of traffic. Types of studies, regulations, control devices and aids, planning and administration. (Lec. 2, Lab. 3) Pre: CVE 347 or permission of instructor.

CVE 443 Intelligent Transportation Systems LEC (3 crs.) Traffic systems operations/planning strategies; Advanced Transportation Management Systems; Detection Devices; Benefits and Evaluation; In-Vehicle Navigation Theory; Real-Time Dynamic Routing Issues. (Lec. 3) Pre: CVE 346 or permission of instructor.

CVE 445 Sustainable Pavement Design LEC (3 crs.) Pavement types; pavement system components; stresses in the pavement structure. Design factors and criteria, structural design of flexible and rigid pavements for highways and airports, green pavement. (Lec. 3/Online) Pre: CVE 347 or permission of instructor.

CVE 450 Simulation Based Design For Civil Engineers LEC (4 crs.) Advanced concepts of Computer-Aided Design and Drafting (CADD) as they pertain to a) Digital Prototyping, b) Concurrent Engineering, and c) Continuous Acquisition and Lifecycle Support, Global standards, and file exchange formats. (Lec. 3, Lab. 3) Pre: CVE 220 and 250.

CVE 453 Computer Analysis of Structures LEC (3 crs.) Introduction to matrix methods of structural analysis. Solutions of planar structures using a digital computer. (Lec. 3) Pre: CVE 354 or equivalent.

CVE 460 Steel Structures LEC (3 crs.) Theory of steel structures including beams, columns, beam-columns, composite construction and connections. Material properties, environmental loads, state of construction practice, fabrication and economic aspects. (Lec. 3) Pre: CVE 354 or permission of instructor.

CVE 465 Analysis and Design of Concrete Structures LEC (3 crs.) Current criteria and practice for design of reinforced and prestressed concrete structures. Elastic and ultimate strength analysis of beams, slabs, columns, and frames. Comprehensive design problems. (Lec. 3) Pre: CVE 354 or permission of instructor. Not for graduate credit in civil engineering.

CVE 470 Water And Wastewater Transport Systems LEC (3 crs.) Computer analysis of water storage and transmission. Design of water distribution and wastewater collection systems. (Lec. 2, Lab. 3) Pre: CVE 370 or 374 or permission of instructor.

CVE 471 Water and Wastewater Treatment Systems LEC (3 crs.) Development of water quality standards. Design and analysis of physical, chemical, and biological treatment processes and their application to water and wastewater purification systems. (Lec. 2, Lab. 3) Pre: CVE 374 or permission of instructor.

CVE 472 Biosystems in Environmental Engineering LEC (3 crs.) Microorganisms that constitute the biological systems in environmental engineering processes. Application of principles of microbiology and biochemistry to analysis and design in fields of environmental engineering and other related fields. (Lec. 3) Pre: Senior level engineering student.

CVE 474 Water Quality Sampling And Analysis LEC (3 crs.) Laboratory and field work including sampling of surface and groundwater, chemical and biological analyses for water, monitoring, treated effluent quality control, and detection of hazardous contaminants. (Lec. 1, Lab. 6) Pre: CVE 374 or permission of instructor.

CVE 475 Water in the Environment LEC (3 crs.) Evaluation of water as a resource and its relation to the environment: hydrologic cycle, water budgets, water uses, drought, flood, current water problems. (Lec. 3) Pre: CVE 370 or permission of instructor.

CVE 477 Environmental Sustainability and Green Engineering LEC (3 crs.) Provides an overview of the impacts in aquatic, terrestrial, atmospheric and built environment created by engineering decisions. Understand the physical, chemical, and biological principles that describe interactions between engineering and the environment. (Lec. 3) Pre: senior standing undergraduate from any engineering program or permission of instructor. Not for graduate credit.

CVE 478 Hazardous Waste Disposal and Solid Waste Management LEC (3 crs.) Sources, collection, treatment, and disposal of hazardous wastes and solid wastes. Conservation, recovery, and reuse of material. Economics of waste treatment, disposal, and reuse. (Lec. 3) Pre: permission of instructor.

CVE 480 Introduction to Marine Pollution LEC (3 crs.) Cross-listed as (OCG) CVE 480. An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport, and fate of pollutants in the coastal marine environment. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103) is recommended. Not for graduate credit.

CVE 482 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 482. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. (Lec. 4) Pre: permission of instructor. In alternate years. Not for graduate credit.

CVE 483 Shallow Foundations LEC (3 crs.) Cross-listed as (CVE), OCE 483. Applications of geotechnical engineering principles to analysis and design of shallow foundations. Foundation types, lateral earth pressures, bearing capacity, settlement, gravity retaining walls, cantilever sheet pile walls. (Lec. 3) Pre: CVE 381 or permission of instructor.

CVE 484 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 484. Physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab. 2) Pre: GEO 483 or CVE 588 or NRS 510, or permission of instructor. Not for graduate credit. Offered every other year.

CVE 491 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. Not for graduate credit in civil engineering.

CVE 492 Special Problems IND (1-6 crs.) Advanced work under supervision of a member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits. Not for graduate credit in civil engineering.

CVE 493 Civil Engineering Design Studies IND (1-6 crs.) Off campus civil and environmental engineering design studies. Must include significant hands-on (laboratory or field) experience, use of engineering design tools, and the design, development, test, and evaluation of hardware/software systems. (Independent Study) Pre: junior standing in civil engineering and permission of the department chair. Not for graduate credit in civil engineering.

CVE 497 Civil Engineering Design I LAB (2 crs.) Detailed project planning, conceptual design and layout, and environmental impact for the civil engineering integrated capstone design project. Speakers on ethics, professionalism, and professional practice. (Lab. 4) Pre: credit or concurrent enrollment in CVE 346, 354, 374, and 381. Must be taken immediately prior to 498. Required of all seniors in civil engineering. Not for graduate credit in civil engineering.

CVE 498 Civil Engineering Design II LEC (3 crs.) Elements of planning, analysis and design of a civil engineering project integrating the principles learned in previous courses; a group integrated capstone design project involving all major aspects of civil engineering design. (Lec. 1, Lab. 6) Pre: Credit or concurrent enrollment in CVE 370, and 497. Required for all seniors in civil engineering. Not for graduate credit in civil engineering. (D1)

CVE 519 Marine Environmental Organic Chemistry LEC (3 crs.) Cross-coded with (OCG), GEO, CVE 519. Physico-chemical properties

of organic compounds, their transformations and environmental fluxes with a focus on marine topics. Offered alternate years. (Lec. 3) Pre: graduate standing or permission of instructor.

CVE 535 Geospatial Watershed Modeling LEC (3 crs.) Cross-listed with (GEO) NRS, CVE 535. Tools to simulate the water quantity and quality of a complex watershed; development of models for examining the water quantity and quality issues that are associated with watershed management. (Lec. 2, Lab. 2) Pre: NRS 461 or GEO 483 or CVE 475 or equivalent, or graduate standing, or permission of instructor.

CVE 540 Public Transportation Systems LEC (3 crs.) Bus and rail modes; technological characteristics on capacity, service quality, costs; analysis, evaluation; performance monitoring, route and network design; frequency determination; vehicle scheduling; advanced operations strategies. (Lec. 3) Pre: CVE 346 or permission of instructor.

CVE 542 Traffic Systems Operations LEC (3 crs.) Signalized and unsignalized intersection treatments; coordination concepts; arterial and freeway management, operating strategies, and design issues; simulation and optimization; performance evaluation. (Lec. 3) Pre: CVE 442 or permission of instructor.

CVE 546 Urban and Rural Transportation LEC (3 crs.) Cross-listed as (CPL), CVE 546. Issues confronting planning for urban and rural transportation systems; the variety of policies that governments pursue in addressing issues and problems; technical and political constraints, transportation studies, and demand analysis techniques. (Lec. 3) Pre:CPL 410 or 501 or permission of instructor. In alternate years.

CVE 547 Geometric Design of Highways LEC (3 crs.) Evaluation of alternative designs. Criteria and practices of geometric design; at grade intersections, interchanges, channelization, weaving parking facilities, and road appurtenances; safety considerations, lane balancing, ramps, and terminals. (Lec. 3) Pre: CVE 347 or equivalent.

CVE 548 Bituminous Materials and Mix-Design LEC (3 crs.) Asphalt binder, bituminous mixtures, conventional and superpave mix-design methods, material characterization and testing, fracture, fatigue, and permanent deformation, novel pavement materials and additives, and pavement recycling. (Lec. 2, Lab. 3) Pre: CVE 347 or permission of instructor.

CVE 549 Transportation Soils and Materials LEC (3 crs.) Surficial and subgrade soils, mineral aggregates, Portland Cement Concretes, mix-design methods, material characterization and testing, fracture, fatigue, and modern transportation materials. (Lec. 2, Lab. 3) Pre: CVE 347 or permission of instructor.

CVE 551 Finite Element Analysis in Civil Engineering I LEC (3 crs.) Direct stiffness method. Rayleigh-Ritz and Galerkin methods. Isoparametric elements. Frames, trusses, plane stress and strain. Bending of thin plates. (Lec. 3) Pre: CVE 453 or permission of instructor.

CVE 552 Structural Timber Design LEC (3 crs.) Study of wood properties and design considerations. Design and behavior of beams, columns, beam-columns, and wood fasteners. Analysis and design of structural diaphragms, shear walls, and box beams. (Lec. 3) Pre: CVE 354 or permission of instructor.

CVE 561 Advanced Steel Design LEC (3 crs.) Selected topics in structural steel design following the LRFD specification, including plate buckling and postbuckling, torsion, plate girders, plastic design, frame stability, tall buildings, composite design, and earthquake-resistant design. (Lec. 3) Pre: CVE 460 or permission of instructor.

CVE 562 Management of Highway Bridges LEC (3 crs.) Comprehensive systems approach to management of highway bridges. Needs assessment, in-service monitoring and evaluation of bridges. Condition forecasting models and failure analysis. Life-cycle cost and benefit analysis, prioritization and optimization. (Lec. 3) Pre: permission of instructor.

CVE 563 Prestressed Concrete LEC (3 crs.) Theory of prestressed concrete including partial losses of prestress and long-term effects due to creep, shrinkage and steel relaxation. Service and ultimate load evaluation of pre-tensioned and post-tensioned beam elements in flexure, shear and torsion. Deflection, camber and crack control evaluation. (Lec. 3) Pre: CVE 465 or permission of instructor.

CVE 564 Advanced Reinforced Concrete LEC (3 crs.) Elastic and ultimate strength theory in flexure, shear, torsion, compression and serviceability. Behavior and analysis of deep beams, corbels, slender and non-slender columns, biaxial bending, two-way slabs and plates. (Lec. 3) Pre: CVE 465 or permission of instructor.

CVE 565 Structural Dynamics LEC (3 crs.) Simplified models and their equations of motion; analytical solution methods; Fourier analysis; Duhamel integral; nonlinearities; computer-oriented solution algorithms and their implementation. Applications. (Lec. 3) Pre: CVE 453 or permission of instructor.

CVE 566 Design of Highway Bridges LEC (3 crs.) (651) Design specifications and analysis methods for highway bridges. Loads. Design of steel I-beam bridges, reinforced concrete bridges, and plate girders. Orthotropic analysis. Bridge details and substructure. (Lec. 3) Pre: CVE 460, 465, and 453 or permission of instructor.

CVE 568 Theory of Plates LEC (3 crs.) Cross-listed as (MCE), CVE 568. Development of basic plate equations. Classical solution examples of rectangular and circular plates. Additional topics selected from orthotropic plates, large deflections, finite element, and numerical solutions. (Lec. 3) Pre: CVE 220 and MTH 244.

CVE 570 Water Chemistry for Engineers LEC (3 crs.) Chemical principles applied to problems in environmental engineering, including water and wastewater treatment, contaminant hydrology, and hazardous waste management. (Lec. 3) Pre: permission of instructor.

CVE 572 Biosystems in Environmental Engineering LEC (3 crs.) Microorganisms that constitute the biological systems in environmental engineering processes. Application of principles of microbiology and biochemistry to analysis and design in fields of environmental engineering and other related fields. (Lec. 3) Pre: permission of instructor. Not open to students with credit in CVE 472.

CVE 573 Theory of Water Purification and Treatment LEC (3 crs.) Principles of modern water purification and engineering practices. Aeration, deodorization, sterilization, coagulation, filtration, water softening, iron removal, disinfection, and corrosion control. (Lec. 3) Pre: permission of instructor.

CVE 575 Open-Channel Hydraulics LEC (3 crs.) Analysis of uniform, critical, varied, and unsteady flow in open channels. Principles will be applied to open-channel design. (Lec. 3) Pre: CVE 370.

CVE 577 Environmental Sustainability and Green Engineering LEC (3 crs.) Provides the conceptual, methodological, and scientific basis to understand and reduce the impact of engineering decisions on the environment. Designed for an interdisciplinary audience of engineering graduate students and will provide students with the background and tools necessary to reduce the impacts of design. (Lec. 3) Pre: permission of instructor. Not open to students with credit in CVE 477.

CVE 579 Advanced Soil Mechanics LEC (3 crs.) Physico-chemical properties of soils, hydraulic conductivity, consolidation, and shear strength. (Lec. 3) Pre: CVE 381 or equivalent and graduate standing.

CVE 580 Introduction To Marine Pollution LEC (3 crs.) Cross-listed as (OCG), CVE 580. An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport and fate of pollutants in the coastal marine environment. Review papers or research proposals will be required. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103).

CVE 581 Experimental Geomechanics LEC (3 crs.) Cross-listed as (CVE), OCE 581. Advanced methods and techniques of geotechnical testing. Behavior of granular and cohesive soils with determination of engineering properties. Interpretation, evaluation, and engineering applications of test data. Emphasis on shearing strength, consolidation, bearing capacity, earth pressures, seepage, and slope stability. (Lec. 3) Pre: CVE 381 or equivalent.

CVE 582 Marine Geotechnics LEC (3 crs.) Cross-listed as (OCE), CVE 582. Geotechnical engineering principles as applied to marine problems. Site survey and in-situ testing, soil properties, shallow founda-

tions and deadweight anchors, piles and pile anchors, direct and drag embedment anchors, scour. (Lec. 3) Pre: CVE 381 or equivalent or OCE 311, or permission of instructor.

CVE 583 Deep Foundations LEC (3 crs.) Cross-listed as (CVE), OCE 583. Applications of soil mechanics principles to analysis and design of piles and drilled shafts under vertical and lateral loading. Static and dynamic load testing. Introduction to ground improvement technologies. (Lec. 3) Pre: CVE 381 or equivalent.

CVE 584 Designing with Geosynthetics LEC (3 crs.) Overview of geosynthetic materials, properties, test methods, and current standards. Design methods involving geotextiles, geogrids, geonets, geomembranes, and geocomposites. Applications to problems in geomechanics, geoenvironmental engineering, and transportation-related fields. (Lec. 3) Pre: CVE 381 or equivalent.

CVE 586 Earth Retaining Structures LEC (3 crs.) Analysis and design of earth retaining structures. Advanced seepage analysis. Mechanically stabilized earth walls, anchored bulkheads, braced excavations, and cofferdams. Slope stability analysis and slope stabilization. Pre: CVE 381 or equivalent. (Lec. 3)

CVE 588 Groundwater Hydrology LEC (3 crs.) Quantitative methods of groundwater hydrology including determination of aquifer properties and yield. Modeling of groundwater systems for management quantity of water, movement of contaminants, and well design. Field and laboratory measurements. (Lec. 3) Pre: CVE 370 and CVE 381 or equivalent.

CVE 591 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit individual requirements of the student. (Independent Study) Pre: permission of chairperson.

CVE 592 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit individual requirements of the student. (Independent Study) Pre: permission of chairperson.

CVE 594 Special Topics in Civil and Environmental Engineering LEC (1-3 crs.) Intensive inquiry into a certain important field of current interest in civil and environmental engineering. (Lec. 1-3) Pre: permission of instructor.

CVE 596 Numerical Methods in Structural Engineering LEC (3 crs.) Methods of successive approximations and numerical procedures in the solution of stress, vibration, and stability problems in structural members. Nonuniform members, elastic supports, plates, torsion. (Lec. 3) Pre: permission of instructor.

CVE 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

CVE 601 Graduate Seminar SEM (1 cr.) Presentations by researchers and practicing professionals covering topics in various areas of civil engineering and related fields. Presentations and discussions of research by graduate students. (Seminar) S/U credit.

CVE 602 Graduate Seminar SEM (1 cr.) Presentations by researchers and practicing professionals covering topics in various areas of civil engineering and related fields. Presentations and discussions of research by graduate students. (Seminar) Required of all full-time graduate students. May be repeated for a maximum of 2 credits. Pre: graduate standing. S/U credit.

CVE 641 Pavement Evaluation and Rehabilitation LEC (3 crs.) Pavement performance concepts. Criteria for pavement evaluation. Measurement of pavement distress and structural capacity. Analysis and interpretation of pavement evaluation data. Correlation of data with performance ratings. Formulation and evaluation of maintenance and rehabilitation alternatives. (Lec. 3) Pre: CVE 445 or permission of instructor.

CVE 652 Advanced Topics in Bridge Engineering LEC (3 crs.) Load and resistance factor design of prestressed concrete bridges. Analysis and design of segmental concrete bridges using the span-by-span and the cantilever methods of construction. Time dependent effects. Long span bridges. Bridge condition assessment and rating. (Lec. 3) Pre: CVE 651 or permission of instructor

CVE 657 Structural Stability LEC (3 crs.) Introduction; principal forms of equilibrium paths and their stability; conservative elastic systems; buckling of prismatic members; imperfections; plastic deformations; postbuckling of frames and reticulated structures; numerical methods; catastrophe theory. (Lec. 3) Pre: permission of instructor.

CVE 667 Structural Reliability LEC (3 crs.) Probabilistic applications in structural analysis and design. Statistical models for forces and material strengths. Component and system structural reliability. Random vibration applications in structural engineering. (Lec. 3) Pre: permission of instructor.

CVE 672 Water Pollution Control and Treatment of Wastewater LEC (3 crs.) Wastewater characteristics, effects, and purification in natural water, government control strategies and impacts, cost of control, theory and mathematical concepts of secondary and tertiary treatment process, their limitations, and late developments. (Lec. 3) Pre: one year of chemistry and biology, MTH 243 and CVE 572 or their equivalents, and permission of instructor.

CVE 677 Stream and Estuarine Analysis LEC (3 crs.) Fundamentals and mathematical concepts of physical and biological factors applied to the evaluation of the pollution capacity of streams and estuaries. (Lec. 3) Pre: MTH 244.

CVE 687 Geotechnical Earthquake Engineering LEC (3 crs.) Introduction to the geotechnical aspects of earthquake engineering. Geology of earthquakes, response of single degree of freedom systems, strong ground motion, dynamic soil properties, site response analysis, liquefaction, and seismic earth pressures for retaining wall design. (Lec. 3) Pre: credit or concurrent enrollment in CVE/OCE 483 and graduate standing.

CVE 691 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits.

CVE 692 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 12 credits.

CVE 694 Advanced Special Topics in Civil and Environmental Engineering LEC (1-3 crs.) Intensive inquiry into a certain important field of current interest in civil and environmental engineering, requiring advanced sophistication of a 600 level course. (Lec. 1-3) Pre: permission of instructor.

CVE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

DBA | Doctorate of Business Administration

DBA 600 DBA Preparatory Seminar LEC (3 crs.) Provides an overview of theory development and scientific inquiry; explores a breadth of topics, including different types of constructs, methodologies, and the publication process for applied business research. (Lec. 3) Pre: Admission to the DBA program.

DBA 610 Philosophy and Process of Applied Business Research SEM (3 crs.) Introduces fundamental philosophy and development process of applied business research. Practitioner-Scholars will learn basic principles of theory development and testing as well as how to build a conceptual research model. (Seminar) Pre: DBA 600.

DBA 611 Business Theory for Applied Business Research SEM (3 crs.) Provides Practitioner-Scholars with an interdisciplinary introduction to theories commonly used in business research. Exposes Practitioner-Scholars to organizational theory and other foundational theories and research in different fields of business. (Seminar) Pre: DBA 600.

DBA 614 Quantitative Research Methods LEC (3 crs.) This course is designed to introduce Practitioner-Scholars to the fundamentals of the scientific method, quantitative research methods and analyses. (Lec. 3) Pre: DBA 600, 610, and 611.

DBA 615 Qualitative Research Methods LEC (3 crs.) This course is designed to introduce executives to the fundamentals of qualitative research methods and analyses. Perspectives on what it means to draw conclusions and build theory from qualitative data are explored. (Lec. 3) Pre: DBA 600, and 610, and 611.

DBA 620 Advanced Quantitative Research Methods LEC (3 crs.) This course explores advanced methods in quantitative research including multivariate data analysis so Practitioner-Scholars can select and apply a broader range of statistical techniques to business problems and data. (Lec. 3)

DBA 621 Advanced Qualitative Research Methods LEC (3 crs.) Practitioner-Scholars will review contemporary and classic studies that employ qualitative methods. The course emphasizes hands-on training. The course concludes with guidance on how to write and publish qualitative research. (Lec. 3)

DBA 624 Knowledge Dissemination to Influence Management SEM (3 crs.) This writing-intensive course is designed to familiarize Practitioner-Scholars with the most effective ways to present and disseminate research findings to drive organizational change. (Seminar) Pre: DBA 620.

DBA 625 Social Ethics and Evidence-Based Management SEM (3 crs.) This course is designed to reinforce the importance of various stakeholders and evidence-based management, and will explore the roles of stakeholders. (Seminar) Pre: DBA 620

DBA 699 Dissertation Research IND (15 crs.) Dissertation work aimed at addressing a contemporary business problem. (Independent Study) Pre: DBA 628. S/U only.

DSP | Data Science Program

DSP 110 Introduction to Data Science LEC (3 crs.) Cross-listed as (LTI), DSP 110. Learn to formulate a data-oriented research question, conduct exploratory data analysis using the R programming language, and communicate the results using a well-organized and reproducible workflow.

DSP 181G The Information Age: From Politics to Medicine LEC (3 crs.) Cross-listed as (BIO), DSP 181G. How big data affects our society, from advertising to politics to medicine. (Lec 3) Not for major credit for B.S. Biological Sciences or B.A. Biology. (A1) (GC)

DSP 220 Exploring Global Health Crisis Data LEC (1 cr.) Cross-listed as (CSC), DSP 220. Public health and recovery from global health crisis like COVID-19 depends on collection and analysis of accurate data. Publicly available health crisis datasets provide an opportunity to introduce students to data science through data exploration, while gaining a better understanding of the global crisis. The course focuses on interactive ways to introduce data exploration through 1-hour weekly working sessions and talks by data scientists who are working on these health crisis data. (Lec. 1)

DSP 310 Programming for Data Science LEC (4 crs.) Cross-listed as (CSC), DSP 310. Data driven programming; data sets, file formats and meta-data; descriptive statistics, data visualization, and foundations of predictive data modeling; accessing web data and data bases; distributed data management. (Lec. 3, Lab. 2) Pre: CSC201 or CSC211 or equivalent, or permission of instructor. Computer Science majors must take as CSC 310; Data Science majors must take as DSP 310.

DSP 393G Introduction to Predictive Analytics LEC (3 crs.) Cross-listed as (AMS), DSP 393G. The course implements an active learning pedagogy for students to meticulously and systematically work with "Big Data" to develop data-driven predictive models for decision-making. (Lec. 3) Pre: MTH 215; STA 308 or STA 409 or BAI (BUS) 210; and STA 305. (B3) (D1) (GC)

DSP 404 Data Visualization and Infographics Design STU (3 crs.) Cross-listed as (ART), DSP 404. Familiarizes students with the concepts and techniques required in creating and visualizing large and complex data, enabling students to design and present bodies of information. (Studio) Pre: junior, senior, or graduate standing. (A4) (D1)

DSP 439 Big Data Analysis LEC (3 crs.) Cross-listed as (BIO), DSP 439. Learn about big data and how to write scripts to analyze data. (Lec. 3) Pre: junior standing, MTH 131 or 141. Not for graduate credit.

DSP 441 Introduction to Multivariate Statistical Learning LEC (4 crs.) Cross-list as (STA), DSP 441. Multivariate data organization and visualization, multinomial and multivariate normal distribution, tests of hypotheses on mean vectors, multivariate regression and classification, principal component analysis, clustering, cross-validation and bootstrapping. (Lec. 3., Lab. 1) Pre: MTH 215; and STA 409, or STA 411, or STA 412; or permission of instructor.

DSP 461 Machine Learning LEC (4 crs.) Cross-listed as (CSC), DSP 461. Broad introduction to fundamental concepts in machine learning. Survey of traditional and newly developed learning algorithms, as well as, their application to real-world problems. (Lec. 3, Lab. 1) Pre: CSC 310 and MTH 215. Computer Science majors must take as CSC 461. Data Science majors must take as DSP 461.

DSP 477 Data Science Internship PRA (1-4 crs.) Supervised internship in data science that prepares students for careers in industry. (Practicum) Pre: Junior standing, data science majors, and permission of instructor. May be repeated for a maximum of 8 credits. Not for graduate credit.

DSP 490 Statistics in Practice LEC (4 crs.) Cross-listed as (STA), DSP 490. Practical experience in statistical consulting through various projects. Apply statistical methods to the challenges imposed by real data, and communicate findings effectively. (Lec. 2, Practicum 2) Pre: (STA 411 or 412) and STA 441, or permission of the instructor. Not for graduate credit.

DSP 539 Big Data Analysis LEC (3 crs.) Cross-listed as (BIO), DSP 539. Learn about big data and gain sufficient programming skills to analyze data efficiently and accurately for research. (Lec. 3) Pre: graduate standing

DSP 552 Computer-based Data Exploration ONL (3 crs.) Basic methods and tools needed for data acquisition, cleaning, and aggregation. Measures of data integrity and consistency are determined. Computer-based systems and methods for data storage, retrieval, manipulation, and display are explored. (Accelerated Online Program) Pre: Enrollment in the Online Graduate Certificate in Data Science.

DSP 553 Mathematical Methods for Data Science ONL (3 crs.) Cross-listed as (DSP) AMS 553. This course covers a wide range of mathematical tools from Discrete Mathematics, Calculus, Linear Algebra, and Probability Theory that arise in Data Science. Each mathematical construct is accompanied by examples of its use in solving practical problems in Data Science. (Accelerated Online Program) Pre: Enrollment in the Online Graduate Certificate in Data Science.

DSP 555 Multivariate Statistical Learning for Data Science ONL (3 crs.) Multivariate data organization and visualization, multivariate distributions, tests of hypotheses on mean vectors, multivariate regression and classification, penalized regression, tree-based methods, principal component analysis, clustering, cross-validation, and bootstrapping. (Accelerated Online Program) Pre: DSP 552, 553, and 554, and enolled in the Online Graduate Certificate in Data Science.

DSP 556 Machine Learning for Data Science ONL (3 crs.) Survey of traditional and newly developed machine learning techniques from an applied perspective, with emphasis on applications to a variety of domains. (Accelerated Online Program) Pre: DSP 555 and enrollment in the Online Graduate Certificate in Data Science.

DSP 557 Interdisciplinary Data Enabled Research/Capstone ONL (3 crs.) Students apply theoretical knowledge acquired during the Data Science Certificate program to a project involving actual data in a realistic setting. A Team-based capstone data project will provide real-world experiences of data-driven research for students. (Accelerated Online Program) Pre: DSP 556 and Enrollment in the Online Graduate Certificate in Data Science.

ECN | Economics

ECN 100 Introduction to Economics LEC (3 crs.) General overview of concepts economists employ to address issues of public policy. Description of major institutions of present-day American economy. Historical approach to subject matter. (Lec. 3/Online)

ECN 100H Honors Section of ECN 100: Introduction to Economics LEC (3 crs.) Honors Section of ECN 100: Introduction to Economics. (Lec 3/Online) Pre: Must have a 3.40 overall GPA.

ECN 201 Principles of Economics: Microeconomics LEC (3 crs.) Principles underlying resource allocation, production, and income distribution in a market economy. Topics include demand and supply, consumer behavior, firm behavior, market structure, and elementary welfare analysis. Institutional foundations explored. (Lec. 3/Online) (A2)

ECN 201H Honors Section of ECN 201: Principles of Economics: Microeconomics LEC (3 crs.) Honors Section of ECN 201: Principles of Economics: Microeconomics. (Lec. 3/Online) Pre: overall gpa of 3.40. (A2)

ECN 202 Principles of Economics: Macroeconomics LEC (3 crs.) Principles underlying aggregate demand and aggregate supply in a market economy. Topics include national income determination, inflation, unemployment, economic growth, and international trade. Institutional foundations explored. (Lec. 3/Online) Pre: ECN 201 or ECN 201H or EEC 105 or equivalent. (A2) (C1)

ECN 202H Honors Section: ECN 202: Principles of Economics: Macroeconomics LEC (3 crs.) Principles underlying aggregate demand and aggregate supply in a market economy. Topics include national income determination, inflation, unemployment, economic growth, and international trade. Institutional foundations explored. (Lec. 3/Online) Pre: 3.40 overall gpa and ECN 201 or ECN 201H or EEC 105 or equivalent. (A2) (C1)

ECN 305 Competing Traditions in Economics LEC (3 crs.) Introductory exposure to the history of economic thought and also to competing schools of thought within modern economics. Connections between present-day controversies and competing traditions are explored. (Lec. 3/Online) Pre: ECN 201, 202. May be taken concurrently with 202.

ECN 306 Introduction to Empirical Economic Research LEC (3 crs.) Identify, compile, interpret, and analyze quantitative economic data by expressing relationships through graphs, statistical analysis, and discursive English. (Lec. 3) Pre: ECN 201 and credit or concurrent enrollment in ECN 202, and MTH 103 or 111 or 131 or 141 or BAI (BUS) 111.

ECN 323 Intermediate Microeconomics LEC (3 crs.) Theory of consumer behavior, the firm, market equilibrium, general equilibrium, imperfect competition, optimization over time, and linear models. Models of microeconomics are developed using calculus and linear algebra. (Lec. 3) Pre: ECN 201, 202 and MTH 131 or 141.

ECN 324 Intermediate Macroeconomics LEC (3 crs.) Theory of consumption, investment, monetary and fiscal policy, static and dynamic models, economic growth, unemployment, and inflation. Macroeconomics developed using calculus and linear algebra. (Lec. 3) Pre: ECN 201, 202 and MTH 131 or 141.

ECN 327 Intermediate Economic Theory: Income and Employment LEC (3 crs.) Measurement of national income. Theory of the determination of the general level of income, employment, and prices. Business fluctuations. (Lec. 3/Online) Pre: ECN 202 or 590, and MTH 103 or 111 or 131 or 141 or BAI (BUS) 111, or permission of instructor. Not available for credit for students who have taken ECN 324.

ECN 328 Intermediate Economic Theory: Pricing and Distribution LEC (3 crs.) Market conditions and forces affecting the pricing and production of goods and services, the allocation of resources, and the distribution of income. (Lec. 3/Online) Pre: ECN 201 or 201H or EEC 105; MTH 103 or 111 or 131 or 141 or BAI (BUS) 111. Not available for credit for students who have taken ECN 323.

ECN 333 Economics and the Law LEC (4 crs.) Cross-listed as (ECN), PSC 333. Explores the different approaches of the economic analysis of law, and the history of how economics came to influence on the field of law. (Lec. 4) Pre: ECN 201.

ECN 334 Money, Financial Markets, and Monetary Policy LEC (3 crs.) Structure and functioning of monetary institutions. Analyses of monetary theories. The role of monetary policy. U.S. banking structure: its operations and functioning. (Lec. 3) Pre: ECN 201 and 202 or permission of instructor.

ECN 335 Intermarket Economic Analysis LEC (3 crs.) Analyzes the basic functioning of markets using microeconomics generalizing to basic macroeconomic models. Emphasis on analyzing macroeconomic behavior through the interrelationships between the stock, bond, currency, and commodity markets. (Lec. 3) Pre: ECN 201 and 202 or permission of instructor.

ECN 337 Industrial Organization and Public Policy LEC (3 crs.) Historical and present attitudes and policies of various levels of government toward the changing structure of American business. Emphasis on legal and economic concepts of business activity. (Lec. 3) Pre: ECN 201 or 202 or permission of instructor.

ECN 338 International Economics LEC (3 crs.) Theory and evidence on international trade and finance. Includes determinants and welfare effects of foreign trade, international investment, migration, exchange rates, and the balance of payments. (Lec. 3/Online) Pre: ECN 100 or 201 or permission of instructor.

ECN 342 Public Finance LEC (3 crs.) Examination of the theory and practice of public expenditures, revenues, and fiscal policy with major emphasis on federal fiscal affairs. (Lec. 3) Pre: ECN 201 or 202 or permission of instructor.

ECN 344 Political Economy of Global Finance LEC (3 crs.) Cross-listed as (ECN), PSC 344. History, theory, and politics of the global financial system. Topics include the foreign exchange market, international banking, macroeconomic problems of open economies, and global financial crises. (Lec. 3) Pre: ECN 100 or 202 or permission of instructor.

ECN 344H Honors Section of ECN/PSC 344H: Political Economy of Global Finance LEC (3 crs.) Honors Section of ECN/PSC 344H: Political Economy of Global Finance. Cross-listed as (ECN), PSC 344. History, theory, and politics of the global financial system. Topics include the foreign exchange market, international banking, macroeconomic problems of open economies, and global financial crises. (Lec. 3) Pre: 3.40 overall GPA, and ECN 100 or 202, or permission of instructor.

ECN 351 Assigned Work IND (3 crs.) Special work in economics when it can be arranged to meet the needs of individual students who desire independent work. (Independent Study) Pre: ECN 201 or 202 or permission of instructor. S/U credit.

ECN 352 Assigned Work IND (3 crs.) Special work in economics when it can be arranged to meet the needs of individual students who desire independent work. (Independent Study) Pre: ECN 201 or 202 or permission of instructor. S/U credit.

ECN 358 Globalization and National Economies ONL (3 crs.) Study of the economies of different countries and regions in the context of globalization and reactions to it. (Online) Pre: ECN 201, ECN 202, and PSC 116G.

ECN 360 Health Economics LEC (3 crs.) Economic analysis of health services. Topics include demand and supply in markets for health care and insurance, government regulations, and performance of national health systems. (Lec. 3) Pre: ECN 201

ECN 363 Economic Growth and Development LEC (3 crs.) Basic problems in economic growth and development of so-called backward or preindustrial countries. Emphasis on population trends, agrarian reforms, capital formation, international aid programs, respective roles of private and public enterprise. (Lec. 3) Pre: ECN 201 or 202 or permission of instructor.

ECN 363H Honors Section of ECN 363: Economic Growth and Development LEC (3 crs.) Honors Section of ECN 363: Economic Growth

and Development. (Lec. 3) Pre: 3.40 overall gpa, ECN 201 or 202 or permission of instructor.

ECN 368 Labor Economics LEC (3 crs.) Impact of industrialization on workers; survey of the basic principles of labor market organization and operation; unemployment and remedies; wage determination under union and nonunion conditions. (Lec. 3) Pre: ECN 201 and 202, or permission of instructor.

ECN 375 Mathematical Economics LEC (3 crs.) Mathematical techniques used in modern economic theory. Linear algebra, the calculus of several variables, constrained maximization, and differential equations. Application to economic problems. (Lec. 3) Pre: ECN 201 and 202 and MTH 131 or 141, or permission of instructor.

ECN 376 Introduction To Econometrics LEC (4 crs.) Application of econometric methods to economic problems. Econometric tools applied to micro- and macroeconomic problems. (Lec. 3, Lab. 2) Pre: ECN 201, 202, and 306; and MTH 103 or 111 or 131 or 141 or BAI (BUS) 111.

ECN 381 Radical Critiques of Contemporary Political Economy LEC (3 crs.) Radical right and radical left critiques. Radical views on values, methodology, production planning, income distribution, economic power, the military-industrial complex, imperialism, and racial and sexual discrimination. (Lec. 3) Pre: ECN 202 or permission of instructor.

ECN 381H Honors Section of ECN 381: Radical Critiques of Contemporary Political Economics LEC (3 crs.) Honors Section of ECN 381: Radical Critiques of Contemporary Political Economics. (Lec. 3) Pre: ECN 202, 3.40 overall GPA, or permission of instructor.

ECN 386 The Economics of Race, Gender, and Class LEC (3 crs.) Cross-listed as (ECN), GWS 386. An economic examination of the historical interrelations of race, class, and gender issues. (Lec. 3) Pre: ECN 100 or 201 or permission of instructor.

ECN 390 Topics in Economics LEC (3-4 crs.) In-depth treatment of a topic in economics. May be repeated with different topics. (Lec. 3-4) Pre: ECN 201 or permission of instructor.

ECN 399G Nonviolent Economics LEC (3 crs.) Cross-listed as (ECN), NVP 399G. Interdisciplinary consideration of Economics and Nonviolence & Peace Studies through an examination of Taoist Economics and Buddhist Economics, and how these two perspectives apply to contemporary policy and ethical issues. (Lec. 3) (A2) (GC)

ECN 415 Dynamics of Social Change in the Caribbean LEC (3 crs.) Cross-listed as (AAF), PSC, ECN 415. Exploration of the slave trade and the origins of Africans and people of African descent in the Caribbean. Emphasis on political and economic relations with the U.S. and the impact of modernization. (Lec. 3) Not for graduate credit.

ECN 445 Senior Research Seminar SEM (3 crs.) Collaborative group research on topic(s) selected by instructor. Written report and/or oral presentation required. (Seminar) Pre: For economics majors only. Must have completed 90 credits and ECN 201, 202, 305, 306 or 376, 324 or 327, 323 or 328, or permission of instructor. Not for graduate credit. (D1)

ECN 480 Seminar In Labor Studies SEM (3 crs.) Cross-listed as (ECN), LHR 480. Intensive studies examining various important topics in labor studies. Class discussion of assigned readings and student reports.(Lec. 3) Pre: permission of instructor. Not for graduate credit.

ECN 515 Economic Research IND (1-3 crs.) Independent research. (Independent Study) S/U credit.

ECN 516 Economic Research IND (1-3 crs.) Independent research. (Independent Study) S/U credit.

ECN 521 Global Politics of Work and Social Welfare LEC (3 crs.) Cross-listed as (LHR), PSC, ECN 521. International and comparative politics of work and social welfare. Transformation of work due to globalization and family shifts; worker rights, education/training, and social security across countries. (Lec. 3) Pre: graduate standing or permission of instructor.

ECN 526 Economics of Labor Markets LEC (3 crs.) Cross-listed as (LHR), ECN 526. The theory of labor market behavior, and application of theory for public policy analysis in areas such as discrimination, unemployment, and education. (Lec. 3) Pre: ECN 201 and 202 or 590 or equivalent.

ECN 527 Macroeconomic Theory LEC (3 crs.) Cross-listed as (EEC), ECN 527. Static and dynamic models of aggregate economic behavior developed and analyzed. (Lec. 3) Pre: ECN 327 and 375 or equivalent, or permission of instructor.

ECN 528 Microeconomic Theory LEC (4 crs.) Cross-listed as (EEC), ECN 528. Analytic tools of optimization. Neoclassical price and production theory. Neoclassical theory of consumer and producer behavior, price and distribution, partial and general equilibrium and welfare economics. (Lec. 4) Pre: ECN 328 and 375 or equivalent and concurrent registration in EEC 518, or permission of instructor.

ECN 576 Econometrics LEC (4 crs.) Cross-listed as (EEC), ECN, STA 576. Application of statistics and mathematics to economic analysis. Implication of assumption required by statistical methods for testing economic hypotheses. Current econometric methods examined and discussed. (Lec. 3, Lab. 2) Pre: ECN 575 or equivalent, STA 308 or equivalent, or permission of instructor.

ECN 590 Principles of Economics LEC (3 crs.) Survey of micro- and macroeconomic theory. (Lec. 3) Pre: graduate standing in accounting, labor and industrial relations, or M.B.A. program.

ECN 628 Advanced Microeconomic Theory I LEC (3 crs.) Cross-listed as (EEC), ECN 628. Neoclassical value and distribution theory. Theories of imperfect competition, general equilibrium theory, and dynamic analysis. (Lec. 3) Pre: EEC 528 or permission of instructor.

ECN 676 Advanced Econometrics LEC (4 crs.) Cross-listed as (EEC), ECN 676. A course covering the tools necessary for professional research in resource economics. Reviews the general linear model, but emphasis is on simultaneous equation models. Assumes a knowledge of introductory econometrics, statistical theory, and matrix algebra. (Lec. 4) Pre: EEC 576 or its equivalent.

EDC | Education

EDC 100 Great Public Schools: Everyone's Right? Everyone's Responsibility? SEM (3 crs.) Interdisciplinary, critical examination of the current diversity and equity issues in the American public education system PK-20. (Seminar 2, Online 1)

EDC 102 Introduction To American Education LEC (3 crs.) Introduction to the fundamental structure, functions, and problems of American education. Emphasis on education as both a sociocultural phenomenon and an embodiment of philosophical commitments. Information Literacy and Diversity and Inclusion focus. (Lec. 2, Rec. 1/Online) (C3) (B4)

EDC 102H Honors Section of EDC 102: Introduction to American Education LEC (3 crs.) Honors Section of EDC 102: Introduction to American Education. (Lec. 2, Rec. 1/Online) Pre: Must have a 3.40 overall GPA. (C3) (B4)

EDC 103G Education and Social Justice LEC (3 crs.) Focusing on race, cultural diversity, socio-economic status, disabilities, and sexual orientation, this course will facilitate students' examination of their own stereotypes to analyze how to be a social justice advocate. (Lec. 3) (B4) (C3) (GC)

EDC 116 (KIN) Teaching Individual Sports Activities LAB (1 cr.) Emphasis on learning rules of play, sport specific skills, and teaching and instructional methods for sport activities and games that are individually based. (Lab. 3) Pre: Health and Physical Education majors only.

EDC 117 (KIN) Teaching Team Sports Activities LAB (1 cr.) Emphasis on learning rules of play, sport specific skills, and teaching and instructional methods for sport activities and games that are team based. (Lab. 3) Pre: Health and Physical Education majors only.

EDC 118 (KIN) Teaching Lifetime Physical Activities LAB (1 cr.) Emphasis on learning rules of play, sport specific skills, and teaching and instructional methods for physical activities and games that are

lifetime fitness based. (Lab. 3) Pre: Health and Physical Education majors only.

EDC 250 Supervised Preprofessional Field Experience LEC (1 cr.) Supervised early field experience and seminar for students wishing to explore one or more possible career choices in education. (Lec., Pract.) May be repeated for credit. S/U only.

EDC 270 (KIN) Introduction to Teaching Physical Education and Health LEC (3 crs.) Foundations of teaching physical education and health. Application of current theories of effective practices of teaching physical education and health in the elementary and secondary schools. (Lec. 3)

EDC 278 Independent Study in Educational Studies IND (1-3 crs.) Independent themes in education conducted as seminars or supervised individual projects for students to learn specialized material, gain research experience, and explore their interest in education in a deeper more meaningful way. (Independent Study) May be repeated for credit as often as the theme changes, up to 9 total credits. Pre: sophomore standing or permission of instructor.

EDC 280 Teacher Program Prep and Career Development-Math LAB (1 cr.) Overview and review of required mathematics content and skills for admission into teacher certification programs. (Lab. 1, online/Online) This class prepares candidates to be successful in admission to Education programs at the University of Rhode Island.

EDC 281 Teacher Program Prep and Career Development-Reading LAB (1 cr.) Overview and review of required reading content and skills for admission into teacher certification programs. (Lab. 1, online/Online) This class prepares candidates to be successful in admission to Education programs at the University of Rhode Island.

EDC 282 Teacher Program Prep and Career Development-Writing LAB (1 cr.) Overview and review of required writing content and skills for admission into teacher certification programs. (Lab. 1,online/Online) This class prepares candidates to be successful in admission to Education programs at the University of Rhode Island.

EDC 300 (KIN 304) Methods of Teaching Physical Education In Elementary Schools LEC (3 crs.) Instruction in contemporary techniques used in a program of physical education for elementary school children. Types of activities found in basic programs and in planned progressions for various age groups. (Lec.2, Lab.2) Pre: concurrent enrollment in EDC 302, admission to the teacher education program by the start of semester.

EDC 301 (HDF) Early Childhood Curriculum I: Introduction to Curriculum LEC (4 crs.) Theoretical foundations and practical applications of early childhood curriculum as a framework including process, content, context, teaching and facilitating. Includes 3 hour weekly practicum in diverse early childhood classrooms. (Lec. 3, Practicum 1) Pre: Admission to the Early Childhood Education Teacher Certification program, or HDF 203, or permission of the instructor.

EDC 302 (KIN 305) Supervised Experience-Physical Education in the Elementary School PRA (1 cr.) Students participate in supervised experience laboratory for methods learned in 304. (Practicum) Pre: concurrent enrollment in EDC 300, admission to the teacher education program by the start of semester. S/U only.

EDC 303 (HDF) Early Childhood Curriculum II: Math & Science LEC (4 crs.) In-depth examination of early childhood math and science curriculum and assessment for Preschool through Grade 2. Course includes 3 hour per week supervised teaching in a URI Child Development Center. (Lec. 3, Practicum 1) Pre: EDC 301 and acceptance into the Early Childhood Certification Program. Not for graduate credit.

EDC 304 JumpStart Seminar SEM (3 crs.) JumpStart Seminar is a three credit hybrid seminar taken concurrently with a field experience in both fall and spring semesters. Pre: permission of instructor; concurrent enrollment in JumpStart URI. Open to all majors. (B2) (A2)

EDC 306 Education Policy and Public Service Internship-MTI@ URI PRA (4 crs.) Cross-listed as (PSC), EDC 306. Internship in a Rhode Island public school accompanied by an introduction to the problems and politics of education policy viewed from an interdisciplinary approach. (Rec. 1, Prac. 1, Online 2) (A2) (C1)

EDC 307 (KIN) Methods of School Health Instruction LEC (3 crs.) Designed to teach methods, techniques, learning styles, and skills necessary to recognize the developmental, physical, social, and emotional growth of elementary and secondary level students. (Lec. 3) Pre: Concurrent enrollment in EDC 308, admission to the teacher education program at the start of the semester

EDC 308 (KIN 309) Supervised Experience in Health Education PRA (1 cr.) Students participate in supervised experience laboratory for methods learned in KIN 307: Methods of School Health Instruction; (Practicum) Pre: concurrent enrollment in EDC 307, admission to the teacher education program by the start of semester.

EDC 310 (KIN) Principles of Human Motor Development for Physical Education LEC (3 crs.) Overview of the principles of motor development for the physical education teacher. Examines human motor development across the life span with emphasis on assessment and program development. Includes basic principles of motor learning. (Lec. 3) Pre: admission to the teacher education program and PSY 113; or permission of instructor.

EDC 312 The Psychology of Learning LEC (3 crs.) An analysis of learning with emphasis on principles and procedures applicable to any human teaching and learning situation. (Lec. 3/Online) (A2) (B4)

EDC 314 (KIN) Methods of Teaching Physical Education in Secondary Schools LEC (3 crs.) Instruction in contemporary techniques used in a program of physical education for secondary school children. Type of activities found in basic programs and in planned progressions for various age groups. (Lec. 2, Lab. 2) Pre: concurrent enrollment in EDC 315, admission to the teacher education program by the start of semester.

EDC 315 (KIN) Supervised Experience-Physical Education in the Secondary School PRA (1 cr.) Students participate in supervised experience laboratory for methods learned in 314. (Practicum) Pre: Concurrent enrollment in EDC 314, admission to the teacher education program by the start of semester.

EDC 322 (KIN) Outdoor Leisure Pursuits LEC (1 cr.) Principal philosophical foundations of adventure theory and wilderness leadership are examined while the student learns to teach outdoor leisure activities. Concepts of judgment, decision-making, leadership and environmentally sensitive practices are introduced. (Lec. 1) Pre: Health and Physical Education majors only.

EDC 324 (KIN) Rhythms and Dance LAB (1 cr.) Instruction in the fundamental skills of folk, square, ballroom, and social dances, emphasizing personal skill acquisition and the skills necessary for teaching dances in the public/private school physical education environment. (Lab. 3) Pre: Health and Physical Education majors only.

EDC 331 Clinical Experiences for Secondary Education I PRA (1 cr.) Secondary school clinical experience. Student applies content learned in the measurement course (EDC 371) and prior course work in classroom settings. (Practicum) Pre: EDC 312 or 512 and concurrent enrollment in EDC 371. Open only to students accepted into the School of Education or permission of instructor. (S/U)

EDC 332 Clinical Experiences for Secondary Education II PRA (1 cr.) Secondary school clinical experience. Student applies content learned in EDC 448 and EDC402 and prior course work in classroom settings. (Practicum) Pre: EDC 371, 331, and concurrent enrollment in 448 and 402. Acceptance to the School of Education or permission of instructor. S/U credit.

EDC 350 Primary School Practicum PRA (1 cr.) Students apply methodology in a public school setting for grades K-2 for three hours each week for 10 weeks. Lessons are taught and principles of classroom management, individualized instruction, and integrated curriculum are applied. (Practicum) Pre: HDF 200 and acceptance into the early childhood education program. S/U only.

EDC 368 (KIN) Assessment in Physical Education and Health LEC (3 crs.) Focuses on the method and materials for measurement and evaluation in PE. Provides a basic introduction to data analyses and

statistical inference. (Lec. 3) Pre: completion of math general education requirement.

EDC 371 Educational Measurements LEC (3 crs.) An analysis of concepts and procedures involved in creating, selecting, summarizing, and using tests and other measurement devices in educational settings. (Lec. 3) Pre: EDC 312 or 512, and concurrent enrollment in EDC 331 or 400. Open only to students accepted into the School of Education or permission of instructor.

EDC 400 Middle School Curriculum Assessment and Methods LEC (3 crs.) Seminar addressing contemporary middle school curriculum, assessment, methods, and research-based models are emphasized. Focus is on adolescents; teaming; thematic, integrated, interdisciplinary, standards-based instruction; differentiated instruction; and multiple intelligences. (Lec. 3 and 30 hours of field experience) Pre: EDC 312 or 512 and concurrent enrollment in EDC 371 and 331 for secondary education students; EDC 312 or 512 and concurrent enrollment in EDC 453, 454, and 331 for elementary education students. Open only to students accepted into the School of Education or by permission of instructor.

EDC 401 (KIN) Current Issues in Health Education LEC (3 crs.) Cross-listed as (HLT), EDC 401. Designed to develop student awareness of contemporary issues that are of concern to school health and other health educators. Extensive review of contemporary literature and film and critical analysis of selected issues and their effect on health education at the local, national, and global level. (Lec. 3) Pre: Acceptance into teacher education program or permission of instructor.

EDC 402 The Education of Special Needs Students LEC (3 crs.) Legislative, judicial, social and psychological issues related to assessment, identification, and education of students with special needs in general education classrooms. (Lec. 3) Pre: acceptance into a teacher preparation program or teacher certification.

EDC 407 Physical Activity as Therapy LEC (3 crs.) Cross-listed as (KIN), EDC 407. Introduction to a variety of sports/physical activities, teach students to analyze personal physical activity information collected with technological devices, learn specific exercise physiology and pedagogy applications and complete service learning experiences. (Lec., Lab.)

EDC 410 (KIN) Adapted Physical Education LEC (3 crs.) Planning and evaluation of physical education programs for individuals with special needs. Includes issues regarding disability laws and various mental, psychological, and physical conditions. (Lec. 2, Lab. 2) Pre: credit or concurrent enrollment in EDC 310 or 314 or permission of instructor.

EDC 411 (KIN) Assessment for Adapted Physical Education LEC (3 crs.) Assessment and programming of fitness, motor, and functional skill behaviors for individuals with special needs. (Lec. 2, Lab. 2) Pre: EDC 410, 368 or permission of instructor.

EDC 415 Adolescents and Classroom Management SEM (3 crs.) Seminar addressing issues of adolescent development manifested in the classroom, emphasizing management strategies for learning and adolescent developmental needs. (Seminar 3 and 30 hours of field experience) Pre: EDC 448, 402, 332, and concurrent enrollment in 430 and 431 for secondary education students; concurrent enrollment in 460 for elementary education students. Open only to students accepted into the School of Education or by permission of instructor.

EDC 420 Second Language Acquisition and Assessment ONL (3 crs.) Cross-listed as (LIN), EDC 420. An evaluation of current trends and developments in the understanding of second language learning; analysis of second language acquisition research and its practical implications. (Online) Pre: Senior or graduate standing or permission of instructor.

EDC 421 Early Language and Literacy Development (Birth-5) LEC (3 crs.) Cross-listed as (HDF), EDC 421. Theoretical foundations of language and literacy development from birth through age 5. Examines practical applications of multi-modal language and literacy in diverse populations, including dual language learners. (Lec. 3) Pre: For HDF: HDF 200 and either HDF 202 or PSY 301; For ECE: admission into the Early Childhood Education Teacher Certification Program; or permission of instructor.

EDC 422 Technology Applications in Education and Training LEC (3 crs.) Introduction to the use of microcomputers in pre-K through adult education settings. Current use and techniques will be explored for evaluating hardware and software, implementation issues, and future developments. (Lec. 3) Pre: senior standing. Not for graduate credit.

EDC 423 Teaching Comprehension and Response in the Elementary School LEC (3 crs.) Analysis of narrative and expository text; strategies for teaching literacy in elementary grades using these texts, specifically focusing on vocabulary, comprehension, response, and integrating these literacy practices throughout the curriculum. (Lec. 3) Pre: Acceptance into a teacher preparation program or teacher certification, and prior or concurrent enrollment in EDC 312 or 512; or permission of instructor.

EDC 424 Teaching Literacy in the Primary Grades LEC (3 crs.) Fundamental knowledge base in literacy development and primary grade literacy instruction. Bridges theory and practice through exposure to a variety of methods and materials used to create a comprehensive primary literacy curriculum. (Lec. 3) Pre: Elementary education majors: EDC 312 or 512, and 423; Early childhood education majors: HDF 420 or EDC 423; Non elementary or early childhood education majors: graduate standing or permission of instructor.

EDC 425 Web Site Technology in Education and Training LEC (3 crs.) Focus on designing web-based curriculum. Topics include incorporating multimedia technologies into a web site, appropriate androgological and pedagogical strategies, and web site design and development. (Lec. 3) Pre: senior standing or permission of instructor. Not for graduate credit.

EDC 426 Curriculum III: Integrated Language Arts & Social LEC (3 crs.) Principles and practices of developing knowledge, skills, and activities in language arts and social studies for grades prek-2. (Lec. 3) Pre: EDC 301, EDC 303, HDF 420, and acceptance into the Early Childhood Certification Program. Not for graduate credit in education.

EDC 427 Language Study for Teachers of Reading LEC (3 crs.) Focuses on English phonology, morphology, syntax, and semantics. Applies concepts to reading and spelling, teaching phoneme awareness, interpreting student errors, and planning instruction. (Lec. 3) Pre: Acceptance into Elementary and Special Education certification track, or permission of instructor. Not for graduate credit.

EDC 429 Storytelling in a Global Society LEC (3 crs.) Children's literature selections applied to storytelling and creative dramatics addressing equality, GLBT, ecology, and peace in a global, multicultural society. Active student engagement in groups and as storytellers. (Lec.3) Pre: Juniors, Seniors, and Graduate Students from all disciplines, university-wide. (B2)

EDC 430 Methods and Materials in Secondary Education LEC (3 crs.) Principles of education as related to curricular materials and classroom situations. Sectioned by academic major: English, mathematics, modern language, science, social studies. (Lec. 3) Pre: EDC 448, 402, 332 and concurrent enrollment in EDC 431. Open only to students accepted into the School of Education or Permission of Instructor. Not for graduate credit in education.

EDC 431 Clinical Experiences for Secondary Education PRA (1 cr.) Secondary school clinical experience, taken concurrently with secondary methods course (430) during semester prior to student teaching. Student applies content learned in methods course and prior course work to peer teaching and classroom settings. Restricted to majors. (Practicum) Not for graduate credit. S/U only.

EDC 435 The Teaching of Composition SEM (3 crs.) Cross-listed as (WRT), EDC 435. Philosophy, materials, and methods underlying the teaching of writing with emphasis on current approaches including the application of linguistics. Offers practice in writing workshop

techniques, marking, constructing assignment sequences, and individualized instruction. (Seminar) Pre: junior standing or permission of instructor.

EDC 440 (KIN 430) Adapted Aquatics LEC (3 crs.) Planning, administering, and teaching adapted aquatics. Application of kinesiological concepts, characteristics, and methods of teaching aquatics to people with disabilities. (Lec. 2, Lab. 2) Pre: EDC 410, intermediate level swimming ability, admission to the teacher education program, or permission of instructor.

EDC 448 Literacy Practices for Content Subjects LEC (3 crs.) Emphasis on the development of specialized vocabulary, textbook reading techniques, and other study skills needed to read math, science, social studies, business, and other content area materials. (Lec. 3) Pre: 331 or 400, 371 and concurrent enrollment in 332 and 402. Open only to students accepted into the School of Education orpermission of instructor.

EDC 449 Teaching Adolescent Literature LEC (3 crs.) The current canon of adolescent literature will be reviewed and expanded, and methodologies for literature instruction will be explored. (Lec. 3) Pre: acceptance into the English education program or permission of instructor. Not open to students who have taken LSC 531.

EDC 452 Evaluation of Elementary and Middle School Students SEM (2 crs.) Purposes and means of evaluating elementary and middle school children will be critically analyzed. Types of tests and measurement tools will be examined, such as observation checklists, sociograms, rating scales, and portfolios. (Seminar) Pre: EDC 424, 456, 457, 458, 459; acceptance into the elementary education program and concurrent enrollment in EDC 402, 455 and 460. Not for graduate credit.

EDC 453 Individual Differences LEC (3 crs.) Analyzing the needs of various student populations with attention given to the concomitant values, resources, and curriculum modifications necessary for success in learning. (Lec. 3) Pre: EDC 102, 250 and 312/512 or concurrent enrollment; acceptance in the elementary education program and concurrent enrollment in EDC 423 and 454. Not for graduate credit.

EDC 454 Individual Differences Field Component PRA (1 cr.) Supervised field experience related to EDC 453 consisting of special education, language minority, compensatory education, gifted and talented, and at-risk students. (Practicum) Pre: EDC 102, 250, and 312/512 or concurrent enrollment; acceptance in the elementary education program; concurrent enrollment in EDC 423 and 453. Not for graduate credit.

EDC 455 Language Arts Methods in Elementary and Middle School Teaching LEC (2 crs.) Language arts and reading principles and practices of guiding children in the skillful use of basic means of communication (speaking, listening, writing, and reading) in the elementary and middle school classroom. (Lec. 2) Pre: EDC 424, 456, 457, 458, 459, acceptance into the elementary education program, and concurrent enrollment in 402, 452 and 460. Not for graduate credit.

EDC 456 Mathematics Methods in Elementary and Middle School Teaching LEC (2 crs.) Principles and practices of developing knowledge and skills in mathematics with elementary and middle school children. Service Learning. (Lec. 2) Pre: EDC 423, 453, 454; acceptance into the elementary education program. Concurrent enrollment in EDC 424, 457 and 458. Not for graduate credit.

EDC 457 Science Methods in Elementary and Middle School Teaching LEC (2 crs.) Principles and practices of developing knowledge and skills in science with elementary school children. (Lec. 2) Pre: Pre: EDC 423, 453, 454, acceptance into the elementary education program and concurrent enrollment in EDC 424, 456, 458 and 459. Not for graduate credit.

EDC 458 Social Studies Methods in Elementary and Middle School Teaching LEC (2 crs.) Principles and practices of developing knowledge and skills in social studies with elementary and middle school children. (Lec. 2) Pre: EDC 423, 453, 454, acceptance into the elementary education program and concurrent enrollment in EDC 424, 456, 457 and 459. Not for graduate credit.

EDC 459 Supervised Elementary Methods Practicum I PRA (1 cr.) Supervised field experience related to evaluation of elementary students and methods courses: assessment, mathematics, and science. Students will observe and teach. (Practicum) Pre: EDC 453, 454, acceptance into the elementary education program, and concurrent enrollment in 456, 457, and 458. Not for graduate credit.

EDC 460 Supervised Elementary Methods Practicum II PRA (2 crs.) Supervised field experience related to evaluation of elementary students and methods courses: teaching special needs students, social studies, and language arts. Students will observe and teach. Students meet periodically throughout the semester to focus on issues of classroom management. (Practicum) Pre: EDC 424, 456, 457, 458, 459, acceptance into the elementary education program, and concurrent enrollment in 402, 452, and 455. Not for graduate credit.

EDC 461 (HDF 455) Assessment in Early Childhood Education LEC (3 crs.) An overview of cognitive, affective, and psychomotor assessments used by early childhood development and education specialists, and examination of the assessment techniques and current trends and practices. (Lec. 3/Online) Pre: Admission to early childhood education program and EDC 303 or permission of the instructor. For graduate credit.

EDC 464 Diagnosis of Learning Difficulties LEC (3 crs.) Use informal and formal techniques to assess students' academic strengths and needs. Culminates in a diagnostic analysis of a student. (Lec. 3) Pre: Acceptance into Elementary and Special Education certification track. Not for graduate credit.

EDC 466 Intervention in Reading and Writing Difficulties PRA (3 crs.) Supervised clinical experience in working with learners who struggle with literacy. Students assess learner needs, plan and implement instruction, and assess learner growth. (Practicum) Pre: EDC 464. Not for graduate credit.

EDC 478 Problems in Education IND (0-3 crs.) Advanced work in education conducted as seminars, supervised individual projects, or supervised field experiences. Topics include: "Heads Up! Reading," "NBPTS: Pre-candidates." (Independent Study) Students in seminars and supervised individual projects will be graded using standard grades (A-F); students in supervised field experiences will be graded using S/U grades only. Pre: permission of director.

EDC 479 Problems in Education IND (1-3 crs. each) Advanced work in education conducted as seminars, supervised individual projects, or supervised field experiences. Topics include: "NBPTS," "Literacy-Based Early Childhood Education Curriculum." (Independent Study) Students in seminars and supervised individual projects will be graded using standard grades (A-F); students in supervised field experiences will be graded using S/U grades only. Pre: permission of director.

EDC 484 Practical Teaching Residency II PRA (6-12 crs.) Engage in an intensive, full teaching load that provides deep instructional practice and experiences related to school-based professional requirements. (Practicum) Pre: methods course(s) of secondary, middle level, elementary, early childhood, music, and world languages education. Not for graduate credit in education. S/U credit except for music.

EDC 485 Seminar in Teaching SEM (3 crs.) Seminar associated with student teaching. Classroom issues, resource materials, and teaching models are addressed. Course work from throughout the undergraduate program and student teaching is integrated into a professional portfolio. Capstone. Areas include secondary nonvocational, elementary early childhood education, home economics, resource development, business, music, physical education, theatre. (Seminar) Pre: Concurrent enrollment in EDC 484 or 486 or 487 or permission of director. Not for graduate credit in education. (D1)

EDC 486 Student Teaching In Elementary Physical Education PRA (6 crs.) Under selected and approved critic teachers, students participate in classroom teaching and other school activities. (Practicum) Pre: methods courses of department. Not for graduate credit in education.

EDC 487 Student Teaching In Secondary Physical Education PRA (6 crs.) Under selected and approved critic teachers, students participate in classroom teaching and other school activities. (Practicum) Pre: methods courses of department. Not for graduate credit in education.

EDC 500 Foundations of Adult Education LEC (3 crs.) Examination of fundamental structure, functions, problems, and history of adult education in America. Focus on socioeconomic factors and philosophical commitments that have shaped various programs. (Lec. 3) Pre: graduate standing.

EDC 501 Socio-Cultural Aspects of Language Minority Education ONL (3 crs.) An analysis of the social, political, historical, cultural, economic, and linguistic factors affecting educational quality and access of language minority students. (Online) Pre: Senior or Graduate standing or permission of instructor.

EDC 502 Foundations of Curriculum LEC (3 crs.) History and analysis of foundational ideas and schools of thought about curriculum and how they shape modern practices in curriculum development, implementation, evaluation, and change in the United States. (Lec. 3)

EDC 503 Education in Contemporary Society LEC Leading educators' responses to issues and challenges confronting American education. Emphasis on identification and analysis of contemporary theories and practices reflecting the relationship between characteristics of society and educational values. (Lec. 3)

EDC 504 Adult Basic Education LEC (3 crs.) Teaching of adults whose educational level is below high school completion. Physical, social, and psychological characteristics of disadvantaged adults and various techniques and materials useful in motivating and teaching them. (Lec. 3) Pre: permission of instructor.

EDC 505 Leadership Development in Adult Programs LEC (3 crs.) Discussion of leadership concepts, styles, and implications. Discussion and practice in the use of several adult education methods and techniques for increasing the effectiveness of groups and organizations. (Lec. 3/Online) Pre: graduate standing.

EDC 506 Researching Language in Educational Settings ONL (3 crs.) An introduction to quantitative and qualitative research methods and design, data collection strategies, and methods of data analysis and interpretation in a second language-learning context. (Online) Pre: Senior or graduate standing or permission of instructor.

EDC 508 Interdisciplinary Curriculum Development LEC (3 crs.) Curriculum development of interdisciplinary units for schools. Focus is on grade-level units which incorporate multiple subject areas. Both individual and group projects required. (Lec. 3) Pre: permission of instructor.

EDC 510 Reading Instruction LEC (3 crs.) Examines research in beginning reading and best practices for primary (K-2) literacy instruction, and links these to the Rhode Island Reading Policy and the Tri-State GLEs. (Lec. 3) Pre: teaching certification.

EDC 512 Educational Psychology/classroom Learning SEM (3 crs.) Survey and analysis of classroom learning literature. Particular attention paid to interaction of theory and research for instructional practice. Introduces relevant measurement, statistical, and research concepts. (Seminar) Pre: previous course in psychology, or permission of instructor.

EDC 515 Structured English Immersion and Sheltered English ONL (3 crs.) Methods and materials of Structured English Immersion and Sheltered English emphasizing teaching strategies for content and language learning. (Online) Pre: Senior or graduate standing or permission of instructor.

EDC 516 Teaching Bilingual and Dual Language/English as a Second Language ONL (3 crs.) Methods and materials for those who plan to teach ESL, bilingual, or dual language immersion. Students develop a unit plan demonstrating appropriate teaching and assessment strategies. (Online) Pre: senior or graduate standing or permission in instructor.

EDC 517 Teaching Social Studies in the Elementary School LEC (3 crs.) Intensive research in various cross-subject topics within the social studies. Systematic analyses of learning theories and methods as they relate to the teaching of social studies in the elementary grades. (Lec. 3) Pre: graduate or postgraduate standing.

EDC 518 Teaching Science in the Elementary School LEC (3 crs.) Emphasis on methods and materials for use in the teaching of science in technology, life, earth, space and physical science topics. (Lec. 3) Pre: permission of instructor.

EDC 519 Teaching Internship in TESOL/Dual Language Immersion ONL (3 crs.) Students apply content learned in methods course and prior course work to classroom and other educational settings with multilingual learners. (Online) Pre: EDC 516 or permission of instructor. May be repeated for a maximum of 6 credits.

EDC 520 Teaching of Mathematics LEC (3 crs.) For the experienced teacher, examination of the principles underlying the teaching of mathematics in the elementary school; comprehensive survey of materials and methods available for the classroom teacher of mathematics. (Lec. 3) Pre: senior or graduate standing. In alternate years.

EDC 521 Teaching Basic Reading to Adults LEC (3 crs.) Techniques for teaching basic reading skills to illiterate adults; diagnosis, methods, and materials. (Lec. 3) Pre: EDC 504 or permission of instructor.

EDC 522 Using Technology to Teach Adult Learners LEC (3 crs.) The use of web-based and social networking tools will be explored and used for effectively teaching and training adult learners in a variety of settings.(Lec. 3/Online) Pre: senior or graduate standing.

EDC 525 Web Site Technology in Education and Training LEC (3 crs.) Focus on designing web-based curriculum. Topics include incorporating multimedia technologies into a web site, appropriate androgological and pedagogical strategies, and web site design and development. (Lec. 3) Pre: Graduate standing.

EDC 526 Applied Linguistics for TESOL/BDL ONL (3 crs.) Provides opportunities for teachers of English Learners to develop their understanding of the English language system (phonology, morphology, syntax, semantics, orthography, spelling, and pragmatics), and how differences between English and other languages affect L2 language acquisition, literacy, and metalinguistic awareness. (Online) Pre: Acceptance into a Master's program in the School of Education or permission of instructor.

EDC 527 Language Study for Teachers of Reading SEM (3 crs.) Cross-listed as (EDC) PSY 527. Focuses on English phonology, morphology, syntax, and semantics. Applies concepts to L1/L2 reading and spelling, teaching phoneme awareness, interpreting student errors, and planning instruction. (Seminar/Online) Pre: second semester junior, or graduate standing, or permission of instructor.

EDC 529 Foundations of Educational Research LEC (3 crs.) Analysis of current major research approaches to educational problems. Requires research proposal with questions, literature review and method of data collection/analysis. Recommended EDC 529 and EDC 575 taken in sequence. (Lec. 3/Online)

EDC 531 Teaching and Learning with Digital Technologies LEC (3 crs.) This course engages students in project-based inquiry using a variety of digital tools to create challenging and engaging learning opportunities for others. (Lec. 1, Workshop 2)

EDC 532 Seminar in Digital Literacy and Learning ONL (3 crs.) This course focuses on understanding major theories of online and offline reading comprehension, how to assess online reading, and productive ways of teaching digital literacy skills in grades K-12. (Online) Pre: Permission of instructor. Recommended EDC 531, EDC 532, EDC 534, and EDC 535, be taken in sequence.

EDC 534 Seminar in Digital Authorship ONL (3 crs.) This course includes a range of hands-on dynamic learning experiences that integrate digital media, technologies, and best practice strategies for teaching composition and authorship in a Web 2.0 world. (Online 3)

EDC 535 Leading with Digital Literacy LEC (3 crs.) This course focuses on leading and collaborating with face-to-face and digital tools to facilitate real and sustainable change in a range of educational contexts. (Lec. 1, Workshop 2) Pre: EDC 531 or permission of the instructor. Recommended EDC 531, EDC 532, EDC 534, and EDC 535 be taken in sequence.

EDC 539 Evaluation and Monitoring of Occupational Training Programs LEC (3 crs.) Evaluation and monitoring theory and practice for education and training programs. Focus on development of evaluations for programs in job training, public education and private sector programs. (Lec. 3/Online) Pre: Graduate standing.

EDC 540 Learning Disabilities: Assessment and Intervention LEC (3 crs.) Cross-listed as (PSY), EDC 540. Applications of early screening batteries; remedial programs for various disabilities, including behavioral programs and methods for older children and adolescents. Emphasis on pragmatic application of skills for detection and treatment. (Lec. 3) Pre: permission of instructor. May be repeated for a maximum of 6 credits.

EDC 544 Reading Acquisition and Reading Disability: Research and Implications for Practice LEC (3 crs.) Cross-listed as (PSY), EDC 544. Examination of research on the language, cognitive, and reading characteristics of children who successfully learn to read and of those who encounter difficulty. Additional focus on the implications and use of the research for assessment and instruction. (Lec. 3) Pre: graduate standing or permission of instructor.

EDC 553 (HDF) Higher Education Practicum PRA (3 crs.) Supervised practicum in higher education placements. Emphasis on applied student affairs and higher education administration praxis. (Practicum) Pre: permission of instructor. May be taken for a maximum of 9 credits. S/U only

EDC 554 (HDF 555) Contemporary College Student I LEC (3 crs.) First course in sequence examining the learning and growth trajectories of students in higher education. Emphasis on typologies and psychosocial identities in a socio-historical context. (Lec. 3) Pre: EDC 561.

EDC 555 Quantitative Thinking and Applications for Education LEC (3 crs.) Basic logic and techniques of quantitative data analysis. For Education Ph.D. students planning to conduct applied research in educational settings, this course provides foundations of receptive and expressive literacy. This course satisfies the prerequisite for EDP 613, but cannot be used for program credit. (Lec. 3) Pre: admission to joint URI-RIC Ph.D. in Education program. (Spans both summer sessions.)

EDC 556 (HDF) Contemporary College Student II LEC (3 crs.) Second course in sequence examining the learning and growth trajectories of students in higher education. Emphasis on cognitive-structural and integrative dimensions in a socio-historical context. (Lec. 3) Pre: EDC 561.

EDC 557 Developing and Delivering Effective Presentations ONL (3 crs.) Examines effective strategies to create and deliver impactful presentations to adult audiences. Discussion of adult learning theory combined with use of effective technological tools. (Online) Pre: Graduate Standing.

EDC 558 Mentoring Applications: Formal and Informal ONL (3 crs.) Delves into a variety of strategies and formats (face-to-face, online, collaborative, etc.) that will enable you to develop a mentoring application for you or your organization. (Online) Pre: Graduate Standing

EDC 560 (HDF) Group Procedures and Leadership LEC (3 crs.) Approaches and processes for conducting a range of group interventions from small group meetings to psychoeducational techniques. A practical and theoretical approach to facilitation skills, team leadership, and group dynamics in higher education and other adult settings. Enrollment is limited. (Lec. 3) Pre: graduate standing and permission of instructor.

EDC 561 (HDF 567) Principles and Practices of College Student Personnel LEC (3 crs.) Survey of the historical, philosophical, sociological, and cultural influences on college student personnel work as a profession and exploration of selected functional areas within student affairs. (Lec. 3) Pre: graduate standing and permission of instructor.

EDC 562 Methods of Intervention for Literacy Difficulties LEC (3 crs.) Teachers will explore methods and materials used for developing phonological awareness, sound/symbol knowledge, word reading skills, fluency, comprehension, and vocabulary through readings, discussions, application, and reflection. (Lec. 3) Pre: Restricted to students accepted to teacher education, or graduate standing, or permission of instructor.

EDC 563 Literacy for Multicultural Populations ONL (3 crs.) Selecting and developing appropriate materials and strategies for assessing and teaching reading/literacy to English Language Learners and those whose cultural and socioeconomic backgrounds vary. (Online) Pre: Senior or Graduate standing, or permission of instructor.

EDC 564 Diagnosis of Learning Difficulties LEC (3 crs.) Use informal and formal techniques to assess students' academic strengths and needs. Culminates in a diagnostic analysis of a student. (Lec. 3) Pre: Admission into MA in Education in Reading or Special Education, or permission of instructor.

EDC 565 Research in Literacy and Learning SEM (3 crs.) In-depth review of literacy and learning research and theory from a variety of perspectives. Analysis of the relationships among research, theory, and political/instructional decisions. (Seminar 3) Pre: acceptance into MA in Education/Reading or MA in Education/Special Education, or permission of instructor.

EDC 566 Intervention in Reading and Writing Difficulties PRA (3 crs.) Supervised clinical experience in working with learners who struggle with literacy. Students assess learner needs, plan and implement instruction, and assess learner growth. (Practicum) Pre: For MA in Education (Reading and Special Education) EDC 564. For MA/Reading, must be taken twice for a total of 6 credits. May be taken up to three times for a total of 9 credits. For Graduate Certificate in Dyslexia, EDC527, EDC544, EDC562.

EDC 567 Field Study in Literacy PRA (3 crs.) Supervised clinical experience in reading and writing difficulties. Students work directly with struggling readers and writers to diagnose reading/writing difficulties and plan and implement an appropriate program of instruction. (Practicum) Pre: EDC 565.

EDC 568 Differentiation of Instruction LEC (3 crs.) Strategies for differentiating instruction to meet diverse student needs in a heterogeneous classroom are addressed. Development of lessons using integrated differentiated instruction and assessment strategies is required. (Lec. 3) Pre: EDC 400 or 424 or 448 or 569 or permission of instructor

EDC 569 Best Practices in the Middle Level Classroom LEC (3 crs.) Examination of state and school improvement data at the middle level to improve curriculum, instruction, and assessment practices. Action research is performed with an emphasis on designs, processes, and models. (Lec. 3) Pre: graduate standing or permission of instructor.

EDC 570 Elementary School Curriculum LEC (3 crs.) Modern curriculum in the elementary school with emphasis on the needs of children. Covers language arts, social studies, science, arithmetic, and special subjects. (Lec. 3) Pre: EDC 529 or equivalent. In alternate years.

EDC 571 (HDF 572) Administrative Issues in Student Affairs LEC (3 crs.) Overview of administrative issues faced by student affairs practitioners including: resource management, supervision, budgeting, technology and legal issues. (Lec. 3) Pre: permission of instructor.

EDC 572 Higher Education Environments SEM (3 crs.) Overview of selected environmental theories for understanding higher education settings. Emphasis on the assessment and creation of equitable and engaging campus environments. (Seminar) Pre: EDC 554 and EDC 556 or permission of instructor.

EDC 574 Current Trends in Secondary Education LEC (3 crs.) Effective use of instructional materials, media of communication, and organization of personnel and current research. (Lec. 3) Pre: EDC 529 or permission of director.

EDC 575 Supervised Field Study/Practicum and Seminar in Education PRA (3 crs.) Non-thesis candidates conduct a field study (developed in EDC529, approved by instructor and student's advisor), and complete and defend a formal paper with support from lectures, seminars, and field work. (Practicum/Online) Pre: Admission to an MA in Eduction program and EDC529.

EDC 576 (HDF) Diversity and Cultural Competence in Student Affairs SEM (3 crs.) Overview of the development of cultural competencies (awareness, knowledge, skills) needed by student affairs professionals and issues faced by diverse college students. (Seminar) Pre: Graduate standing in College Student Personnel or permission of instructor.

EDC 577 Master¿s Internship in Student Affairs PRA (3 crs.) Supervised internship in higher education placements. Emphasis on applied student affairs learning in advanced stages of college student personnel program. (Practicum) Pre: EDC 561 and permission of instructor.

EDC 578 Master¿s Internship in Student Affairs PRA (3 crs.) Supervised internship in higher education placements. Emphasis on applied student affairs learning in advanced stages of college student personnel program. (Practicum) Pre: Pre: EDC 577 and permission of instructor.

EDC 579 Labor Relations and Collective Bargaining in Education LEC (3 crs.) Collective bargaining in public and private educational sectors, K-12, higher education; literature, theory, practice, and legal foundations in education. Comprehensive case studies will be used. (Lec. 3)

EDC 580 Seminar in Student Affairs in Higher Education I SEM (3 crs.) Integrative seminar applying student affairs theory and research to contemporary higher education issues faced by professionals in the field. (Seminar) Pre: Permission of instructor.

EDC 581 Administering Adult Programs LEC (3 crs.) Administration, personnel management, resource management, recruitment, development, and supervision within programs dealing with adults as learners. (Lec. 3/Online) Pre: Graduate standing.

EDC 582 Instructional Systems Development for Adult Programs LEC (3 crs.) Designing and implementing instructional systems. Discussion of the basic tenets underlying theories of instructional technology, curriculum development, and curriculum change as they apply to adult learners in a variety of settings. (Lec. 3/Online) Pre: Graduate standing.

EDC 583 Planning, Design, and Development of Adult Learning Systems LEC (3 crs.) Overview of the program planning process including goal setting, needs analysis, program planning, and implementing change strategies. Discussion of effective functioning in the role of change agent within an organization. (Lec. 3/Online) Pre: Graduate standing.

EDC 584 The Adult and the Learning Process LEC (3 crs.) Examination of the adult as a learner with emphasis on the factors that affect adult learning and learning processes related to instruction. (Lec. 3/Online) Pre: Graduate standing.

EDC 585 Seminar in Student Affairs in Higher Education II SEM (3 crs.) Integrative seminar applying theory and research to contemporary higher education issues. Emphasis on culminating project and making a transition to a professional position in student affairs. (Seminar) Pre: Permission of instructor.

EDC 586 Problems in Education IND (1-3 crs.) Advanced work for graduate students in education. Courses conducted as seminars or as supervised individual projects. Topics include: "Consortium on Reading Excellence," "Hosting a SALT visit," "Instructional Strategies for Diversified Classrooms," "Orton-Gillingham Reading Instruction," "Orton, Gillingham Reading Practicum," "Reflective Practitioner-Using Data to Inform Instruction," "SALT visit," "Schools Attuned," "Using Blogs & Wikis to Facilitate Learning," "4 Roles of Leadership," "Using the Internet for Teaching, Learning, & Practical Applications," "Seven Habits of Highly Effective People," "Teaching the 'Write Traits'," "Thinking Math II," and "Building Teams & Leading Change." (Independent Study) Pre: permission of director. May be repeated for credit with different topic.

EDC 587 Problems in Education IND (1-3 crs.) Advanced work for graduate students in education. Courses conducted as seminars or as supervised individual projects. Topics include: "Disciplinary Literacy." (Independent Study) Pre: permission of director. May be repeated for credit with different topic.

EDC 588 (KIN 585) Disability Sports LEC (3 crs.) Sports and recreational opportunities for individuals with disabilities; federal legislation effecting participation opportunities; spectrum of participation in community recreation to elite athletic opportunities within various disability sports organizations and events. (Lec. 3)

EDC 594 Organization and Supervision of Literacy Programs LEC (3 crs.)Field experience in the roles/responsibilities of a reading specialist. Requires shadowing reading professionals, visiting schools, involvement in professional groups, developing action plans, and developing and presenting professional development sessions. (Lec./Lab. 3) Pre: EDC 565 or permission of reading program. In alternate years.

EDC 599 Master's Thesis Research IND (1-3 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

EDC 661 Language and Thinking In Schools SEM (3 crs.) Topics of language and thinking are considered broadly as they relate both theoretically and practically to curriculum in schools. (Seminar 3) Pre: Admission to Joint URI/RIC PhD in Education Program; or Graduate status with permission of instructor.

EDC 662 Writing for Presentation and Publication SEM (3 crs.) With their peers, students will develop an academic writing practice through writing, reading, and constructively critiquing academic texts. Final project options include an academic manuscript, presentation, or reflective portfolio. (Seminar 3) Pre:Admission to Joint URI/RIC PhD in Education Program; or Graduate status with permission of instructor

EDC 665 Social Justice in Higher Education LEC (3 crs.) This course provides a broad overview of historical and contemporary issues of social justice in higher education. Pre: Permission of instructor.

EDC 670 Theory Construction in the Social Sciences SEM (3 crs.) Students will construct an original theoretical framework in their area of specialization, informed by contemporary issues and trends in social science theory.(Seminar 3) Pre: Admission to Joint URI/RIC PhD in Education Program; or Graduate status with permission of instructor

EDC 681 Culture and Discourse in Education SEM (3 crs.) Learning and teaching are examined in terms of culture and discourse in social activity. Consideration is given to formal and informal activity settings and to theories and methods of research. (Seminar 3) Pre: Admission to Joint URI/RIC PhD in Education Program; or Graduate status with permission of instructor.

EDC 682 Discourse Analysis in Education Research SEM (3 crs.) The analysis of discourse in educational research is examined and practiced in this course. Students conduct various analyses of discourse samples and explore a variety of analytic research frameworks. (Seminar 3) Pre: Admission to URI/RIC PhD in Education Program; or Graduate status with permission of instructor .

EDC 683 Psychology of the Exceptional Child LEC (3 crs.) Cross-listed as (PSY), EDC 683. Social, psychological, and educational factors that constitute the matrix of concerns with the exceptional individual in the school and community. Recent innovations in public and private education and rehabilitation. Research issues and legislation discussed evolve into student studies. (Lec. 3)

EDC 684 The Analysis of Data: A Hands-On Approach SEM (3 crs.) Students will practice data analysis using three specific qualitative methodologies, noting that each of these methodologies offers a unique lens on phenomena. (Seminar 3) Pre: Admission to URI/RIC PhD in Education Program; or Graduate status with permission of instructor

EDC 685 Survey Design SEM (3 crs.) Principles, theories, techniques, and applications for developing survey questionnaires and conducting survey research in education; developing questions; constructing instruments; implementing surveys; reducing coverage and sampling errors. (Seminar 3) Pre: Graduate status, EDP 613 or equivalent, EDP 623 or equivalent, and permission of instructor

EDC 920 Workshop for Teachers WRK (1-3 crs.) Current issues in education. Specific topics offered for in-service teachers and administrators. May be repeated with different topic. (Workshop) Topics include: "Using the Internet for Teaching," "Learning, and Practical Applications," "RITES 1" and "Immersion Program for Teachers of Spanish." Pre: teacher certification.

EDC 921 Workshop for Teachers WRK (1-3 crs.) Current issues in education. Specific topics offered for in-service teachers and administrators. Topics include: "Using Blogs & Wikis to Foster Literacy," "SMILE I." (Workshop/Online) Pre: certified teacher.

EDC 922 Workshop for Teachers WRK (1-3 crs.) Current issues in education. Specific topics offered for in-service teachers and administrators. Topics include: "SMILE II." (Workshop/Online) Pre: certified teacher.

EDC 923 Workshop for Teachers WRK (1-3 crs.) Current issues in education. Specific topics offered for in-service teachers and administrators. Topics include: "SMILE III." (Workshop/Online) Pre: certified teacher.

EDP | Ph.D. in Education

EDP 600 Academic Reading & Writing for Doctoral Studies LEC (3 crs.) Students develop and practice academic reading, writing, and thinking skills involved in professional practices of educational research and publishing communities. Course emphasizes scholarly identity and writing cogent literature reviews. (Lec. 2, Sem. 1) Pre: admission to the URI/RIC Joint Ph. D. program in education.

EDP 601 First Year ProSeminar for Ph.D. in Education SEM (3 crs.) Students are introduced to educational research paradigms and related areas of program faculty expertise. Course focuses on engaging in academic conversations and multiple ways to address research problems in education. (Sem. 3) Pre: Current enrollment in the PhD program in education; or permission of instructor. S/U only.

EDP 610 Contemporary Issues in Educational Inquiry SEM (3 crs.) Examination of issues and problems related to philosophical and historical aspects of educational thought and the role of society. Empirical analysis of classroom settings is emphasized. (Seminar) Pre: current enrollment in the PhD in Education program.

EDP 611 Issues and Problems in Educational Inquiry SEM (3 crs.) Examination of issues and problems related to philosophical and historical aspects of educational thought and the role of society. Empirical analysis of classroom setting is emphasized. (Seminar) Pre: Current enrollment in the Ph. D. Program in education; or permission of instructor.

EDP 612 Qualitative Research Methods in Education LEC (3 crs.) Survey of qualitative methods of educational research: terminology, historical development, assumptions, and models of inquiry. Pre: Current enrollment in the Ph.D. Program in education; or permission of instructor.

EDP 613 Introduction to Quantitative Research LEC (4 crs.) Educational research data are collected, quantitatively analyzed and interpreted. Applications of the general linear model to a variety of research designs and analytic strategies are emphasized. (Lec. 3, Rec. 1) Pre: EDP 600, 601, 623, and EDC 555 (or comparable course in introductory statistics); or permission of instructor.

EDP 620 Contemporary Issues in Hum Dev, Learning & Teaching SEM (3 crs.) Issues and problems related to human development, curriculum, teaching, and learning are examined. Ways of gathering and evaluating evidence about school and curriculum effectiveness are emphasized. (Seminar) Pre: EDP 600, 601 or permission of instructor.

EDP 621 Issues in Human Development, Learning, & Teaching SEM (3 crs.) Issues and problems related to human development, curriculum, teaching, and learning are examined. Ways of gathering and evaluating evidence about school and curriculum effectiveness are emphasized. (Seminar)

EDP 622 Community Service Learning SEM (2 crs.) Focusing on the school, students examine theory and define problems related to community service and service learning. (Seminar 2) Pre: Credit or concurrent enrollment in EDP 600, 601, or permission of instructor.

EDP 623 Research Design LEC (3 crs.) Research design process including developing problem statements, research questions, hypotheses and appropriate methods (i.e., qualitative, quantitative, or mixed). Course considers philosophical worldviews, literature reviews, theory use, and research ethics. (Lec. 3) Pre: EDP 600, 601, 612, and EDC 555 (or comparable course in introductory statistics); or permission of instructor.

EDP 630 Issues in Educational Leadership Policy and Analysis I SEM (3 crs.) Issues and problems related to applications of organizational theory, leadership theory, and policy analysis are studied. Core seminar examines cases related to district, state, and/or regional educational offices and agencies. (Seminar) Pre: Credit or concurrent enrollment in EDP 600, 601, or permission of instructor.

EDP 631 Issues in Educational Leadership Policy and Analysis II SEM (3 crs.) Issues and problems related to applications of organizational theory, leadership theory, and policy analysis are studied. Core seminar examines cases related to district, state, and/or regional educational offices and agencies. (Seminar) Pre: Prior or concurrent enrollment in EDP 600, 601, or permission of instructor.

EDP 641 Doctoral Dissertation Research Seminar SEM (1 cr.) Bi-weekly forums present first-, second-, and third-year students' evolving research questions and empirical designs. Discussion and feedback refine individuals' research plan, enhancing the methodological perspectives and tools of all participants. (Seminar) Pre: admission to joint (URI-RIC) Ph.D. in Education. May be repeated up to a maximum of 6 semesters (a total of 6 credits).

EDP 692 Directed Readings and Research Problems IND (3-6 crs.) Directed readings and advanced research work under the supervision of a member of the graduate faculty, arranged to suit the individual requirements of the students. (Independent Study) May be repeated for a maximum of 12 credits. Pre: EDP 600 and 601 and permission of instructor; or permission of co-directors of PhD program in education and instructor.

EDP 693 Directed Readings and Research Problems IND (3-6 crs.) Directed readings and advanced research work under the supervision of a member of the Graduate Faculty, arranged to suit the individual requirements of the students. (Independent Study) May be repeated for a maximum of 12 credits. Pre: EDP 600 and 601 and permission of instructor; or permission of co-directors of PhD program in education and instructor.

EDP 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U only.

EDS | Special Education

EDS 400 Intro to Special Ed Interventions in Math & Content Area LEC (2 crs.) Provides future special educators with knowledge and skills to plan instruction for students with mild or moderate disabilities, including mathematics and content strategy instruction. (Lec. 2) Pre: Acceptance into Elementary and Special Education certification track. Not for graduate credit.

EDS 401 Collaboration and Co-Teaching LEC (2 crs.) Provides future special educators with knowledge and skills to implement culturally-responsive collaboration with family members and school-based professionals. Disability definitions and implications, focusing on special educator's role in inclusive education. (Lec. 2) Pre: Acceptance

into Elementary and Special Education certification track. Not for graduate credit.

EDS 403 Positive Behavior Supports LEC (3 crs.) Provides future special educators with the knowledge and skills to examine causes of behaviors, to teach pro-social behaviors, and to develop individualized positive behavioral supports. (Lec. 3) Pre: Acceptance into Elementary and Special Education certification track. Not for graduate credit.

EDS 405 Supervised Practicum in Special Education PRA (1 cr.) Provides future special educators with opportunities to assess students and instruct students with disabilities under the supervision of a certified special educator. Students will be observed once by University instructor. (Practicum, 1) Pre: Acceptance into Elementary and Special Education certification track. (S/U only) Not for graduate credit.

EDS 406 Supervised Practicum in Special Education PRA (1 cr.) Provides future special educators with opportunities to collaborate with other professionals to provide instruction under supervision of a certified special educator. One observation by University instructor. (Practicum, 1) Pre: Acceptance into Elementary and Special Education certification track. (S/U only) Not for graduate credit.

EDS 500 Intro to Special Ed Interventions in Math & Content Areas LEC (2 crs.) Provides future special educators with knowledge and skills to plan instruction for students with mild or moderate disabilities, including mathematics and content strategy instruction. (Lec. 2) Pre: Admission into MA in Education in Special Education, or permission of instructor.

EDS 501 Collaboration and Co-Teaching LEC (2 crs.) Provides future special educators with knowledge and skills to implement culturally responsive collaboration with family members and school based professionals. Definitions of disabilities and educational implications, focusing on the role of the special educator in inclusive education. (Lec. 2) Pre: Admission into MA in Education in Special Education, or permission of instructor.

EDS 502 Assessment for Elementary Special Educators LEC (3 crs.) Provides future special educators with knowledge and skills to assess students using standardized and curriculum-based measures and to implement the response to intervention model. (Lec. 3) Pre: Acceptance into the special education program or permission of instructor.

EDS 503 Positive Behavior Supports LEC (3 crs.) Provides future special educators with the knowledge and skills to examine causes of behaviors, to teach pro-social behaviors and to develop individualized positive behavioral supports. (Lec. 3) Pre: Admission into MA in Education in Special Education, or permission of instructor.

EDS 504 Research in Special Education LEC (3 crs.) Critical analysis of research publications in special education, the translations of research findings into practical instructional applications, and the identification of an area of proposed study in special education. (Lec. 3) Pre: Acceptance into the special education program or permission of instructor.

EDS 505 Supervised Practicum I: Elementary or Secondary Special Education PRA (1 cr.) Opportunities to assess and instruct students with disabilities under the supervision of a certified special educator. May be taken more than once. Only 2 credits allowed toward MA degree. (Practicum, 1) Pre: Admission into MA in Education in Special Education, or permission of instructor. (S/U only)

EDS 506 Supervised Practicum II: Elementary or Secondary Special Education PRA (1 cr.) Provides future special educators with opportunities to collaborate with other professionals to provide instruction under supervision of a certified special educator. One observation by University instructor. May be taken more than once. Only 2 credits allowed toward MA degree. (Practicum, 1) Pre: Admission into MA in Education in Special Education, or permission of instructor. (S/U only)

EDS 507 Supervised Practicum: Secondary and Middle Level PRA (1 cr.) Provides future special educators with opportunities to assess and instruct students with disabilities under the supervision of a certified special educator. One observation by university supervisor. (Practicum, 1) Pre: Acceptance into the special education program or permission of instructor. (S/U only)

EDS 508 Supervised Practicum: Secondary/Middle Level PRA (1 cr.) Provide future special educators opportunities to collaborate with other professionals to plan and implement instruction under a certified special educator. One observation by a University supervisor. (Practicum, 1) Pre: Acceptance into the special education program or permission of instructor. (S/U only)

EDS 509 Teaching Students with Moderate Disabilities LEC (3 crs.) Provides the knowledge and skills future special educators need to plan individualized instruction for students with moderate or severe disabilities in general education classes. (Lec. 3) Pre: Admission into MA in Education in Special Education, or permission of instructor.

EDS 510 Teaching Elementary Students with Mild Disabilities LEC (3 crs.) Provides future special educators with the knowledge and skills to plan individualized instruction for students with mild disabilities based on assessment data and current research on effective instructional practices. (Lec. 3) Pre: Acceptance into the special education program or permission of instructor.

EDS 511 Literacy and Language Instruction LEC (3 crs.) Provides future special educators with the knowledge and skills to plan instruction in literacy and language for students with disabilities. (Lec./Lab. 3) Pre: Acceptance into the special education program or permission of instructor.

EDS 512 Education Leadership and Program Management LEC (3 crs.) Future special educators acquire knowledge and skills to coordinate their students' schedules, train and supervise paraprofessionals, conduct action research, and restructure service delivery models in special education. (Lec. 3) Pre: Admission into MA in Education in Special Education, or permission of instructor. To be taken concurrently with EDS 518.

EDS 513 Assessment for Secondary Special Educators LEC (3 crs.) Provides future special educators with knowledge and skills to assess students using standardized and curriculum-based measures, to implement the response to intervention model, and to plan for transition. (Lec. 3) Pre: Acceptance into the special education program or permission of instructor.

EDS 516 Teaching Secondary Students with Mild Disabilities LEC (3 crs.) Provides future special educators with knowledge and skills to plan instruction for adolescents with mild or moderate disabilities, including literacy skills, language skills and content strategy instruction. (Lec. 3) Pre: Acceptance into the special education program or permission of instructor.

EDS 517 Transition Planning for Post-School Outcomes LEC (3 crs.) Provides future special educators with knowledge and skills to implement transitions for secondary students to work or other post-secondary options. (Lec. 3) Pre: Admission into MA in Education in Special Education, or permission of instructor.

EDS 518 Supervised Internship PRA (9 crs.) Under the supervision of a certified special educator, students teach in general education classes that include students with special needs, for a minimum of fifteen (15) weeks. (Practicum, 9) Pre: To be taken concurrently with EDS 512. Admission into MA in Education in Special Education and permission of instructor. (S/U only)

EDS 520 Leadership and Secondary Program Management LEC (3 crs.) Future special educators acquire knowledge and skills to coordinate their students' programs, develop effective schedules, train and supervise paraprofessionals, conduct action research, and restructure existing service delivery models. (Lec. 3) Pre: Acceptance into the special education program or permission of instructor.

EEC | Environmental Economics

EEC 105 Introduction to Resource Economics LEC (3 crs.) Application of microeconomic principles to selected resource problem areas. The market mechanism and its alternatives are examined as methods of resolving contemporary resource use problems. (Lec. 3) (A2)

EEC 205 Environmental Economics and Policy LEC (3 crs.) Economic approaches for understanding the causes and solutions to environmental problems. Design global and local policies to protect our natural environment for a more sustainable world. (Lec. 3) Pre: EEC 105.

EEC 234G Introduction to Water Resources LEC (3 crs.) Cross-listed as (GEO), NRS, EEC 234. Introduction to science and policy related to managing fresh water resources, fundamentals of hydrologic processes, importance of water to human society, environmental impact of water use, global water issues. (Lec. 3) (A1) (GC)

EEC 310 Economics of Natural Resource Management and Policy LEC (3 crs.) Explores economic approaches to natural resource management, and policies for sustainable management of fisheries, forests, water, and minerals. (Lec. 3) Pre: EEC 105 or ECN 201.

EEC 320 Shipping and Ports LEC (3 crs.) Cross-listed as (MAF), EEC 320. An introduction to the economics of waterborne movement of cargo (shipping and port operations, markets and innovations in maritime transportation systems, and the interplay of the operators, shipping, and ports) (Lec. 3) Pre: MAF 100 or EEC 105 or permission of the instructor.

EEC 345G Sustainable Development, Trade, and the Environment LEC (3 crs.) To understand the relationship between economic development, international trade and the environment. Topics include sustainable development, trade policies and the environment, climate change and development, and institutions for managing the commons. (Lec. 3) Pre: EEC 105 or ECN 201 or permission of instructor. (C2) (B4) (GC)

EEC 350G Sustainable Energy Economics and Policy LEC (3 crs.) Energy production, consumption, and environmental impacts. Energy markets, policy, and the transition from a fossil fuel-based energy economy to an economy based on sustainable energy and renewable energy sources. (Lec. 3) Pre: EEC 105 or ECN 201 or permission of instructor. (A2) (GC)

EEC 352G Economics of Small-Scale Renewable Energy Systems LEC (3 crs.) Provides tools to evaluate opportunities and challenges in the transformation from fossil fuels to renewable energy at the scale of individual buildings and other small scale energy systems. (Lec. 3) Pre: EEC 105 or ECN 201 or permission of instructor. (A2) (GC)

EEC 355 The Economics of Climate Change LEC (3 crs.) Assessment of the economic and policy issues associated with climate change, including the causes of climate change, the economic and social effects, and alternative policy options to reduce carbon emissions. (Lec. 3) Pre: EEC 105 or ECN 201, or permission of instructor. (B3) (B4)

EEC 430 Water Resource Economics LEC (3 crs.) This course will analyze the economics of valuation, management, and distribution of water resources using economic theory and case studies to evaluate water policies and their effect on society. (Lec. 3) Pre: EEC 105 or ECN 201 or permission of instructor.

EEC 432 Environmental and Resource Economics and Policy LEC (3 crs.) Economic analysis of policies that address environmental and natural resource problems using problem-based learning. Topics include pollution control, economic incentives and resource use, focusing on data analysis and communication skills. (Lec. 3) Pre: EEC 205 or ECN 201. (D1) (B4)

EEC 440 Benefit-Cost Analysis LEC (3 crs.) Basic concepts in benefit-cost analysis. Measurement, comparison of benefits and costs over time, and criteria for evaluation of projects and public policies. Problems and case studies in evaluation of current natural resources issues. (Lec. 3) Pre: EEC 105 or permission of instructor.

EEC 491 Special Projects IND (1-3 crs.) Workshop for advanced students where individuals or small groups are assigned projects requiring the analysis of natural resource and allocation problems with particular emphasis on marine resources. (Independent Study) Pre: permission of chairperson.

EEC 492 Special Projects IND (1-3 crs.) Workshop for advanced students where individuals or small groups are assigned projects requiring the analysis of natural resource and allocation problems with particular emphasis on marine resources. (Independent Study) Pre: permission of chairperson.

EEC 497 Internship in Environmental Economics PRA (1-3 crs.) Supervised work experience in environmental and natural resource economics or related areas with a governmental agency, nongovernmental organization, or in the private sector. (Practicum) Pre: EEC 105. Can be repeated for up 9 credits. Not for graduate credit.

EEC 501 Graduate Seminar In Natural Resource Economics SEM (1 cr.) Presentation of research and discussion of current issues and methodologies in environmental and natural resource economics. (Seminar) Enrollment is required of all full-time graduate students in residence; exceptions made with permission from chairperson. No more than one credit may be taken for program credit. S/U credit.

EEC 502 Research Methodology in Environmental and Natural Resource Economics LEC (3 crs.) Practice and methods of applied research in environmental and natural resource economics. Topics include philosophical foundations, research project design, reporting research results, and criticism of proposals and research papers. (Lec. 3) Pre: EEC 528 and 576 or permission of instructor.

EEC 514 Economics of Marine Resources LEC (3 crs.) Role of economics in management of estuarine and marine resources. Particular attention to resource valuation, environmental issues, and management of renewable and nonrenewable resources. (Lec. 3) Not for graduate credit in resource economics.

EEC 518 Mathematics for Economists LEC (2 or 4 crs.) Introduction to mathematical methods in economics and business. Economic applications of constrained and unconstrained optimization, matrix algebra, primal and dual functions, eigen roots, with illustrations from economics, finance, and environmental and natural resource economics. (Lec. 2 or 4) Pre: ECN 328 and MTH 131 or equivalent or permission of instructor.

EEC 520 Production Economics LEC (2 crs.) Production in natural resource economics. The formulation and estimation of production functions. Technological change in economic growth and its measures. New directions in production theory and applications. (Lec. 2) Pre: at least two credits of 518, or MTH 131.

EEC 522 Computer Intensive Methods In Resource Economics LEC (3 crs.) Use of selected software packages to analyze topics and numerical problems in environmental and natural resource economics, including GAMS/MINOS, spreadsheets, Crystal Ball, Matlab, GIS, and SAS. (Lec. 2, Lab. 2) Pre: EEC 518 or equivalent (may be taken concurrently).

EEC 524 Quantitative Techniques in Natural Resource Research LEC (3 crs.) Cross-listed as (NRS 520), EEC 524. Research design, database management, and analysis and interpretation of natural resource data. Emphasis on hands-on experience of quantitative and computerized techniques commonly used by natural resource scientists. (Lec. 2, Lab 2) Pre: STA 308 and permission of instructor.

EEC 527 Macroeconomic Theory LEC (3 crs.) Cross-listed as (EEC), ECN 527. Static and dynamic models of aggregate economic behavior developed and analyzed. (Lec. 3) Pre: ECN 327 and 375 or equivalent, or permission of instructor.

EEC 528 Microeconomic Theory LEC (4 crs.) Cross-listed as (EEC), ECN 528. Analytic tools of optimization. Neoclassical price and production theory. Neoclassical theory of consumer and producer behavior, price and distribution, partial and general equilibrium and welfare economics. (Lec. 4) Pre: ECN 328 and 375 or equivalent and concurrent registration in EEC 518, or permission of instructor.

EEC 529 Game Theory LEC (3 crs.) Analysis of situations of conflict and cooperation, with economics and business applications. Introduction to cooperative and noncooperative games, including the extensive and strategic forms, Nash equilibrium, repeated games and bargaining. (Lec. 3) Pre: EEC 528 or permission of instructor.

EEC 532 Land Resource Economics LEC (3 crs.) Cross-listed as (CPL 537), EEC 532. The study of economic relationships of human and scarce natural and human-made resources. Supply and demand, rent theory, resources conservation, and the impact of public policy and law. (Lec. 3)

EEC 534 Economics of Natural Resources LEC (4 crs.) Microeconomic theory applied to problems of natural resource allocation. The rationale for government intervention in the market's provision of natural resources and alternative techniques for optimally allocated natural resources are investigated. (Lec. 4) Pre: EEC 528 or permission of instructor.

EEC 535 Environmental Economics LEC (3 crs.) Theory of externalities; incentive-based and regulatory policy instruments for addressing market failure; theory and methods for valuing natural resource and environmental services; other environmental topics. (Lec. 3) Pre: EEC 528 or equivalent.

EEC 540 Applied Resource Economics LEC (3 crs.) Examines issues in agricultural and natural resource policy through applications of theoretical and empirical tools. Applications include pollution control, fisheries management, water, and agricultural policy. (Lec. 3) Pre: EEC 528 or permission of instructor.

EEC 542 Advanced Conservation Biology SEM (3 crs.) Cross-listed as (BES 532), EEC 542. Examination of different components of conservation of biological diversity. Topics include minimum viable populations, ecology and economics of reserve design, reintroductions, causes of extinction, and the ecosystem conservation strategies. (Seminar) Pre: permission of instructor.

EEC 543 Economic Structure of the Fishing Industry LEC (3 crs.) Analysis of fishing industries from the standpoint of activity and efficiency. Problems related to common property resources, government policy, labor, and legal and institutional factors. (Lec. 3) Pre: 514 or permission of instructor. In alternate years.

EEC 570 Experimental Economics LEC (3 crs.) Controlled laboratory experiments to study economic theories, institutions, and policies. Provides an overview of experiment design and nonparametric data analysis. Applications include game theory, markets, public goods, and uncertainty. (Lec. 3) Pre: EEC 528 or permission of instructor.

EEC 576 Econometrics LEC (4 crs.) Cross-listed as (EEC), ECN, STA 576. Application of statistics and mathematics to economic analysis. Implication of assumption required by statistical methods for testing economic hypotheses. Current econometric methods examined and discussed. (Lec. 3, Lab. 2) Pre: ECN 575 or equivalent, STA 308 or equivalent, or permission of instructor.

EEC 591 Special Projects IND (1-3 crs.) Advanced work under supervision arranged to suit the individual requirement of the student. (Independent Study) Pre: permission of chairperson.

EEC 592 Special Projects IND (1-3 crs.) Advanced work under supervision arranged to suit the individual requirement of the student. (Independent Study) Pre: permission of chairperson.

EEC 595 Environment and Development Economics LEC (3 crs.) Cross-listed as (EEC), MAF, PSC, SOC 595. Application of economic principles and research methods to understand the economics of environmental and natural resource management and poverty alleviation. (Lec. 3) Pre: EEC 528 or permission of instructor.

EEC 598 Master's Nonthesis Research IND (1-3 crs.) Credit for completion of major paper. (Independent Study) Pre: enrollment in nonthesis master's program in resource economics.

EEC 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

EEC 602 Research Methodology LEC (1 cr.) Practice and methods of research in environmental and natural resource economics. Philosophical foundations, competing views on methodology, project design, execution and communication of results to different audiences. (Lec. 1) Pre: EEC 528 and 576 and concurrent registration in 502. In alternate years.

EEC 610 Advanced Studies IND (1-3 crs.) Advanced topics in resource economics. Mathematical models in resource management. (Independent Study) May be repeated with different topics.

EEC 624 Dynamic Economic Models LEC (3 crs.) Fundamentals of dynamic economic theory. Dynamic optimization techniques applied to environmental and natural resource economics. (Lec. 3) Pre: EEC 528 or permission of instructor.

EEC 628 Advanced Microeconomic Theory I LEC (3 crs.) Cross-listed as (EEC), ECN 628. Neoclassical value and distribution theory. Theories of imperfect competition, general equilibrium theory, and dynamic analysis. (Lec. 3) Pre: EEC 528 or permission of instructor.

EEC 630 Advanced Microeconomic Theory II LEC (3 crs.) Development and application of welfare theory to natural resource use. Welfare concepts such as consumer surplus, producer surplus, and marginal cost pricing in policy decisions for agriculture and natural resources. (Lec. 3) Pre: EEC 628 or permission of instructor. In alternate years.

EEC 634 Advanced Economics of Natural and Environmental Resources LEC (4 crs.) Concepts of economic efficiency applied to natural resources with emphasis on intertemporal allocation of nonrenewable and renewable resources. Application of welfare and institutional economics to resource management and development; analysis of optimum allocation among users. (Lec. 4) Pre: EEC 534 and 624 or permission of instructor.

EEC 635 Marine Resources Policy LEC (3 crs.) Analysis of public policy problems relating to estuarine and marine resources, including natural resource damage assessment, environmental issues, coastal zone concerns, and other selected topics. (Lec. 3) Pre: EEC 534. In alternate years.

EEC 676 Advanced Econometrics LEC (4 crs.) Cross-listed as (EEC), ECN 676. A course covering the tools necessary for professional research in resource economics. Reviews the general linear model, but emphasis is on simultaneous equation models. Assumes a knowledge of introductory econometrics, statistical theory, and matrix algebra. (Lec. 4) Pre: EEC 576 or its equivalent.

EEC 677 Econometric Applications in Resource Economics LEC (3 crs.) Special topics in econometrics as applied to agriculture and natural resources. Topics include time series models. Bayesian analysis and dichotomous dependent variables. (Lec. 3) Pre: EEC 676. In alternate years.

EEC 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

EGR | Engineering

EGR 105 Foundations of Engineering I LEC (1 cr.) Introduction to engineering. Problem solving. (Lec. .5/Rec. .5) (A4)

EGR 106 Foundations Of Engineering II LEC (2 crs.) Engineering problem solving. (Lec. 1, Lab. 2) Pre: MTH 141 or concurrent registration in MTH 141. (A4)

EGR 106H Honors Section of EGR 106: Foundations of Engineering II LEC (2 crs.) Honors Section of EGR 106: Foundations of Engineering II. Engineering problem solving. (Lec. 2) Pre: MTH 141 or concurrent registration in MTH 141 and a 3.40 overall GPA. (A4)

EGR 109 Engineering in Everyday Life LEC (3 crs.) Introduction to a variety of careers in engineering. Overview of the history of engineering. Inspection of the process of engineering design and manufacturing by using objects encountered in everyday life. (Lec. 2, Lab.3)

EGR 110 Introduction to Robotics LEC (3 crs.) Introduction to robots and their components; actuators, sensors, microcontrollers, communication, and power sources. Integration of robots to complete specific tasks such as pick-and-place, obstacle course navigation, robot races, etc. (Lec. 2, Lab. 3) Pre: MTH 099 or equivalent.

EGR 120G Coastal Resilience: Adapting to Changing Coastlines LEC (3 crs.) Focuses on creating an awareness of the complex issues related to improving the resilience of coastal communities from the effects of storms and sea level rise. (Lec. 3) (C1) (GC)

EGR 133 Artifacts in Modern Society LEC (3 crs.) Materials Science will be introduced to non-science and non-engineering freshman using a "case study" approach. (Lec. 3) Not open to engineering or science majors. (A1)

EGR 201 Seminar in Naval Science and Technology SEM (1 cr.) Invited outside speakers, faculty and students present and discuss selected topics related to naval science and technology (Seminar). May be repeated, maximum 3 credits.

EGR 213G Energy and Environment LEC (3 crs.) Cross-listed (EGR), MAF 213G. Technical, social, and environmental aspects of energy, including energy and the society, energy policy, global challenges of energy, energy systems (fossil fuels, renewables, storage), and environmental pollution of energy systems. (Lec. 3) Pre: MTH 111 or permission of instructor. (A1) (C2) (GC)

EGR 313 (OCE) Computational Solutions of Engineering Problems LEC (3 crs.) Fundamentals of computational techniques in engineering, including algorithm development, programming, MATLAB scripts, numerical solutions of problems from various engineering disciplines, and error, and stability and accuracy analysis. (Lec. 3) Pre: MTH 244 or permission of instructor.

EGR 316G Engineering Ethics LEC (3 crs.) Cross-listed as (EGR), PHL 316G. A broad introduction to moral theory and its application to engineering, professionalism, and moral responsibility as an engineer. An understanding of engineering in a societal context. (Lec. 3) Pre: sophomore standing, PHL, ISE, or MCE major, or permission of instructor. (A3) (C1) (GC)

EGR 316GH Honors Section of EGR 316G: Engineering Ethics LEC (3 crs.) Cross-listed as (EGR), PHL 316GH. Honors Section of EGR 316G: Engineering Ethics. (Lec. 3) Pre: must have a 3.40 overall GPA, sophomore standing, and PHL, ISE, or MCE major, or permission of instructor. (A3) (C1) (GC)

EGR 325 Engineering Entrepreneurship I LEC (3 crs.) Fundamentals of entrepreneurship for engineers including project planning and budgeting, elements of a business plan, financial acumen, presentation skills and manufacturing planning. (Lec. 3) Pre: ECN 201.

EGR 326 Engineering Entrepreneurship II LEC (3 crs.) Advanced concepts in engineering entrepreneurship including metrics development and utilization, negotiating, business simulation and continuous improvement. (Lec. 3) Pre: EGR 325.

EGR 411 Advanced Technical German LEC (3 crs.) Cross-listed as (EGR), GER 411. Seminar on advanced scientific and engineering topics in an international context. All reading, discussion, and associated writing is conducted in German. (Lec. 3) Pre: One course at the 300 level in German and junior standing. Not for graduate credit.

EGR 412 Advanced Technical Spanish SEM (3 crs.) Cross-listed as (EGR), SPA 412. Seminar on advanced scientific and engineering topics in an international context. All reading, writing and discussion will be conducted in Spanish. (Seminar) Pre: any 400-level course in Spanish and senior standing in an approved engineering program. Not for graduate credit.

EGR 413 Advanced Technical Chinese LEC (3 crs.) Cross-listed as (CHN), EGR 413. Lectures and seminar on advanced scientific and engineering topics in an international context. All reading, writing, and discussion will be conducted in Chinese. (Lec. 3) Pre: CHN 306 (or EGR 306) or permission of instructor. Not for graduate credit.

EGR 515 Hydrodynamics LEC (3 crs.) Hydrodynamics of fixed and floating structures. Transport theory, viscous, inviscid, and ideal fluid flows based on continuum mechanics. Specific topics include lifting surfaces, added mass, and boundary layer theory, turbulence, linear wave theory, forces on a submerged body. (Lec. 3) Pre: MCE 354 or equivalent or permission of instructor.

EGR 570 Research Methods in Engineering LEC (3 crs.) Cross-listed as (CHE), EGR 570. Provide experience, practice, and knowledge in engineering research methodology, including defining a research problem, writing a research paper, giving presentations, finding relevant literature, applying scientific knowledge in practice, ethics, professionalism. (Lec. 3) Pre: Engineering graduate standing or permission of instructor.

ELE | Electrical Engineering

ELE 101 Introduction to Electrical Engineering SEM (1 cr.) Seminar series given by instructor, invited experts, and students with a focus on electrical engineering applications and professional practice. (Seminar) Pre: (credit or concurrent enrollment in MTH 111 or 141) or permission of instructor.

ELE 108G Cyber Physical Security LEC (3 crs.) Basic concepts of cyber physical security, importance of data security, set and change password, authentication, authorization, data encryption and decryption, hardware and software basics of cyber-physical systems. (Lec. 3) (A1) (GC)

ELE 201 Digital Circuit Design LEC (3 crs.) Digital concepts. Combinational logic: gates, Boolean algebra, K-maps, standard implementations. Sequential circuits: flip-flops, timing diagrams, state diagrams, counters and registers, design methods. MSI devices, memory, and programmable devices. (Lec. 3) Pre: (credit or concurrent enrollment in MTH 141) or permission of instructor.

ELE 202 Digital Circuit Design Laboratory LAB (1 cr.) Laboratory experience in digital electronics. Logic design projects using standard SSI and MSI integrated circuits. (Lab. 3) Pre: credit or concurrent enrollment in 201.

ELE 205 Microprocessors LEC (2 crs.) Hands-on familiarization with computer and microprocessor software and hardware. Computer architecture and interfacing with input and output devices. (Lec. 2) Pre: (credit or concurrent enrollment in ELE 206 and MTH 141) or permission of instructor.

ELE 206 Microprocessor Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 205. (Lab. 3) Pre: credit or concurrent enrollment in ELE 205.

ELE 208 Introduction to Computer Systems LEC (3 crs.) Bits, binary representations, digital logic structures, the von Neumann computing model, the machine and assembly language, interrupt and traps, input and output, subroutines, stack and high-level programming in computing systems. (Lec. 3) Pre: (credit or concurrent enrollment in ELE 209 and MTH 141) or permission of instructor.

ELE 209 Introduction to Computer Systems Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 208. (Lab. 3) Pre: credit or concurrent enrollment in ELE 208.

ELE 212 Linear Circuit Theory LEC (4 crs.) Kirchhoff's Laws, DC-resistive networks, dependent sources, operational amplifier circuits, natural and forced response of first- and second-order circuits, sinusoidal steady-state response, phasors, AC power. (Lec. 4) Pre: (ELE 201, PHY 204, (credit or concurrent enrollment in MTH 244 or 362), and (at least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, and PHY 204)) or permission of instructor.

ELE 215 Linear Circuits Laboratory LAB (1 cr.) Laboratory exercises relevant to topics in ELE 212. (Lab. 3) Pre: ELE 202, credit or concurrent enrollment in 212; or permission of instructor.

ELE 220 Passive and Active Circuits LEC (3 crs.) Electrical circuit laws and theorems, transient and steady-state response, phasors, frequency response, resonance. Diode and transistor circuits, digital logic

devices. (Lec. 3) Pre: PHY 204 or permission of instructor. Not open to electrical engineering majors.

ELE 301 Digital Design with FPGAs LEC (3 crs.) Digital design, simulation, synthesis and verification using electronic design automation tools. IEEE VHDL hardware description language and rapid prototyping with FPGAs. Register transfer level design with reusable modules and cores. (Lec. 3) Pre: (ELE 201 and 202 and 212 and 215 and (credit or concurrent enrollment in 302)) or permission of instructor.

ELE 302 Digital Design with FPGAs Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 301. (Lab. 3) Pre: credit or concurrent enrollment in ELE 301.

ELE 305 Introduction to Computer Architecture LEC (3 crs.) Introduction to CPU, instruction set architecture, instruction pipeline, hazard avoidance and branch prediction. Concept and evaluation of cache memory and memory management. Bus architecture and input and output interfaces. (Lec. 3) Pre: (ELE 201 and ELE 212 and (ELE 205 or ELE 208)) or permission of instructor.

ELE 313 Linear Systems LEC (3 crs.) Fourier series, Fourier transforms, transfer functions of continuous and discrete-time systems, transient and steady-state response, natural response and stability, convolution. (Lec. 3) Pre: (ELE 212, EGR 106, (MTH 244 or 362), and ((at least a 2.00 (C) average in 212, (MTH 244 or 362), and PHY 204)) or permission of instructor.

ELE 314 Linear Systems and Signals LEC (3 crs.) Continuous-time and discrete-time systems, frequency response, stability criteria, Laplace transforms, z-transforms, filters, sampling, feedback, and applications. (Lec. 3) Pre: ELE 313 or permission of instructor.

ELE 322 Electromagnetic Fields I LEC (4 crs.) Electrostatics and magnetostatics, forces on charged particles. Analysis employs vector algebra and vector calculus in orthogonal coordinates. Simple applications to engineering problems. (Lec. 3, Rec. 1) Pre: (ELE 212 and MTH 243 and PHY 204) or permission of instructor.

ELE 331 Introduction to Solid State Devices LEC (4 crs.) Electrical and optical properties of semiconductors. Characteristics of p-n and metal semiconductor junctions. Application to diodes, transistors and light emitting and absorbing devices. Fabrication technology is introduced. (Lec. 3, Rec.1) Pre: (ELE 212 and MTH 243) or permission of instructor.

ELE 338 Electronics I LEC (3 crs.) Review of linear circuit theory, operational amplifiers, diode and transistor circuits, computer-aided design, linear and nonlinear circuit applications, CMOS logic (Lec. 3, Lab. 3) Pre: ELE 201, 212, 215, (EGR 106 or permission of instructor), (credit or concurrent enrollment in ELE 339), and ((at least a 2.00 (C) average in 201, 212, 215, MTH 142, and PHY 204) or permission of instructor.

ELE 339 Electronics I Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 338. (Lab. 3) Pre: (credit or concurrent enrollment in ELE 338).

ELE 343 Electronics II LEC (3 crs.) Bipolar and MOS transistor biasing, small signal amplifiers, amplifier frequency response, operational amplifiers, SPICE, nonlinear circuits, statistical circuit simulation. (Lec. 3) Pre: (((ELE 338 and 339) or 342) and (credit or concurrent enrollment in 344)) or permission of instructor.

ELE 344 Electronics II Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 343. (Lab. 3) Pre: Credit or concurrent enrollment in ELE 343.

ELE 369G Technologies and Music LEC (3 crs.) Cross-listed as (ELE), MUS, COM 369G. Introduction to 12-tone music; orchestra instruments; mathematics and physics of musical acoustics; physiology of auditory system; audio engineering; microphones, amplifiers and speakers; software for synthesis; ethics in music industry. (Lec. 3) Pre: Junior standing or permission of instructor. (A1) (GC)

ELE 391 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. (Independent Study) Pre: permission of instructor.

ELE 392 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. (Independent Study) Pre: permission of instructor.

ELE 393 Special Problems LEC (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. (Independent Study) Pre: permission of instructor. S/U credit.

ELE 400 Introduction To Professional Practice LEC (1 cr.) Discussions with faculty, visiting engineers, and invited speakers on ethical, social, economic, and safety considerations in engineering practice; career planning; graduate study. (Lec. 1) Pre: ((ELE 205 or 208 or BME 207) and ELE 212) or permission of instructor. Not for graduate credit.

ELE 403G Launching a Technology Startup LEC (3 crs.) Computer technology: hardware, software, and network; Computer applications in today's society; Tech Innovations; startup company, team building, market analysis, technology differentiation, raising Angel and VC funds: Exit Strategies. (Lec. 3) Pre: MTH 142 and junior standing or permission of Instructor. (B2)(B2) (D1) (GC)

ELE 405 Digital Computer Design LEC (3 crs.) Hardware implementation of digital computers. Arithmetic circuits, memory types and uses, control logic, basic computer organization, microprogramming, input/output circuits, microcomputers. (Lec. 3) Pre: (ELE 301, 305 and (credit or concurrent enrollment in ELE 406)), or permission of instructor.

ELE 406 Digital Computer Design Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 405. (Lab. 3) Pre: Credit or concurrent enrollment in ELE 405.

ELE 408 Embedded System Design LEC (3 crs.) Engineering design problems involving hardware, software and interface of computer and embedded systems. Students will apply skills and knowledge accumulated through the curriculum in a group senior design project. (Lec. 3) Pre: (ELE 305 and 313, ((338 and 339) or 342) and (credit or concurrent enrollment in ELE 409)), or permission of instructor.

ELE 409 Embedded System Design Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 408. (Lab. 3). Pre: Credit or concurrent enrollment in 408.

ELE 423 Electromagnetic Fields II LEC (3 crs.) Transmission lines, Maxwell's equations, wave equation, reflection and refraction phenomena, polarization effects waveguides and antennas. Design project requiring application of electromagnetic theory and use of numerical methods. (Lec. 4) Pre: (ELE 313, 322, 338, 339, and (credit or concurrent enrollment in 424)) or permission of instructor.

ELE 424 Electromagnetic Fields II Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 423. (Lab.1) Pre: Credit or concurrent enrollment in ELE 423.

ELE 425 Renewable and Efficient Electric Power Systems LEC (3 crs.) This course introduces students to renewable and efficient electric power systems, ranging from the basic concepts of electric power engineering to renewable energy systems such as wind and solar systems. (Lec. 3) Pre: ((ELE 212 or 220 or OCE 206) and PHY204 and MTH (244 or 362)) or permission of instructor.

ELE 435 Communication Systems LEC (3 crs.) Representation of signals and noise. Basic principles of modulation and demodulation. Waveform and digital transmission systems. Design of a component of a communication system. (Lec. 3) Pre: ((ELE 215 or (338 and 339) or 342) and 314 and EGR 106 and (credit or concurrent enrollment in ELE 436)) or permission of instructor.

ELE 436 Communication Systems Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 435. (Lab 3) Pre: credit or concurrent enrollment in ELE 435.

ELE 437 Introduction to Computer Networks LEC (3 crs.) Cross-listed as (ELE 437), CSC 417. Computer networks, layering standards, communication fundamentals, error detection and recovery, queuing theory, delay versus throughput trade-offs in networks, multiple-ac-

cess channels, design issues in wide and local area networks. (Lec. 3) Pre: ((ELE 205 or 208 or CSC 211), and (ELE 436 or MTH 451 or ISE 311 (411))), or permission of instructor.

ELE 438 Information and Network Security LEC (4 crs.) Cross-listed as (ELE 438), CSC 418. Elementary cryptography, public key, private key, symmetric key, authentication protocols, firewalls, virtual private networks, transport layer security, and wireless network security. (Lec. 3, Project 3) Pre: ELE 208 or MTH 362 or MTH 451 or ISE 311 (411) or junior or senior standing in computer engineering or computer science or permission of instructor.

ELE 447 Digital Integrated Circuit Design I LEC (3 crs.) Introduction to full custom digital integrated circuit design. Analysis of logic functions and timing at the transistor level. Realization of logic functions via hand crafted transistor layout. Design project. (Lec. 3) Pre: (ELE 202 and ((338 and 339) or 342) and 313 and PHY 204 and (credit or concurrent enrollment in ELE 448)) or permission of instructor.

ELE 448 Digital Integrated Circuit Design I Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 447. (Lab. 3) Pre: credit or concurrent enrollment in ELE 447.

ELE 456 Foundations of Robotics LEC (3 crs.) Cross-listed as (ELE), MCE, OCE 456. The course provides the theoretical background to formulate and address problems in robotics. Its objective is to give a basic understanding of robot kinematics, sensing, actuation, localization, control, and planning. (Lec. 3) Pre: PHY 204 and permission of instructor

ELE 457 Control Systems LEC (3 crs.) Cross-listed as (MCE 431), ELE 457. An introduction to feedback control systems. PID control, time/frequency response, stability and performance specifications, root locus, Bode plot, lead/lag compensator, state-space design, and applications to typical electro-mechanical systems. (Lec. 3) Pre: ((ELE 205 or ELE 208 or BME 207) and ELE 314) or MCE 366, or permission of instructor.

ELE 458 Digital Control Systems LEC (3 crs.) Analysis and design of digital control systems using state-space techniques. State feedback and observers. Laboratory includes computer simulation and hardware implementation of control laws for electromechanical systems. (Lec. 3) Pre: ((205 or 208 or BME 207) and 314 and ((338 and 339) or (BME 360 and 361)) and (credit or concurrent enrollment in 459)) or permission of instructor.

ELE 459 Digital Control Systems Laboratory LAB (1 cr.) Laboratory exercises related to topics in ELE 458. (Lab. 3) Pre: credit or concurrent enrollment in 458.

ELE 461 Physiological Modeling and Control LEC (3 crs.) Cross-listed as (BME), ELE 461. Principles of physiological modeling and control of linear and nonlinear systems, stability analysis, root locus, Bode plots, linearization. (Lec 3) Pre: ELE 314, or permission of instructor. Not for graduate credit.

ELE 470 Mobile Computing LEC (3 crs.) Application of modern mobile computing platforms, user interface, software application development, hardware interface; view controllers; data interaction; application distribution. (Lec. 2, Lab. 3) Pre: basic course in C programming; basic course in microcomputers; at least junior standing; permission of instructor.

ELE 480 Capstone Design I LEC (3 crs.) Application of engineering skills; teams focus on the design and communication of solutions to problems with real-world constraints (may include aspects of other engineering disciplines). First of a two-course sequence. (Lec. 2, Lab. 3) Pre: (ELE 205 or 208) and ELE 313 and ((338 and 339) or 342) and ((at least a 2.0 (C) average in 212, 313, and 338)) and permission on instructor. Not for graduate credit. (D1)

ELE 481 Capstone Design II LEC (3 crs.) Application of engineering skills; teams focus on the design and communication of solutions to problems with real-world constraints (may include aspects of other engineering disciplines). Second of a two-course sequence. (Lec. 2, Lab. 3) Pre: (ELE 205 or 208) and 313 and ((338 and 339) or 342) and ((at least a 2.0 (C) average in 212, 313, and 338)) and permission of instructor. Not for graduate credit.

ELE 491 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. Pre: permission of instructor. Not for graduate credit.

ELE 492 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. Pre: permission of instructor. Not for graduate credit.

ELE 493 Special Problems IND (1-4 crs.) Independent study of special engineering problems. Topic and number of credits determined in consultation with the instructor. Pre: permission of instructor. S/U credit. Not for graduate credit.

ELE 500 Project Planning and Management in Systems Engineering LEC (3 crs.) Cross-listed (ISE) ELE 500. Presents the tools and processes to help plan and manage real-world systems engineering projects including network planning, scheduling, analysis, synthesis; critical path method/PERT; computer-aided planning; and other contemporary tools. (Lec. 3) Pre: ISE 332 (432) or permission of instructor.

ELE 501 Linear Transform Analysis LEC (3 crs.) Transform analysis (including Fourier, Laplace, and z-transforms) of continuous- and discrete-time systems and signals. Properties of transforms, computational efficiency, and applications such as compact representations of video and sound. (Lec. 3) Pre: vectors, matrices, calculus with real and complex variables.

ELE 502 Nonlinear Control Systems LEC (3 crs.) Analysis of nonlinear systems: phase-plane analysis, Lyapunov theory, advanced stability theory, describing functions. Design of nonlinear control systems: feedback linearization, sliding control. (Lec. 3) Pre: ELE 503 or permission of instructor.

ELE 503 Linear Control Systems LEC (4 crs.) Cross-listed as (ELE), MCE 503. State-variable description of continuous-time and discrete-time systems, matrices and linear spaces, controllability and observability, pole-placement methods, observer theory and state reconstruction, MATLAB exercises for simulation and design. (Lec. 4) Pre: ELE 314 or MCE 366 or equivalent and MTH 215 or equivalent.

ELE 504 Optimal Control Theory LEC (3 crs.) Cross-listed as (ELE), MCE 504.Quadratic performance indices and optimal linear control, frequency response properties of optimal feedback regulators, state estimation, separation theorem, optimal control of nonlinear systems, Pontryagin's minimum principle. (Lec. 3) Pre: ELE 503.

ELE 506 Digital Signal Processing LEC (4 crs.) Review of z-transform, frequency response of LTI systems, digital filter structures, sampling theorem, spectral analysis, DFT and FFT algorithms, windows, periodogram, introduction to design of FIR and IIR filters. (Lec. 4) Pre: ELE 501 or permission of instructor.

ELE 509 Introduction to Random Processes LEC (4 crs.) Probability and random variables; random process characterizations and techniques. Useful models. Discrete and continuous systems with random inputs. Applications to detection, and filtering problems. (Lec. 4) Pre: MTH 451 or equivalent and knowledge of calculus, linear systems, and transform methods.

ELE 510 Communication Theory LEC (4 crs.) Communication theory for discrete and continuous channels. Optimum-receiver principles and signal design. Fundamentals of information theory. Channel models, modulation techniques, source encoding, error control coding, decoding algorithms. (Lec. 4) Pre: ELE 509.

ELE 511 Engineering Electromagnetics LEC (3 crs.) Review of electrostatics and magnetostatics. Maxwell's equations, wave propagation in dielectric and conducing media. Boundary phenomena. Radiation from simple structures. Relations between circuit and field theory. (Lec. 3)

ELE 515 Systems Simulation LEC (3 crs.) Cross-listed as (ISE), CSC 525, ELE 515. Simulation of random processes and systems. Continuous and discrete simulation models. Data structures and algorithms for simulation. Generation of random variates, design of simulation experiments for optimization and validation of models and results.

Selected engineering applications. (Lec. 3) Pre: CSC 212 or ISE 325, ISE 333 (433) or ELE 509, or permission of instructor.

ELE 525 Fiber Optic Communication Systems LEC (3 crs.) Survey of important topics in optical communication devices and systems. The physical principles and operation of lasers, LEDs, fibers, and detectors are covered. (Lec. 3) Pre: ELE 423, 331, 401 or equivalent.

ELE 527 Current Topics in Lightwave Technology LEC (3 crs.) Current topics of importance in lightwave technology including coherent fiber optical communication systems, optical amplifiers, active and passive single-mode devices, infrared optical fibers. Material will be taken from recent literature. (Lec. 3) Pre: ELE 525 or equivalent.

ELE 531 Solid State Engineering I LEC (3 crs.) Review of quantum mechanics, crystal properties, energy-band theory, introduction to scattering, generation-recombination processes, Boltzmann's transport equation, semiconductor junctions, devices. (Lec. 3) Pre: ELE 331 or permission of instructor.

ELE 532 Solid State Engineering II LEC (3 crs.) Properties of insulators, semiconductors, conductors and superconductors from quantum mechanical principles. Semiconductor physics and band theory of solids as applied to current semiconductor and optoelectronic devices. (Lec. 3) Pre: ELE 531 or equivalent.

ELE 534 MOS Devices LEC (3 crs.) Device physics and computer modeling of MOS devices, capacitors, metal semiconductor contacts, PMOS, NMOS, and DMOS transistors, short channel effects, modeling, small signal equivalent circuits. (Lec. 3) Pre: ELE 331 or permission of instructor.

ELE 537 Digital Integrated Circuit Design II LEC (4 crs.) Device physics for CMOS technology, design techniques for static and dynamic logic families and arithmetic elements, design capture tools, synthesis strategies, scaling and next generation CMOS technologies, design project. (Lec. 3, Lab. 3) Pre: ELE 447 and 501.

ELE 539 Analog Integrated Circuit Design LEC (4 crs.) IC processing, device modeling and simulation, building blocks for analog circuits, amplifiers, continuous and discrete-time filters, band-gap references, Nyquist-rate converters, oversampled converters, design project. (Lec. 3, Lab. 3) Pre: ELE 447 and 501.

ELE 542 Fault-Tolerant Computing LEC (3 crs.) Fault and error modeling, reliability modeling and evaluation, fault-tolerant computer systems, digital and mixed analog/digital VLSI testing, concurrent error detection, and design for VLSI yield enhancement. (Lec. 3) Pre: ELE 405 or equivalent or permission of instructor.

ELE 543 Computer Networks LEC (4 crs.) Cross-listed as (ELE 543), CSC 519.Computer network architectures, data link control and access protocols for LANs, internet protocols and applications, software and hardware issues in computer communication, delay analysis, and current research in computer networking. (Lec. 4) Pre: ELE 437 or equivalent or CSC 412 or equivalent.

ELE 544 Arithmetic Algorithms and Hardware Designs LEC (4 crs.) Hardware algorithms and implementations of fixed and floating-point adders, multipliers, and dividers. Error and time complexity analysis. Applications to DSP algorithms. Circuit design in VHDL and prototype with FPGA. Pre: ELE 301 or equivalent or permission of instructor.

ELE 545 Advanced Digital Circuits and Systems LEC (4 crs.) Advanced topics in Boolean algebra and digital designs. Arithmetic circuits, low-power designs, cryptography, communications, concurrent error detection/correction, SoC, and quantum computing. Project in design and implementation of complex digital systems. (Lec. 3, Proj. 3) Pre: ELE 301 or equivalent or permission of instructor.

ELE 546 Design of Computer-Based Instrumentation LEC (3 crs.) Design of memory systems, input-output techniques, direct memory access controllers, instrument buses, video displays, multiprocessors-coprocessors, real-time operations, device handler integration into high-level language and mass storage. (Lec. 2, Lab. 3) Pre: ELE 205, 314, and concurrent enrollment in 405.

ELE 547 Embedded Computer Systems and Applications LEC (4 crs.) Principles of embedded computer system designs; CPU, memory, I/O, interfacing of embedded computers; modern hardware/software tools for embedded computing, and design of advanced systems including wired/wireless networking, image acquisition/processing, controls, medical equipment, or consumer electronics. (Lec. 3, Lab. 3)

ELE 548 Computer Architecture LEC (4 crs.) Classification and taxonomy of computer architectures. RISC vs. CISC. Cache and virtual memory systems. Pipeline and vector processors. Multi-processor and multi-computer systems. Interprocessor communication networks. Dataflow machines. Parallel processing languages. (Lec. 4) Pre: ELE 305 or equivalent or permission of instructor.

ELE 549 Computer System Modeling LEC (4 crs.) Fundamental understanding of computer systems with limited resources: data centers, fog computing and networks, Internet-of-Things (IoT), etc. Analytical methods to predict the system performance. Queuing theory, scheduling, and load balancing. (Lec. 4) Pre: ELE 509 or MTH 451 or permission of instructor.

ELE 550 Ocean Systems Engineering LEC (3 crs.) Cross-listed as (OCE), ELE 550. Introduction to the design of systems for use in the ocean environment with emphasis on interaction of various subsystem disciplines to achieve total system performance characteristics. Introduction to detection, localization, classification and time measurement strategies including Global Positioning system, underwater Acoustics Positioning and control, wireless acoustic and electromagnetic communication, and remote time transfer. Examples will include mobile, fixed, autonomous, distributed and networked sensors. Pre: MTH 451 or equivalent.

ELE 561 Physiological Modeling and Control LEC (3 crs.) Principles of physiological modeling and control of linear and nonlinear systems, stability analysis, root locus, Bode plots, linearization. Not for undergraduate credit. Not open to students who have credit in ELE 461 or BME 461. Pre: graduate standing in electrical engineering or permission of instructor.

ELE 562 Biomedical Instrumentation Design LEC (3 crs.) Fundamentals of biomedical instrumentation, biocompatibility, medical device materials; safety, noise rejection, biomedical signal processing; measuring, recording, monitoring, and therapeutic devices. Not for undergraduate credit. Not open to students who have credit in ELE 489 or BME 461. (Lec. 3) Pre: graduate standing in electrical engineering or permission of instructor.

ELE 563 Biomedical Instrumentation Laboratory LAB (1 cr.) Development of a portable heart function monitor that measures the electrocardiogram and photoplethysmogram; Embedded system design using instrumentation amplifier, op-amp, graphic LCD module, and PIC microprocessor with C programming. Not for undergraduate credit. Not open to students who have credit in 489 or BME 463. (Lab. 3) Pre: BME 462 or ELE 489 and graduate standing in electrical engineering or permission of instructor.

ELE 564 Medical Imaging LEC (3 crs.) Engineering and clinical applications of medical imaging systems including X-ray, computed tomography, radioisotope imaging, ultrasound, magnetic resonance imaging; picture archiving and communications system and medical image processing. Term paper required. May not be taken by students who have credit in BME 464. (Lec. 3) Pre: Senior standing in electrical or computer engineering or permission of instructor.

ELE 565 Medical Image Processing Laboratory LAB (1 cr.) Development of medical image processing algorithms with graphical user interface in C++ under the Windows operating system: smoothing and sharpening filters, morphological filters, area measurement and edge tracer. Projects involving advanced algorithms. May not be taken by students who have credit in BME 465. (Lab. 3) Pre: Senior standing in biomedical engineering or permission of instructor.

ELE 568 Neural Engineering LEC (3 crs.) Principles and technologies of neuroengineering and clinical applications; brain stimulator, spinal cord stimulation, functional electrical stimulation (FES), neural-machine interface for motor prosthesis control, artificial visual/auditory

devices for augmented sensory perception. Pre: Graduate standing in Electrical Engineering or permission of instructor.

ELE 571 Underwater Acoustics I LEC (3 crs.) Cross-listed as (OCE), ELE 571. Introduction to sound generation, transmission, and reception, including vibration of mechanical systems, acoustic waves in fluids, acoustic transducers and arrays, acoustic propagation in the ocean, and sonar systems. (Lec. 3)

ELE 573 Brain Signal Processing and Applications LEC (4 crs.) This course presents advanced techniques in brain signal processing including time-frequency analysis (e.g., wavelet), spatial filters (e.g., Laplacian filters), data reduction techniques (e.g., PCA), and machine learning algorithms (e.g., LDA). (Lec. 3, Rec. 1) Pre: {(MTH 243 or equivalent), MTH 451 or STA 409 or ISE 311 or equivalent), (ELE 314 or equivalent), and Matlab programming} or permission of instructor. Familiarity with topics in ELE 501, 506, and 509 is highly recommended

ELE 581 Special Topics in Artificial Intelligence LEC (3 crs.) Cross-listed as (CSC), ELE 581. Topics of specialized or current interest, which may change. Topics may include expert systems, natural language processing, neural network models, machine learning. AI applications in remote sensing. (Lec. 3) Pre: CSC 481 or permission of instructor. May be repeated with permission. In alternate years.

ELE 583 Computer Vision LEC (3 crs.) Cross-listed as (ELE), CSC 583. Algorithms used to extract information from two-dimensional images. Picture functions. Template matching. Region analysis. Contour following. Line and shape descriptsions. Perspective transformations. Three-dimensional reconstruction. Image sensors. Interfactin. applications. (Lec. 3) Pre: MTH 362 or equivalent.

ELE 584 Pattern Recognition LEC (3 crs.) Cross-listed as (ELE), STA 584. Random variables, vectors, transformations, hypothesis testing, and errors. Classifier design: linear, nonparametric, approximation procedures. Feature selection and extraction: dimensionality reduction, linear and nonlinear mappings, clustering, and unsupervised classification. (Lec. 3) Pre: ELE 509 or introductory probability and statistics, and knowledge of computer programming.

ELE 588 Optimization for Machine Learning Applications LEC (4 crs.) Introducing advances in optimization theory and algorithms for rapidly growing applications in machine learning such as linear regression, support vector machines, deep learning, and reinforcement learning. (Lec. 4) Pre: Graduate standing, a thorough understanding of calculus, linear algebra, probability, and knowledge of computer programming, or permission of instructor.

ELE 591 Special Problems IND (1-3 crs.) Advanced work under supervision of a faulty member arranged to suit individual requirements of student. (Independent Study) Pre: graduate standing. May be repeated for a maximum of 6 credits.

ELE 592 Special Problems IND (1-3 crs.) Advanced work under supervision of a faculty member arranged to suit individual requirements of student. (Independent Study) Pre: graduate standing. May be repeated for a maximum of 6 credits. S/U credit.

ELE 594 Special Topics in Electrical Engineering LEC (1-3 crs.) Intensive inquiry into a certain important field of current interest in electrical engineering. (Lec. 1-3) Pre: permission of instructor.

ELE 598 Non-Thesis Masters Project IND (3 crs.) Culminating project for non-thesis Master of Science students in Electrical Engineering. Small scale engineering projects drawn from industrial and academic research and development environments. (Independent Study) Pre: Open to ELE non-thesis MS students in good standing after successfully completing 14 credits of ELE graduate courses. Permission of instructor. Not for undergraduate credit. S/U only.

ELE 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

ELE 601 Graduate Seminar SEM (1 cr.) Seminar discussions presented by faculty and outside speakers on topics of current research interest. (Seminar) S/U credit.

ELE 602 Graduate Seminar SEM (1 cr.) Student seminars including the presentation of research results and detailed literature surveys. May be repeated for a total of 2 credits. S/U credit. Pre: permission of instructor.

ELE 610 Applications of Information Theory LEC (3 crs.) Information theoretic underpinnings and practical techniques for data compression, channel coding for error control, and encryption and cryptography for secure information transmission. (Lec. 3) Pre: ELE 509 or permission of instructor.

ELE 648 Advanced Topics in Computer Architectures LEC (3 crs.) Modern high-performance computer structures, parallel and distributed hardwares and softwares, instruction level parallelism, memory hierarchy, fault tolerant computing, and future generation computers. (Lec. 3) Pre: ELE 548.

ELE 661 Estimation Theory LEC (3 crs.) Extraction of information from discrete and continuous data, best linear estimation, recursive estimation, optimal linear filtering, smoothing and prediction, nonlinear state and parameter estimation, design and evaluation of practical estimators. (Lec. 3) Pre: ELE 503 and 509.

ELE 665 Modulation and Detection LEC (3 crs.) Advanced treatment of modulation and detection theory. Minimum meansquare error, maximum likelihood, and maximum posterior probability estimators. Applications to communications systems and to radar and sonar systems. (Lec. 3) Pre: ELE 510.

ELE 670 Advanced Topics in Signal Processing LEC (3 crs.) Seminar for advanced students. Selected topics of current research interest. Material will be drawn primarily from recent literature. (Lec. 3) Pre: ELE 506 and 606.

ELE 672 Underwater Acoustics II LEC (3 crs.) Cross-listed as (OCE), ELE 672. Sound transmission in ocean, transducers, active signal design for range and Doppler resolution, ambient and platform noise, classical and wave vector-frequency methods of beamforming, adaptive beamforming, characteristics of targets, and active/passive sonar systems. (Lec. 3) Pre: OCE 571.

ELE 677 Statistical Sonar Signal Processing LEC (3 crs.) Cross-listed as (ELE), OCE 677. Basic results in probability and statistics, signal processing, and underwater acoustics are applied to the design of detection, estimation, and tracking in active sonar, passive sonar, and underwater acoustic communication. (Lec. 3) Pre: MTH 451 or ELE 509, ELE 506, and ELE 571 (or OCE 571), or equivalents. ELE 510 is useful and closely related, but not required.

ELE 691 Special Problems IND (1-3 crs.) Advanced work under supervision of a faculty member arranged to suit individual requirements of a student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits. S/U credit.

ELE 692 Special Problems IND (1-3 crs.) Advanced work under supervision of a faculty member arranged to suit individual requirements of a student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits. S/U credit.

ELE 694 Advanced Special Topics in Electrical Engineering LEC (1-3 crs.) Intensive inquiry into a certain important field of current interest in electrical engineering, requiring advanced sophistication of a 600-level course. (Lec. 1-3) Pre: permission of instructor.

ELE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

ELS | English Language Studies

ELS 112 Expository Writing in English LEC (3 crs.) Equivalent to WRT 104 but restricted to students whose first language is not English. Varieties and strategies of expository writing for different audiences and situations. (Lec. 3)

ELS 122 Academic Writing in English LEC (3 crs.) Practice in writing assignments for introductory and general education courses across the curriculum. Restricted to students whose first language is not English. (Lec. 3)

ELS 312 Oral English Skills for the Public Sphere LEC (3 crs.) Focus on pronunciation, listening and speaking skills, and a variety of speaking projects. Special emphasis on speaking freely in academic and social situations. (Lec. 3)

ELS 322 Oral English Skills for the Academic Sphere LEC (3 crs.) Intensive focus on pronunciation, listening and speaking skills, and a variety of communicative projects. Develop oral presentation skills. (Lec. 3)

ELS 512 Oral Communication Skills for Internalional Teaching Assistants LEC (3 crs.) Intensive focus on pronunciation, listening and speaking skills, and awareness of colloquial American speech. (Lec. 3) Pre: graduate standing and permission of instructor. May be repeated until oral proficiency requirement is met.

ELS 612 Advanced Communication Skills for International Teaching Assistants LEC (3 crs.) Focus on pronunciation, teaching skills, and cross-cultural differences in education. Priority given to international teaching assistants. (Lec. 3) Pre: graduate standing. May be repeated until oral proficiency requirement is met.

ENG | English

ENG 105 Introduction to Creative Writing LEC (4 crs.) Introduction to basic principles of reading and writing poetry, fiction, and nonfiction (may also substitute genres to include drama and/or screenwriting). (Lec. 3. Project 3/Online). (A3) (B1)

ENG 110 Introduction to Literature LEC (4 crs.) Analysis of literature through reading and discussion of a number of genres derived from a variety of literary cultures. (Lec. 3, Online 1) (A3) (B1)

ENG 120 Poetry Out Loud LEC (4 crs.) Study of great poetry through the art of performance. Emphasis on public speaking skills, self-confidence, and study of literature to understand and express fundamental beliefs about life, love, pain, happiness. (Lec. 3, Online 1) (A4) (B2)

ENG 121 OUTRAGE! Literature of Protest and Dissent LEC (4 crs.) Study of proud history of poems, songs, plays, and fiction speaking truth to power. Examination of the ways selected literary texts have engaged with different kinds of oppression. (Lec. 3, Online 1) (A3) (C1)

ENG 122 Poplife: How Popular Culture Explains the World LEC (4 crs.) Introduction to critical study of how social power and inequalities are reproduced and resisted through popular culture. (Lec. 3, Project 3) (A3) (C3)

ENG 160 Literatures of the World LEC (4 crs.) Cross-listed as (ENG), CLS 160. Introduction to significant works of world literature. (Lec. 3, Rec.1, Online 1) (A3) (C2)

ENG 201 Principles of Literary Study LEC (4 crs.) Introduction to the study of literature through reading and discussion of major methodologies, analytical approaches, and perspectives in literary study. Students will also participate in a series of faculty presentations reflecting current critical and creative practices in the discipline. Restricted to English majors. (Lec. 3, Rec. 1)

ENG 205A Creative Writing: Poetry LEC (4 crs.) Writing and analysis of works written by class members and professional writers. (Lec. 3. Project 3/Online) ENG 205A may be offered online. Students may repeat ENG 205 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 205B Creative Writing: Fiction LEC (4 crs.) Writing and analysis of works written by class members and professional writers. (Lec. 3, Project 3/Online) ENG 205B may be offered online. Students may repeat ENG 205 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 205C Creative Writing: Nonfiction LEC (4 crs.) Writing and analysis of works written by class members and professional writers. Type of writing varies with instructor. (Lec. 3, Project 3) Students may repeat ENG 205 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 205D Creative Writing: Screen Writing LEC (4 crs.) Writing and analysis of works written by class members and professional writers. (Lec. 3, Project 3) Students may repeat ENG 205 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 210 Reading Sport, Seeing Life LEC (4 crs.) Analysis of texts in which literary, visual, and sporting cultures intersect, with a focus on critique of their aesthetic, symbolic, social, and political meanings in a variety of contexts. (Lec. 3, Project 3) (C3)

ENG 211 The Young Adult Novel LEC (4 crs.) Close examination of the young adult novel genre with particular attention to the cultures and ideologies of adolescence, the teenager, and the young adult. (Lec. 3, Project 3) (A3) (C3)

ENG 241 U.S. Literature I LEC (4 crs.) Selections from U.S. literature, beginnings to the mid-19th century. (Lec. 3, Project 3/Online)

ENG 242 U.S. Literature II LEC (4 crs.) Selections from U.S. literature, mid-19th century to the present. (Lec. 3, Project 3) ENG 241 not required for 242. (A3) (C3)

ENG 243 The Short Story LEC (4 crs.) Critical study of the short story from the early 19th century to the present. (Lec. 3, Project 3/Online) (A3) (B1)

ENG 243H Honors Section of ENG 243: The Short Story LEC (4 crs.) Honors Section of ENG 243: The Short Story. Critical study of the short story from the early 19th century to the present. (Lec. 3, Project 3/Online) Pre: 3.40 overall gpa. (A3) (B1)

ENG 245 Introduction to Film Decades LEC (4 crs.) Introduction to study of film in cultural context over an historical decade, e.g., Modernism and the Silent Era of the Twenties; Cinema of Wartime in the Forties; Vietnam, Nixon, and the Seventies Blockbuster. May be repeated once with a different emphasis. (Lec. 3, Project 3) (A3) (B4)

ENG 247 Introduction to Literature of the African Diaspora LEC (4 crs.) Cross-listed as (ENG), AAF 247. Major themes, genres, and motifs of the literatures of Africa and the Americas. Focus on one or more of these regions. Study of black oral and written literatures with emphasis on cultural, historical, political, and socioeconomic contexts. (Lec. 3, Project 3) (A3) (C3)

ENG 248 African-American Literature from 1900 to the Present LEC (4 crs.) Cross-listed as (ENG), AAF 248. Twentieth-century African-American literature, with emphasis on major issues, movements, and trends, including the study of W.E.B. DuBois, the Harlem Renaissance, the civil rights movement, and the black arts movement. (Lec. 3, Project 3) (A3) (C3)

ENG 251 British Literature I LEC (4 crs.) Selections from British literature, beginnings to 1798. (Lec. 3, Project 3)

ENG 252 British Literature II LEC (4 crs.) Selections from British literature, 1798 to the present. (Lec. 3, Project 3) ENG 251 not required for 252. (A3) (C2)

ENG 260 Women and Literature LEC (4 crs.) Critical study of selected topics. (Lec. 3, Project 3/Online) (A3) (B1)

ENG 263 Introduction to Literary Genres: The Poem LEC (4 crs.) Introduction to the study of the poem. (Lec. 3, Project 3/Online) (A3) (B1)

ENG 264 Introduction to Literary Genres: The Drama LEC (4 crs.) Introduction to the study of the drama. (Lec. 3, Project 3) (A3) (B1)

ENG 265 Introduction to Literary Genres: The Novel LEC (4 crs.) Introduction to the study of the novel. (Lec. 3, Project 3) (A3) (B1)

ENG 265H Honors section of ENG 265: Introduction to Literary Genres: The Novel LEC (4 crs.) Honors section of ENG 265: Introduction to Literary Genres: The Novel (Violence and the Novel). (Lec. 3, Project 3) Pre: must have a 3.40 overall GPA. (A3) (B1)

ENG 280 Introduction to Shakespeare LEC (4 crs.) Introduction to the major plays and poetry of Shakespeare. (Lec. 3, Project 3) (A3) (B1)

ENG 280H Honors Section of ENG 280: Introduction to Shakespeare LEC (4 crs.) Honors Section of ENG 280: Introduction to Shakespeare. Introduction to the major plays and poetry of Shakespeare. (Lec. 3, Project 3) Pre: Must have a 3.4 GPA or higher. (A3) (B1)

ENG 302 Topics in Film Theory and Criticism LEC (4 crs.) Introduction to film theory and criticism. Emphasis on semiotics, auteur theory, psychoanalysis, genre studies, feminist theory, materialist critique, or cultural studies, with focus on range of popular, experimental, and documentary film traditions. May be repeated for credit when taken with different emphasis. (Lec. 3, Lab. 2) (A3) (B4)

ENG 303 Cinematic Auteurs LEC (4 crs.) Literary study of one or more major directors with a substantial body of work exhibiting recurrent themes and distinctive style (e.g. Hitchcock, Kubrick, Kurasawa). Emphasis will vary. May be repeated once with different director. (Lec. 3, Lab. 2) (A3) (B4)

ENG 304 Film Genres LEC (4 crs.) Literary study of the particular conventions and evolution of one or more film genres (e.g Romantic Comedy, Science Fiction, Western). Emphasis will vary. (Lec. 3, Lab. 2/Online) May be repeated once with a different genre. (A3) (B4)

ENG 305A Advanced Creative Writing - Poetry LEC (4 crs.) Intensive writing and reading workshop for students at the advanced level who have preferably taken at least one previous class in creative writing. (Lec. 3, Project 3/Online) Student may repeat ENG 305 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 305B Advanced Creative Writing - Fiction LEC (4 crs.) Intensive writing and reading workshop for students at the advanced level who have preferably taken at least one previous class in creative writing. (Lec. 3, Project 3/Online) Student may repeat ENG 305 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 305C Advanced Creative Writing - Nonfiction LEC (4 crs.) Intensive writing and reading workshop for students at the advanced level who have preferably taken at least one previous class in creative writing. Type of writing varies with instructor. (Lec. 3, Project 3) Student may repeat ENG 305 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 305D Advanced Creative Writing - Screen Writing LEC (4 crs.) Intensive writing and reading workshop for students at the advanced level who have preferably taken at least one previous class in creative writing. (Lec. 3, Project 3) Student may repeat ENG 305 for a total of 16 credits but may not repeat the same letter (A, B, C, D).

ENG 333 The Sensuous Sentence: Grammar for Grammarphobes LEC (4 crs.) A critical and historical examination of style, tone, diction, grammar, and sentence form as aesthetic and ideological qualities of literary texts. (Lec. 3, Project 3) (A3) (B2)

ENG 338 Native American Literature LEC (4 crs.) Study of literature written by Native Americans. This course may consider early texts and traditions as well as contemporary works. (Lec. 3, Project 3)

ENG 339 Literary Nonfiction LEC (4 crs.) Intensive study in one or more forms of nonfiction narrative (memoir, nature meditation, medical narrative, extended journalistic account, true crime, science narrative, historical account). (Lec. 3, Project 3) May be repeated once for a total of 8 credits when taken with different emphasis.

ENG 345 Topics in American Colonial Literatures LEC (4 crs.) Studies in the literature and culture of the New World. Topics include discovery, exploration, early modern empire, settlement of the Americas. May include fictional and non-fictional prose, poetry, or dramatic works by major authors and their contemporaries. (Lec. 3, Project 3) May be repeated once for a total of 8 credits, barring duplication of topics.

ENG 347 Antebellum U.S. Literature and Culture LEC (4 crs.) Study of literature and culture in the United States during the decades leading to the Civil War (the period also known as the American Renaissance/American Romanticism). (Lec. 3, Project 3)

ENG 348 U.S. Literature and Culture from 1865 to 1914 LEC (4 crs.) Study of post-Civil War poetry and prose. Readings may include Chesnutt, Chopin, Crane, DuBois, James, Twain, Wharton, and others. (Lec. 3, Project 3)

ENG 350 Literary Theory and Criticism LEC (4 crs.) Introduction to theories of literature and their application in the analysis of selected texts. Topics may include representation as problematized in works selected from classical to contemporary thought. (Lec. 3, Project 3) May be repeated for credit as often as topic changes.

ENG 352 Black Images in Film LEC (3 crs.) Cross-listed as (AAF), ENG 352. Exploration of the cultural, economic, political, and ideological motivations behind the standard representation of people of the African diaspora in cinema in the U.S. and other areas of the world, while examining film as a genre with a vocabulary and idiom of its own. (Lec. 3)

ENG 355 Literature and the Sciences LEC (4 crs.) Study of the representation of scientific themes in literature and/or the relationship between literature and the sciences. (Lec. 3, Project 3) Pre: Junior or senior standing. Enrollment priority given to students majoring in the sciences.

ENG 356 Literature and the Law LEC (4 crs.) Study of the representation of legal themes in literature and/or the relationship between literature and the law. (Lec. 3, Project 3) Pre: Junior or senior standing. Enrollment priority given to students with career interests in law.

ENG 357G Topics in Literature and Medicine LEC (4 crs.) Study of the representation of medical themes in literature and/or the relationship between literature and medicine, with attention to ethical issues in contemporary and historical contexts. (Lec. 3, Online 1) (A3) (B1) (GC)

ENG 362 African-American Literary Genres LEC (4 crs.) Cross-listed as (ENG), AAF 362. Study of drama and poetry in the continued oral and written heritage of Africa and America, excepting short story and the novel. Focus on Baraka, Bullins, Dunbar, Giovanni, Hughes, and Walker. (Lec. 3, Project 3)

ENG 363 African-American Fiction LEC (4 crs.) Cross-listed as (ENG), AAF 363. Study of formal and thematic developments in the African-American novel and short story. Focus on Baldwin, Chesnutt, Ellison, Gaines, Hurston, Jacobs, Marshall, Morrison, Naylor, Reed, Walker, Wideman, Wilson, and Wright. (Lec. 3, Project 3)

ENG 364 Contemporary African Literature LEC (4 crs.) Cross-listed as (ENG), AAF 364. Study of contemporary African literature by genre, region, or theme, with emphasis on literary traditions, issues, and socio-cultural contexts. (Lec. 3, Project 3)

ENG 367 The Epic LEC (4 crs.) Studies in epic literature from Homer to the modern period. Historical emphasis will vary with instructor. (Lec. 3, Project 3)

ENG 368 The Bible as Literature LEC (4 crs.) Study of the Bible in English (Old Testament, New Testament, and Apocrypha) as a literary text. (Lec. 3, Project 3) (A3) (B4)

ENG 374 British Literature: 1660-1800 LEC (4 crs.) Study of major trends in late 17th- and 18th-century verse, prose, drama, and fiction by such writers as Milton, Dryden, Behn, Congreve, Pope, Finch, Swift, and Johnson. (Lec. 3, Project 3)

ENG 376 Topics in Victorian Literature and Culture LEC (4 crs.) Notable literary and cultural movements and motifs of the Victorian era. May include prose, poetry, or dramatic works by major authors and their contemporaries. May be repeated once with a different topic. (Lec. 3, Project 3)

ENG 377 Topics in Romanticism LEC (4 crs.) Notable literary and cultural movements and motifs of Romantic literature and culture. May include prose, poetry, or dramatic works by major Romantic authors and their contemporaries. May be repeated once with a different topic. (Lec. 3, Project 3)

ENG 378 Aspects of Postmodernism LEC (4 crs.) Introduction to major issues and theories of Postmodern Literature and Culture, em-

phases may include temporality, borders, cyberculture, theories of the image and constructions of subjectivity. (Lec. 3, Project 3)

ENG 379 Contemporary Literature LEC (4 crs.) Studies in contemporary literature with an emphasis on cultural and interdisciplinary issues. Movements and emphases may include multiculturalism, culture and technology, globalization, and politics of the body. (Lec. 3, Project 3)

ENG 381 Topics in Medieval Literature LEC (4 crs.) Emphasis on cultural and interdisciplinary issues. (Lec. 3, Project 3) May be repeated once with a different topic. (A3) (C3)

ENG 382 Topics in Renaissance Literature LEC (4 crs.) Emphasis on cultural and interdisciplinary issues. (Lec. 3, Project 3) May be repeated once with a different topic.

ENG 383 Modernist Literature, 1900-1945 LEC (4 crs.) Poetry, drama, fiction, and/or nonfiction prose with an emphasis on writers such as Eliot, Faulkner, Hurston, Joyce, Stevens, Yeats, Woolf, and Wright. (Lec. 3, Project 3)

ENG 385 Women Writers LEC (4 crs.) Cross-listed as (ENG), GWS 385. Analysis of the poetry, drama, or fiction of women writers. Emphasis on 18th-century, 19th-century, 20th-century, or contemporary authors. May be repeated for credit when taken with different emphasis. (Lec. 3, Project 3) (A3) (B4)

ENG 387 Queer Literatures, Queer Cultures LEC (4 crs.) Study of queer cultural productions, literature, and related theory, with a focus on historical, aesthetic, and political developments in ongoing contestations around the representations of gender, sexuality, and identity. (Lec. 3, Project 3) (A3) (C3)

ENG 388 Queer Literatures, Queer Cultures LEC (4 crs.) Cross-listed as (ENG), GWS 388. Study of queer cultural productions, literature, and related theory, with a focus on historical, aesthetic, and political developments in ongoing contestations around the representations of gender, sexuality, and identity. (Lec. 3, Project 3) (A3) (C3)

ENG 394 Independent Study IND (1-4 crs.) Extensive individual study and research, culminating in a substantial essay. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 8 credits.

ENG 395 Independent Study IND (1-4 crs.) Extensive individual study and research, culminating in a substantial essay. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 8 credits.

ENG 396 Literature of the Sea: The Rumowicz Seminar SEM (4 crs.) Studies of maritime literature and culture. Guest lecturers and field trips. (Seminar)

ENG 405 Creative Writing Capstone LEC (4 crs.) A capstone course in creative writing for English majors taking the Creative Writing Option; includes workshop, portfolio creation, critical responses to texts, exploration of creative writing field. (Lec. 1, Workshop 2, Online 1) Pre: ENG 205 and 305, or two ENG 305 courses in different genres (ENG 305A, 305B, 305C, or 305D). Not for graduate credit.

ENG 410 Capstone Seminar in Literary and Cultural Studies LEC (4 crs.) A capstone course in literary and cultural studies research for English majors: requires the completion of a scholarly essay or another research-intensive project.(Lec. 3, Project 3) Pre: two 300- or 400-level ENG courses (excluding 477). Not for graduate credit. (B4) (D1)

ENG 446 Drama SEM (4 crs.) Intensive studies in Drama. May include special topics in plays, performance, and playwrights. (Seminar) Not for graduate credit.

ENG 447 Poetry SEM (4 crs.) Study of major contributions and movements in poetry of any period. (Seminar) Not for graduate credit.

ENG 450G Performing Race LEC (4 crs.) Interdisciplinary consideration of drama, race, and performance in political, historical, cultural, and ethical contexts. (Lec. 3, Online) (D1) (C3) (GC) Not for graduate credit.

ENG 451 Advanced Topics in International Film Media LEC (4 crs.) Cross-listed as (FLM), ENG, CLS 451. Study of international film genres from one or more national, regional or diasporic cultures and traditions. Emphases on theoretical, historiographic and media research methods. (Lec. 3, Lab. 2) Pre: junior standing or permission of instructor. FLM 204 or 205 recommended. May be repeated for a maximum of 8 credits with change of emphases or topics. (A4) (C2)

ENG 469 The Novel SEM (4 crs.) Focuses on generic considerations of the novel in relation to historical contexts such as national/cultural politics, philosophy, psychology. The "novel" is examined against the historical specificity of its production. (Seminar) Not for graduate credit.

ENG 472 Shakespeare SEM (4 crs.) Studies in Shakespeare's drama and poetry. (Seminar) Not for graduate credit.

ENG 477 Internship in English PRA (1-8 crs.) Exploration of career goals and job opportunities. Participate in a variety of work situations, supervised by both faculty member and onsite personnel. 35.75 hours (2.75 hrs/wk) per 1 credit. May be repeated to a maximum of 8 credits. (Practicum) Pre: 20 credits in English, permission of chairperson, and prior completion of or concurrent enrollment in ITR 303 or 304. Total credits from ENG 477 may not exceed 8, of which 4 may be used as credit toward the English major. Not for graduate credit. S/U only.

ENG 478 Medieval Authors SEM (4 crs.) Studies in works by one or more major medieval authors. May be repeated once, barring duplication of writers. (Seminar)

ENG 479 Renaissance Authors SEM (4 crs.) Studies in works by one or more major Renaissance authors (excepting Shakespeare). May be repeated once, barring duplication of writers. (Seminar) Not for graduate credit.

ENG 480 British Restoration and Enlightenment Authors SEM (4 crs.) Studies in works by one or two major Restoration and Enlightenment authors. (Seminar) May be repeated once for a total of 8 credits, barring duplication of writers. Not for graduate credit.

ENG 482 American and U.S. Authors to 1820 SEM (4 crs.) Studies in works by one or two major American and U.S. authors to 1820. (Seminar) May be repeated once for a total of 8 credits, barring duplication of writers. Not for graduate credit.

ENG 486 British Authors: 19th Century SEM (4 crs.) Studies in works by one or two major British authors. (Seminar) May be repeated once for a total of 8 credits, barring duplication of writers. Not for graduate credit.

ENG 489 Literature and Empire SEM (4 crs.) Studies of specific authors, literary movements, or comparative themes in texts reflecting the impact of colonization and imperialism. (Seminar) Not for graduate credit.

ENG 492 Crossing Borders: Writers Writing Their Lives SEM (3 crs.) Cross-listed as (GWS), ENG, WRT 492. This advanced creative nonfiction seminar combines a rigorous commitment to the craft of writing with an investigation of how "crossing borders" functions as a thematic, structural, and feminist framework for helping writers access and create personal essays. (Seminar) Pre: Junior or senior standing or permission of the instructor. (D1) (B1)

ENG 510 Introduction to Professional Study I SEM (1.5 crs.) Orientation to the critical frameworks and professional skills important to graduate work in literary and cultural studies, including digital and public humanities. (Seminar 1.5) Pre: graduate standing or permission of instructor. S/U grades only.

ENG 511 Introduction to Professional Study II SEM (1.5 crs.) Orientation to the critical frameworks and professional skills important to graduate work in literary and cultural studies, including digital and public humanities. (Seminar) Pre: ENG 510. S/U credit.

ENG 514 History of Critical Theories LEC (3 crs.) Historical survey of critical theory from antiquity to the present. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 535 Old English LEC (3 crs.) Introduction to the language and literature. (Lec. 3) Pre: graduate standing or permission of instructor.

May be repeated once if emphasis changes.

ENG 540 Studies in American Texts Before 1815 LEC (3 crs.) Cultural texts and topics of the Western Hemisphere before 1815: literary and nonliterary writings and genres; exploration and captivity narrative; African transmissions; critical theory; culture, gender, race, and class. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 543 Studies in 19-Century American Texts LEC (3 crs.) Literary and nonliterary cultural texts, genres, and topics of the Western Hemisphere. May include media; oral, industrial, and popular cultures; critical theory and the analysis of discourses; issues of class, gender, and race.(Lec. 3) Pre: Graduate Standing or permission of instructor. May be repeated once if emphasis changes.

ENG 545 Studies in American Texts After 1900 LEC (3 crs.) Modern, contemporary, and postmodern cultural texts, genres, and topics of the Western Hemisphere; e.g. literary and nonliterary writings, performance modes, media, theory, and cultural studies of race, genre, and class. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 553 Studies in British Texts 1700-1832 LEC (3 crs.) Literary and nonliterary cultural texts and genres during the Restoration, Augustan, Enlightenment, and Romantic periods; e.g., drama, media, rhetoric, theory, and discourse analysis of gender, class, race, and other social relations. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 555 Studies in 19-Century British Texts LEC (3 crs.) Literary and cultural texts and genres during the 19th century. May include drama and other performance modes; critical theory and the analysis of discourses; representations of class, gender, and race. (Lec. 3) Pre: Graduate Standing or permission of instructor. May be repeated once if emphasis changes.

ENG 557 Studies in British Texts After 1900 LEC (3 crs.) Modern, contemporary, and postmodern cultural texts; e.g., literary and nonliterary writings, drama, colonial and European cultural relations, film, theory, and cultural studies of institutional life and other social relations. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 560 Studies in European Texts LEC (3 crs.) Introduction to the study of European texts in translation. May include different historical periods; literary and nonliterary writings; theory; film; rhetoric; and issues of culture, gender, race, class, and sexuality. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 570 Studies in Postcolonial Texts LEC (3 crs.) Investigation of similarities and differences between nonoccidental and occidental genres; traditions and practices of postcolonial oral, written, and visual cultural forms from Africa, Australia, New Zealand, the Americas, India, Ireland, and Scotland. (Lec. 3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 590 Selected Topics LEC (1-3 crs.) Selected topics in American and British literature and topics of special interest not covered by traditional department offerings. (Lec. 1-3) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 595 Master's Project PRO (1-6 crs.) Student produces MA portfolio in consultation with major professor and committee. S/U only. Pre: Graduate Standing or permission of instructor. May be repeated once if emphasis changes.

ENG 599 Master's Thesis Research IND (1-6 crs.) Student produces MA thesis in consultation with major professor and committee. (Independent Study) S/U only. Pre: Graduate Standing or permission of instructor. May be repeated.

ENG 601 Seminar in Creative Writing SEM (3 crs.) Seminar for advanced students under supervision of a member arranged to suit individual project requirements of students. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 605 Seminar in Genres SEM (3 crs.) In-depth study of a single or several genres and/or subgenres, such as epic, drama, or horror film. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 610 Seminar in Historical Periods SEM (3 crs.) Selected topics of relevance for historical periods. Periods emphasized are medieval, 16th- and 17th-century British, 18th- and 19th-century British, North American, and postcolonial. (Seminar) Pre: Graduate Standing or permission of instructor. May be repeated once if emphasis changes.

ENG 615 Seminar in Authors SEM (3 crs.) In-depth and critical study of selected works of one or two authors from any historical period, genre, or medium; theories and traditions of authorship; authorship and gender. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 620 Seminar in Culture and Discourse SEM (3 crs.) Contrasting theoretical conceptions of culture, discursive practices, hegemony, the public and private spheres, and related concerns; may cross any historical formation or period. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 625 Seminar in Media SEM (3 crs.) Critical and theoretical conceptions of one or more media across any historical formation or period. (Seminar) Pre: graduate standing and permission of instructor. May be repeated once if emphasis changes.

ENG 630 Seminar in Canons SEM (3 crs.) Critical and theoretical conceptions of canons and canonicity, including emerging or revisionist canons. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 635 Seminar in Subjectivities SEM (3 crs.) Critically investigates class, race, gender, sexuality, and/or other subject positions as they are constructed by literary or other media. Might emphasize reading and writing communities, form and ideology, or identity politics. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 650 Seminar in Critical Theory SEM (3 crs.) In-depth study of one or several critical theories such as psychoanalytic, feminist, postcolonial, and cultural studies. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 660 Seminar in Special Topics SEM (3 crs.) Topics of special interest not covered by other offerings. (Seminar) Pre: graduate standing or permission of instructor. May be repeated once if emphasis changes.

ENG 691 Independent Graduate Study IND (3 crs.) Advanced study of an approved topic under the supervision of a faculty member. (Independent Study) Pre: permission of ENG Graduate Director. May not be repeated for credit.

ENG 692 Independent Graduate Study IND (3 crs.) Advanced study of an approved topic under the supervision of a faculty member. (Independent Study) Pre: permission of ENG Graduate Director. May not be repeated for credit.

ENG 695 Practicum: Teaching College English PRA (1 cr.) Practicum for students teaching a college-level English course. Supervision of course preparation, presentation, and evaluation. (Practicum 1) S/U credit. Pre: permission of the Chair. May be repeated for a total of 3 credits with permission of the Chair.

ENG 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit. Pre: Graduate Standing or permission of instructor.

ENG 999 Methods of Teaching Literature SEM (0 crs.) Materials and various methods of teaching literature on the college level. Required of graduate students who teach English Department literature courses. (Seminar) Pre: graduate standing.

ENT | Entomology

ENT 286 Humans, Insects, and Disease LEC (3 crs.) Cross-listed as (BIO), ENT 286. Role of insects, ticks, and mites as vectors and as direct agents of diseases in humans; factors affecting the spread of these diseases and their role in our cultural development. (Lec. 3) Not for major credit for B.S. in biological sciences.

ENT 350 Field Entomology and Taxonomy LEC (4 crs.) Cross-listed as (ENT), BIO, NRS 350. Collection, identification and study of the common families of insects, including use of keys and teaching collection specimens. Field trips throughout Rhode Island. Discussion of insect classification. (Lec. 3, Lab. 1) Pre: BIO 102 or permission of instructor.

ENT 385 Introductory Entomology LEC (3 crs.) Cross-listed as (ENT), BIO 385. Introduction to the diverse components of entomology, emphasizing basic principles of insect morphology, physiology, behavior, and ecology. Current topics in insect biodiversity and management strategies. (Lec. 3) Pre: BIO 102 and BIO 101, or permission of instructor.

ENT 387 Insects of Turf and Ornamentals LAB (3 crs.) Biology, ecology, and management of insects affecting turfgrasses, trees, and ornamental plants. (Lab. 3) Pre: PLS 200 or permission of instructor.

ENT 388 Biology of Bees and Pollination Ecology LEC (3 crs.) Cross-listed as (ENT), BIO, NRS 388. Learn the biology, behavior and pollination services of bees. Learn how to identify bees to family level. Understand the basics of honey bee management. Learn various types of pollination. (Lec. 3) Pre: BIO 101 and 102, or permission of instructor.

ENT 390 Wildlife and Human Disease LEC (3 crs.) Cross-listed as (AVS), ENT 390. Introduction to the study of human diseases carried by wildlife (zoonoses), including surveillance, epidemiology, transmission, public health impact, and prevention. Interdisciplinary approach with emphasis on problem solving using real-life examples. (Lec. 3)

ENT 411 Pesticides and the Environment LEC (3 crs.) Review of the historical issues regarding pesticides, regulation, how they work, and costs/benefits associated with their use. (Lec. 3) Pre: BIO 102, CHM 103, 105; PLS 200, or permission of instructor. In alternate years. Not for graduate credit.

ENT 511 Pesticides and the Environment LEC (3 crs.) Review of the historical issues regarding pesticides, regulation, how they work, and costs/benefits associated with their use. Pre: BIO 102, CHM 103, 105; PLS 200, or permission of instructor.

ENT 519 Insect Biological Control LEC (3 crs.) Natural regulation of pest abundance. Theoretical issues and practical experience in the use of biological controls for managing insect and weed problems. (Lec. 2, Lab. 1) Pre: ENT 385 or permission of instructor. In alternate years.

ENT 520 Insect Morphology And Physiology LEC (3 crs.) An introduction to the structure and function of the insects and related arthropods. (Lec. 2, Lab. 2) Pre: ENT 385 or permission of instructor.

ENT 544 Insect Ecology LEC (3 crs.) Cross-listed as (ENT), BIO 544. Ecology of insects and other terrestrial arthropods at the physiological, individual, population, community, and ecosystem levels. Pre: permission of instructor. In alternate years.

ENT 550 Insect Taxonomy And Systematics LEC (3 crs.) External morphology of insects and taxonomy of major families. (Lec. 2, Lab. 2) Pre: ENT 385. In alternate years.

ENT 555 Insect Pest Management LEC (3 crs.) Evaluation of past and present pest-control strategies in light of insect ecology. Development of pest-management systems emphasizing biological control, resistant plants, and ecosystem redesign. (Lec. 3) Pre: PLS 200 or ENT 385 or permission of instructor.

ENT 561 Aquatic Entomology LEC (3 crs.) Biology of insects in aquatic environments, including systematics, morphology, and ecology. Field trips emphasize relations between species and habitat and the role of insects in aquatic management programs. (Lec. 2, Lab. 3) Pre: ENT 385 or permission of instructor. In alternate years.

ENT 571 Insect Microbiology LEC (3 crs.) Cross-listed as (ENT), CMB 571. A two-part investigation of insect-microbe associations, concentrating on the comparative pathobiology of microbial agents in the insect host and the transmission of disease organisms by the insect vectors. (Lec. 3) Pre: ENT 385 and CMB 211, or permission of instructor. In alternate years.

ENT 586 Medical and Veterinary Entomology LEC (3 crs.) Cross-listed as (BIO), ENT 586. Life history, classification, habits, and control of insects and other arthropods affecting human and animal health. Topics will include public health significance, vector-parasite interactions, and survey and research methodologies. (Lec. 3, Lab. 4) Pre: ENT 331 or 381 or equivalent. In alternate years.

ENT 591 Special Problems in Entomology IND (1-3 crs.) Advanced independent research projects supervised by members of the research staff and unrelated to thesis research. Projects developed to meet individual needs. (Independent Study) Pre: permission of instructor.

ENT 592 Special Problems in Entomology IND (1-3 crs.) Advanced independent research projects supervised by members of the research staff and unrelated to thesis research. Projects developed to meet individual needs. (Independent Study) Pre: permission of instructor.

EVS | Environmental Sciences

EVS 366 Communicating Environmental Research and Outreach SEM (2 crs.) Value and techniques of communicating scientific research and outreach efforts. Focus on technical and communication skill development. Student must be engaged in a personal research or outreach experience. (Seminar) Pre: permission of instructor; by override only.

EVS 482 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 482. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. (Lec. 4) Pre: permission of instructor. In alternate years. Not for graduate credit.

EVS 484 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 484. Physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab. 2) Pre: GEO 483 or CVE 588 or NRS 510, or permission of instructor. Not for graduate credit. Offered every other year.

EVS 501 Development of Learning Outcomes for MESM SEM (1 cr.) Formulate learning outcomes and develop professional internships for new MESM students through interaction with URI faculty involved in the MESM tracks, develop skills in environmental communication, leadership, and ethics. (Seminar) Pre: enrollment in MESM graduate program.

EVS 502 Seminar in Environmental Science and Management SEM (1 cr.) Presentation of proposed, ongoing and completed major projects by MESM graduate students. Discussion among graduate students, faculty, and other mentors on project design, methods, analysis, and presentation. (Seminar) Pre: enrollment in MESM graduate program.

EVS 505 Environmental Leadership in Practice LEC (3 crs.) Explores theory and practice of leadership in the context of environmental problems and natural resources management. Emphasis on effective leadership and communication approaches across environmental organizations. (Lec. 3) Pre: Graduate student in the MESM Program or permission of instructor

EVS 509 Web-based Mapping ONL (3 crs.) This course is designed to provide grounding in the conceptual foundations of GIS while developing competency using web-based GIS tools to explore and communicate spatial information. (Accelerated Online Program) Pre: Graduate standing or permission of instructor.

EVS 514 Environmental Data Analysis and Visualization ONL (3 crs.) This course focuses on developing knowledge and skills to manage environmental datasets using best practices to ensure data quality as well as employing standard approaches to summarize and communicate findings. (Accelerated Online Program) Pre: Graduate standing or permission of instructor.

EVS 518 Sustainable Natural Resource Management ONL (3 crs.) This course provides an in-depth exploration of emerging and established approaches to sustainable natural resource management from a variety of disciplines. (Accelerated Online Program) Pre: EVS 514 or permission of instructor.

EVS 519 Natural Resource Management Planning ONL (3 crs.) This course presents frameworks for natural resource decision making that facilitate development of management objectives, evaluation and selection of management alternatives, and assessment of management outcomes. (Accelerated Online Program) Pre: EVS 509, EVS 514, and EVS 518 or permission of instructor.

EVS 582 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), EVS 582, NRS 582. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. Offered alternate years (Lec. 4) Pre: permission of instructor.

EVS 584 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), EVS, NRS 584. Develop an understanding of the physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab 2) Pre: GEO 483 or CVE 588 or NRS 510 or permission of instructor.

EVS 587 Environmental Hazards, Risks, Response, and Safety LEC (3 crs.) Cross-listed as (GEO), EVS 587. Environmental, health, and safety regulations and requirements for working with hazardous materials and at hazardous waste site-related work sites. Emphasis on application of knowledge and skills needed to anticipate, recognize, evaluate, and determine controls for various hazards and risks that may be encountered at site investigations, at waste sites, and in the industrial workplace. Includes opportunity to earn OSHA 40-hour certification. (Lec. 3) Pre: Permission of instructor. Respirator clearance required prior to start of classes.

EVS 589 Environmental Hazards, Risks, Response, and Safety: Refresher LEC (1 cr.) Cross-listed as (GEO), EVS 589. Review of the environmental, health, and safety requirements for working with hazardous materials and at hazardous waste site-related work activities. Includes opportunity to earn OSHA 8-hour refresher certification. (Lec. 1) Pre: GEO or EVS 587 or permission of instructor (current OSHA 40-hour HAZWOPER certificate required). May be repeated, but not for program credit.

EVS 597 Professional Internship in Environmental Science and Management PRA (1-3 crs.) Supervised work performed with an environmental agency, nongovernmental organization, or private firm as part of the requirements of the Master of Environmental Science and Management degree program. (Practicum) Pre: enrollment in MESM degree program.

EVS 598 Professional Master's Research IND (3 crs.) Independent investigation to satisfy the research requirement for the Master of Environmental Science and Management degree. Substantial paper required. (Independent Study) Pre: enrollment in MESM degree program.

EVS 599 Master's Thesis Research IND (1-12 crs.) To be taken by students in the Master of Science in environmental sciences degree program. Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

EVS 601 Environmental Sciences Seminar SEM (1 cr.) Cross-listed as (EVS), GEO 601. Guest speakers present the results of research in the field of environmental sciences with special focus on hydrologic environments. (Seminar)

EVS 614 White Papers in Integrated Coastal Science IND (6 crs.) Preparation of a written synthesis of environmental, economic, social, and ethical dimensions of current issues in coastal ecosystem management. Project completed in collaboration with a non-academic partner institution. (Independent Study). Pre: EVS 610 and EVS 612.

EVS 616 Field Practicum in Coastal Science PRA (6 crs.) Science field practicum using array of investigative methods; insight into nature and scale, analytical and interpretative approaches applied to data; approaches to describe uncertainty; and ways research can inform policymakers. (Practicum)

EVS 618 Internship in Coastal Management IND (9-12 crs.) Supervised internship in an approved work setting to provide students with experience relevant to their career goals. Students work with advisors to secure internship positions and design learning contract. Pre: permission of instructor.

EVS 699 Doctoral Dissertation Research IND (1-12 crs.) To be taken by students in the Ph.D. in environmental sciences degree program. Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

FIN | Finance

FIN 220 (BUS) Financial Management LEC (3 crs.) Study of the basic principles of finance and the applications of these principles. Topics include time value of money, risk and return, valuation, capital budgeting and other corporate financial decisions. (Lec. 3/Online) Pre: ECN 201 or ECN 201H or EEC 105, and ACC (BUS) 201or 201H, and BAI (BUS) 210 or STA 308.

FIN 220H (BUS) Honors Section of FIN (BUS) 220: Financial Management LEC (3 crs.) Honors Section of BUS 220: Financial Management. (Lec. 3) Pre: Must have a 3.40 overall GPA. ECN 201 or EEC 105, ACC (BUS) 201, BAI (BUS) 210 or STA 308.

FIN 321 (BUS) Security Analysis LEC (3 crs.) Exploration of investments in equity securities. Emphasis on the structure and functioning of securities markets, current investment theories, fundamental analysis, portfolio risk/return, and performance measurement. (Lec. 3) Pre: FIN (BUS) 220 or 220H.

FIN 322 (BUS) Financial Institutions and Markets LEC (3 crs.) Comprehensive analysis of financial products and financial institutions as well as the markets in which they operate. Emphasis on the operational details of the institutions. (Lec. 3) Pre: ECN 201 or EEC 105, ACC (BUS) 201, BAI (BUS) 210 or STA 308.

FIN 323 (BUS) Fundamentals of Real Estate LEC (3 crs.) Analysis of real estate principles. An examination of land utilization, valuation, financing techniques, urban development, property rights, markets, and government regulation. (Lec. 3/Online) Pre: ECN 201 or EEC 105.

FIN 335 (BUS) Fundamentals of Risk Management and Insurance LEC (3 crs.) Basic course on risk management for corporations and individuals. Emphasis on risk identification, measurement, and management; homeowner insurance, basic life policies, commercial insurance and employee benefits. (Lec. 3) Pre: ACC (BUS) 202 and BAI (BUS) 210 or STA 308.

FIN 336 (BUS) Commercial Property and Liability Insurance LEC (3 crs.) Analysis of commercial property and liability risk exposures and their related coverages. Coverage includes general property and liability insurance and specialized topics for marine, fidelity, surety, and professional liability exposure. (Lec. 3) Pre: FiN (BUS) 220 or 220H.

FIN 337 (BUS) Life Insurance LEC (3 crs.) Analysis of the many types of life insurance and health insurance contracts, computation of premiums and reserves, and contract interpretation. Included is an analysis of the uses of life insurance contracts. (Lec. 3) Note: This course is preparation for the Rhode Island state licensing examination in life and accident and health insurance and for Part I of the charter life underwriter examination. Pre: FIN (BUS) 220 or 220H.

FIN 338 (BUS) Social Insurance LEC (3 crs.) Analysis of the network of state and federal economic security programs including the OASDHI system, unemployment compensation, temporary disability programs, and the workers' compensation system. (Lec. 3) Pre: ECN 201 or EEC 105 and ACC (BUS) 202, FIN (BUS) 220 or 220H.

FIN 390 Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

FIN 420 (BUS) Advanced Financial Management LEC (3 crs.) Intensive research on selected current topics relating to the financial management of the firm. Extensive use of the case method. (Lec. 3/Online) Pre: BAI (BUS) 211, FIN (BUS) 220 or 220H or permission of instructor. Not for M.B.A. credit.

FIN 421 (BUS) Derivative Securities and Risk Management LEC (3 crs.) Valuation theories for derivative instruments including options, futures, and swap contracts. Normative analytics for real-time hedging of instruments, equity and fixed-income portfolios. Introduction to comparative algorithmic risk management. (Lec. 3) Pre: FIN (BUS) 220 or 220H or permission of instructor.

FIN 422 (BUS) Student Investment Fund I SEM (3 crs.) Students analyze industries and companies and manage stocks owned by the Alumni Association. (Seminar) Pre: FIN (BUS) 321.

FIN 423 (BUS) Student Investment Fund II SEM (3 crs.) Students analyze industries and companies and manage stocks owned by the Alumni Association. (Seminar) Pre: FIN (BUS) 321.

FIN 424 (BUS) Fixed Income Security Analysis LEC (3 crs.) Pricing and institutional arrangements of fixed income securities such as corporate bonds, mortgage loans, and mortgage-backed securities; portfolio management of fixed income securities. (Lec. 3) Pre: FIN (BUS) 220 or 220H, and FIN (BUS) 321. Not for graduate credit.

FIN 425 (BUS) Mutual Funds Management LEC (3 crs.) Overview of mutual funds business. Portfolio management, risk management techniques, shareholder servicing, federal and state regulatory oversight, marketing and distribution, custody, technology, and societal issues. (Lec.3) Pre: FIN (BUS) 220 or 220H, and FIN (BUS) 321, or permission of instructor.

FIN 426 (BUS) Bank Financial Management LEC (3 crs.) Nature of the financial decisions facing the management of an individual bank. Current bank financial practices, research, and appropriate banking models considered. (Lec. 3) Pre: FIN (BUS) 220 or 220H, and FIN (BUS) 321, or permission of instructor.

FIN 427 (BUS) Financial Theory and Policy Implications LEC (3 crs.) Examination of the determinants of long-run financial success of the firm. Includes a study of how the capital budgeting process is linked to capital structure management. (Lec. 3) Pre: FIN (BUS) 220 or 220H. Not for M.B.A. credit.

FIN 428 (BUS) International Finance LEC (3 crs.) International financial background and history. Trade, national income accounting, and balance of payments. Currency markets, multinational firms, and currency risk management. International monetary system, exchange rate determination, parity conditions and exchange rate forecasting, country risk analysis, foreign exchange market, and currency derivatives. Corporate strategy, treasury function, cost of capital, foreign direct investment, international financial reports and capital budgeting for international, multinational, global and transnational companies. (Lec. 3/Online) Pre: FIN (BUS) 220 or 220H or permission of instructor. Not for M.B.A. credit.

FIN 429 (BUS) Global Investment Management LEC (3 crs.) Detailed analysis of the problems encountered in the process of investing funds in international capital markets. Particular attention is devoted to multi-currency dimensions, foreign information sources, and foreign regulations. (Lec. 3) Pre: FIN (BUS) 220 or 220H, and FIN (BUS) 321.

FIN 430 (BUS) Basic Managerial Economics LEC (3 crs.) Introduction to the classic theories of demand, production, and cost management in the context of modern financial theory. Includes empirical model building using microcomputers. (Lec. 3) Pre: FIN (BUS) 220 or 220H. Not for graduate credit.

FIN 435 (BUS) Topics in Risk Management SEM (3 crs.) Analysis of selected topics and current issues in the insurance marketplace. Topics will vary from semester to semester. (Seminar) Pre: FIN (BUS) 220 or 220H, FIN (BUS) 335, and FIN (BUS) 337, or permission of instructor.

FIN 491 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

FIN 492 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

FIN 493 Internship in Finance PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: admission into internship program, and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

FIN 604 (BUS) Doctoral Research Seminar SEM (3 crs.) Provides a rigorous analysis of current research questions and research techniques used to address those questions in the finance discipline. Recent developments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

FIN 691 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

FIN 692 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

FIN 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

FLM | Film Media

FLM 100 Introduction to Film/Media for Online Programs ONL (3 crs.) Introduction to techniques of film practice for medical professionals, including film history, genres, analysis of film texts, and reading of film images in their aesthetic, cultural, and literary context. (Accelerated Online Program) (A4) (C2)

FLM 101 Introduction to Film Media LEC (4 crs.) Introduction to techniques of film practice, film history, genres, analysis of film texts, and reading of film images in their aesthetic, cultural, and literary context. (Lec. 4/Online) (A4) (C2)

FLM 101H Honors Section of FLM 101: Introduction to Film Media LEC (4 crs.) Honors Section of FLM 101: Introduction to Film Media. (Lec. 4/Online) Pre: Must have a 3.40 overall GPA. (A4) (C2)

FLM 110 Introduction to Film Media Production Technologies LEC (4 crs.) Introduction to single-camera field production styles and aesthetics with emphasis on camera operation, lighting and editing by means of fundamental critical studies, field projects, studio supervision and experience. (Lec. 3, Lab. 2)

FLM 203 Film Theory LEC (4 crs.) Introduction to film theory and criticism through examination of a variety of modes of film-making

that explore specific topics and traditions in the history, art and development of the moving image. (Lec. 4) (A4) (B1)

FLM 204 History of Film I LEC (4 crs.) A survey of world cinema from its invention in the 1890's to the early 1950's, examining the production, distribution, and exhibition of narrative, documentary and experimental, among other forms of film. (Lec. 4/Online) (A4) (C2)

FLM 205 History of Film II LEC (4 crs.) A survey of world cinema from the 1950's to 2000, examining the production, distribution and exhibition of narrative, documentary and experimental among other forms of film. (Lec. 4/Online) (A4) (C2)

FLM 206 History of Film III: The 21st Century LEC (4 crs.) A survey of world cinema in the 21st century, examining the production, distribution and exhibition of narrative, documentary and experimental among other forms of film. (Lec. 4/Online) (A4) (C2)

FLM 220 Topics in Intermediate Film Production LEC (4 crs.) Lectures and practical projects providing aesthetic and technical proficiency in components of video camera handling, lighting, sound, and/or editing methods and filmmaking techniques, strategies and protocols. May be repeated for a maximum of 12 credits with change of topic. (Lec. 4) Pre: FLM 110 or permission of instructor.

FLM 306 Audio Media LEC (4 crs.) Cross-listed as (COM), FLM 306. Basic audio production concepts and techniques for radio, film, and music. Students completing this course are eligible to take the Pro Tools 101 pre-certification exam. (Lec. 3, Online 1)

FLM 312 Introduction to Video Games: Design and Development LEC (4 crs.) Cross-listed as (SCM), ART, COM, FLM 312. Introduces video game development through the perspective of artistic design and production. Projects include pitches, storyboards and mock-ups, narratives and scripts, and prototypes. Entails substantial collaborative work. (Lec. 3, Studio 2) Pre: sophomore standing.

FLM 344 The Athlete: Short Films LEC (4 crs.) Cross-listed as (COM), FLM 344. Students shall study and produce short films representing stories of student athletes past & present. The course will prepare students to engage approaches to documentary, commercials, narrative and experimental films. (Lec. 4) Pre: COM 342 or FLM 351 or FLM 445 or permission of instructor.

FLM 351 Topics in Film Media Production LEC (4 crs.) Application of one or more production technologies in film media genres and analysis of their aesthetic implications. (Lec. 3, Lab. 2/Online) Pre: FLM 110 and sophomore standing or permission of instructor. May be repeated for a maximum of 12 credits with permission of the director and change of topic.

FLM 352 Topics in Film Media Critical Studies LEC (4 crs.) Critical examination of historical, theoretical and aesthetic topics in world cinema. (Lec. 3, Lab. 2/Online) Pre: sophomore standing or permission of instructor. FLM 101, 204 or 205 recommended. May be repeated for a maximum of 12 credits with permission of the director and change of topic.

FLM 406 Advanced Audio Media LEC (4 crs.) Cross-listed as (COM), FLM 406. Advanced audio production for media including radio, music, and film. Upon completing, students with Pro Tools 101 pre-certification will be eligible for Pro Tools 110 certification. (Lec. 3, Online 1) Pre: COM/FLM 306.

FLM 417 Media Industry History & Practice LEC (4 crs.) Cross-listed as (FLM) COM 417. Examines the industrial parameters of current and past media industries. The key economic and commercial factors and how these have influenced the shape of the current industry are highlighted. (Lec. 4) Pre: junior standing or permission of instructor.

FLM 444 Advanced Topics in Documentary Film Media Production LEC (4 crs.) Critical examination and research of selected historical, theoretical or aesthetic issues in international documentary filmmaking. (Lec. 3, Lab 2) Pre: junior standing or permission of instructor; FLM 101 and 204 or 205. May be repeated once with permission of the instructor and with change of emphasis. Not for graduate credit.

FLM 445 Advanced Topics in Film Media Production LEC (4 crs.) Advanced study and practice of production techniques, technologies and aesthetics through projects, studio supervision and field experience. (Lec. 3, Lab. 2) Pre: junior standing or permission of instructor, and either ART 215 or COM 341 or COM 342 or JOR 331 or FLM 351. May be repeated with change of emphasis and permission of instructor. Not for graduate credit.

FLM 451 Advanced Topics in International Film Media LEC (4 crs.) Cross-listed as (FLM), ENG, CLS 451. Study of international film genres from one or more national, regional or diasporic cultures and traditions. Emphases on theoretical, historiographic and media research methods. (Lec. 3, Lab. 2) Pre: junior standing or permission of instructor. FLM 204 or 205 recommended. May be repeated for a maximum of 8 credits with change of emphases or topics. (A4) (C2)

FLM 477 Field Experience in Film Media PRA (1-6 crs.) Structured academic work in a business, industry, educational, or agency setting. May be repeated as needed with permission of program director or faculty advisor. (Practicum) Pre: permission of faculty advisor.

FLM 491 Directed Studies in Film Media IND (1-6 crs.) Directed Study for students wanting to do advanced work in film media. Individual research and reports on problems of special interest (Independent Study). Pre: Acceptance of project by faculty member and approval by program director. May be repeated for a total of 6 credits.

FLM 495 Seminar in Film Media SEM (4 crs.) An intensive, interdisciplinary capstone course; exploring writings and ideas about film across two or more fields of study; or examining cross-cultural themes and issues in world cinema. Topic to be announced. (Seminar) Pre: FLM 101 and 203 or ENG 302 or permission of instructor.

FLM 496 Seminar in Film Media Production SEM (4 crs.) Intensive, interdisciplinary capstone course focused on film/video production representing a culmination of work in the major, as an opportunity to integrate and advance previous coursework through an extended individual project. (Seminar) Pre: FLM 110, FLM 220, FLM 351, and junior standing or permission of instructor.

FOS | Forensic Science

FOS 392 Introduction to Criminalistics LEC (3 crs.) Cross-listed as (CHM), FOS 392. A class designed to introduce students to the basic areas and issues in forensic science in criminalistics. It is required for students seeking a forensic science minor. May not be repeated for credit. May not be taken in the same semester as CHM 391. (Lec. 3)

FRN | French

FRN 101 Beginning French I LEC (3 crs.) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior French is required. Will not count toward the language requirement if the student has studied French for more than one year within the last six years. (C2) (A3)

FRN 102 Beginning French II LEC (3 crs.) Continuation of FRN 101. Students enrolling in this course should have taken FRN 101 or equivalent. (Lec. 3) (A3) (C2)

FRN 103 Intermediate French I LEC (3 crs.) Development of facility in reading texts of moderate difficulty; supplemented by further work in grammar, conversation, and composition. Students enrolling in this course should have taken FRN 102 or equivalent. (Lec. 3) (A3) (C2)

FRN 104 Intermediate French II LEC (3 crs.) Continuation of FRN 103. Students enrolling in this course should have taken FRN 103 or equivalent. (Lec. 3) (C2) (A3)

FRN 120G Multicultural France through Film SEM (3 crs.) Examination of multicultural France and the Francophone world through film. Themes include immigration, diversity, identity, and citizenship. Course taught in English. Not for major credit in French. (Seminar) (A3) (C3) (GC)

FRN 151 Franco-American Relations (in English) LEC (3 crs.) Study of Franco-American relations from the American and French Revolutions to the present. Taught in English (Lec. 3/Online). Not for major credit in French. (A3) (C2)

FRN 152 Contemporary France ONL (3 crs.) Study the French identity through selected readings and films. Analyze how language, economy, cuisine, politics, and cinema have defined the French and examine the polemics around these topics now. (Online) (C2)

FRN 201 French Pronunciation LAB (1 cr.) The sounds of French; relationship between spelling and pronunciation; regional variation. Practice in pronouncing French prose and poetry. (Lab. 2) Pre: FRN 104 or equivalent or permission of instructor.

FRN 204 French Composition I LEC (3 crs.) Practice in writing French; topics selected from everyday events and readings in French; emphasis on vocabulary building; some grammar study, frequent compositions. Students enrolling in this course should have taken FRN 104 or equivalent. (Lec. 3) (C2) (A3)

FRN 207 French Oral Expression I LEC (3 crs.) Training in the spontaneous use of oral French. Students will extend the quantity and quality of spoken French that they are able to produce. Special focus on narration or storytelling in French. Students enrolling in this course should have taken FRN 104 or equivalent. (Lec. 3) (C2) (A3)

FRN 304 French Composition II LEC (3 crs.) Writing of literary French. Frequent compositions and critiques with emphasis on the stylistic devices. Recommended for those concentrating in French. (Lec. 3) Pre: FRN 204. (B4) (C3)

FRN 307 Oral Expression II LEC (3 crs.) Discussion, short speech making, pronunciation, everyday vocabulary, and improvement of conversation. Matters of current interest in French selected by instructor and students. (Lec. 3) Pre: FRN 207. (C2) (A3)

FRN 309 French Culture and Literature to 1789 LEC (3 crs.) Survey of the significant developments in the arts, society, and literature in France from the Middle Ages to the French Revolution. (Lec. 3) Pre: FRN 204 or permission of instructor. (C1) (A3)

FRN 310 Modern French Culture and Literature LEC (3 crs.) Survey of the significant developments in the arts, history, and literature in France from the French revolution to the present. (Lec. 3) Pre: FRN 204 or permission of instructor.

FRN 315 French Internship Abroad PRA (3 crs.) Supervised work experience in a French-speaking country for advanced language students. (Practicum) Pre: FRN 200-level French course or equivalent or permission of instructor.

FRN 316 French Internship Abroad PRA (3 crs.) Supervised work experience in a French-speaking country for advanced language students. (Practicum) Pre: FRN 200-level French course or equivalent or permission of instructor.

FRN 318 French Across the Curriculum LEC (1 cr.) Reading and discussion of original French texts in conjunction with courses throughout the university curriculum. Designed to maintain and improve French language skills and to enrich study through exposure to texts in the original language. (Lec. 1) Pre: permission of instructor. May be repeated.

FRN 320 Studies in French Cinema LEC (3 crs.) Study of major French/Francophone film genres and of prominent French/Francophone directors. Topics include Films of Luc Besson, Survey of French Cinema, and French Film Comedies. Emphasis will vary. Course taught in English. Students counting the course for a major or minor in French are required to do all written work in French and must have credit for FRN 204 and FRN 207. May be repeated with different topics for a maximum of 9 credits. (Lec. 3/Online) (C2) (A3)

FRN 350 Topics in French for Specific Purposes LEC (3 crs.) Prepares students to use French in settings that require specific knowledge or practices. Focuses on language skills. Includes cultural knowledge and techniques for independent learning. (Lec. 3) Pre: FRN 204 and FRN 207 or permission of the instructor. (B2) (D1)

FRN 392 Nineteenth-Century Literature in Translation LEC (3 crs.) Reading in translation of selected literary works from representative 19th-century authors. (Lec. 3/Online) Not for major credit in French.

FRN 393 Twentieth-Century Literature in Translation LEC (3 crs.) Reading in translation of selected literary works from representative 20th-century authors. (Lec. 3/Online) Not for major credit in French.

FRN 397 Directed Study IND (1-3 crs.) For advanced student at the 300-level. Individual research and reports on problems of special interest. (Independent Study) Pre: Acceptance of a project by a faculty member and approval of section head. May be repeated for a total of 6 credits.

FRN 412 Topics in French Culture and Literature LEC (3 crs.) Topics in French literature and culture. (Lec. 3/Online) Pre: FRN 309 or 310 or permission of instructor. May be taken more than once for credit on different topics.

FRN 474 African Literature in French LEC (3 crs.) Authors of Africa and the Diaspora; includes Camara, Cesaire, Dadie, Senghor. (Lec. 3) Pre: FRN 309 or 310 or permission of instructor.

FRN 480 Business French LEC (3 crs.) Study of concepts and terminology relating to the French business world. (Lec. 3) Pre: junior standing, credit or concurrent enrollment in at least one 300-level French language course.

FRN 497 Directed Study IND (3 crs.) For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of a project by a faculty member and approval of section head.

FRN 498 Directed Study IND (1-3 crs.) For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of a project by a faculty member and approval of section head.

GCH | Grand Challenges

GCH 101G Interdisciplinary Topics in Civic Knowledge and Responsibilities LEC (3-4 crs.) Study of important contemporary interdisciplinary topics with substantial relevance to civic knowledge and responsibilities, incorporating substantial attention to ethics. (Lec. 3-4) (C1) (GC)

GCH 101GH Honors Section of GCH101G: Interdisciplinary Topics in Civic Knowledge and Responsibilities LEC (3-4 crs.) Study of important contemporary interdisciplinary topics with substantial relevance to civic knowledge and responsibilities, incorporating substantial attention to ethics. (Lec. 3-4) Pre: Must have a 3.4 GPA or higher. (C1) (GC)

GCH 102G Interdisciplinary Topics in Diversity and Inclusion LEC (3-4 crs.) Study of important contemporary interdisciplinary topics with substantial relevance to diversity and inclusion, incorporating substantial attention to ethics. (Lec. 3-4) (C3) (GC)

GEG | Geography

GEG 101 World Geography LEC (3 crs.) An examination of major world regions. Basic geographic concepts are presented. Physiographic, political, economic, social, and cultural influences are addressed in a spatial context. (Lec. 3)

GEG 104 Political Geography LEC (3 crs.) Pattern of political units throughout the world; special emphasis on boundaries, newly independent nations, and other aspects of political control over territory. (Lec. 3)

GEG 202 Introductory Urban Geography: Understanding Cities LEC (3 crs.) Cross-listed as (CPL), GEG 202. Introduction to the origin and development of cities in the U.S.; contemporary urban issues as well as the planning and governance of cities in the U.S. (Lec. 3/Online) (A2) (C1)

GEG 488 Geographic Applications in the K-12 Curricula LEC (3 crs.) Learning how geography interrelates with other topical curricula. Classroom teachers integrate geographic concepts, for lesson plan development using National Geographic Standards and other source materials, into their subject specialization. Emphasis on the spatial aspects of all curricula. (Lec. 3)

GEO 100G Environmental Geology LEC (3 crs.) An introduction to geology with an emphasis on the interaction between the Earth and its human population. Evaluation of the solid earth, natural hazards (such as earthquakes, volcanic eruptions and landslides), natural resources (such as oil and coal), air and water pollution and the effects of climate change. (Lec. 3/Online) (A1) (C2) (GC)

GEO | Geosciences

GEO 103 Understanding the Earth LEC Processes operating within and upon the earth. Relationship of plate tectonics to volcanism, earthquakes, and mountain building. Development and modification of landscapes by rivers, glaciers, wind, waves, and ground water. Environmental implications of geologic processes. (Lec. 3, Lab. 2) (A1) (B4)

GEO 110 The Ocean Planet LEC (3 crs.) Cross-listed as (OCG), GEO 110. Introduces the origin and structure of the solar system; interaction of earth's solid interior, oceans' atmosphere and biosphere with emphasis on earth science; energy resources and present environment on Earth. (Lec. 3) (A1) (B4)

GEO 113 Natural Disasters LEC (3 crs.) The science of natural disasters from a physical, chemical and geological perspective. Understanding of the development of and factors controlling the occurrence of natural disasters. (Lec. 3) (A1)

GEO 120 Geology of U.S. National Parks LEC (3 crs.) Selected parks are used to illustrate geologic processes and age relationships to understand earth history. Includes plate tectonics, volcanic and plutonic activity, glaciation, cave formation, stream and coastal processes, landscape formation. (Lec. 3) (A1) (B4)

GEO 200 Field Based Geoscience Data Analysis LEC (4 crs.) Geoscience field based practices, research, data analysis and interpretation. Students collect, analyze, interpret and present data in guided and independent projects. Focus on transferable skills, independent thinking, and knowledge application. (Lec. 3, Lab. 3) (B3) (B4)

GEO 204 Problem Solving in Earth History LEC (4 crs.) Geological problem solving, emphasizing questions in Earth history. Time, plate movements, ancient environments, climates, and the fossil record introduced in a historical context. (Lec. 3, Lab 2). Pre: GEO 103 or equivalent or permission of instructor. (A1) (B1)

GEO 210 Landforms: Origin and Evolution LEC (4 crs.) Development, distribution, and geologic significance of landforms produced by rivers, glaciers, coastal processes, weathering, and other geomorphic agents. Interpretation of landforms through field studies, topographic maps, and aerial photographs. (Lec. 3, Lab. 2) Pre: GEO 103 or permission of instructor.

GEO 234G Introduction to Water Resources LEC (3 crs.) Cross-listed as (GEO), NRS, EEC 234. Introduction to science and policy related to managing fresh water resources, fundamentals of hydrologic processes, importance of water to human society, environmental impact of water use, global water issues. (Lec. 3) (A1) (GC)

GEO 271 (102) Evolution and Extinction of the Dinosaurs LEC (3 crs.) General introduction to the dinosaurs. Variety, habits, warm-bloodedness, and extinction discussed. Pterosaurs and bird origins presented. (Lec. 3) (A1) (B4)

GEO 271H Honors section of GEO 271 (102): Evolution and Extinction of the Dinosaurs LEC (3 crs.) Honors section of GEO 271 (102): Evolution and Extinction of the Dinosaurs. General introduction to the dinosaurs. Variety, habits, warm-bloodedness, and extinction discussed. Pterosaurs and bird origins presented. (Lec. 3) Pre: must have a 3.40 overall GPA. (A1) (B4)

GEO 272 Introduction to Evolution LEC (4 crs.) Cross-listed as (BIO), GEO 272. Introduction to evolution as the unifying thread in the biosphere. Processes and patterns discussed, including microevolution and macroevolution. Social impact of evolution discussed from a biological perspective. Pre: GEO 102 or one semester of biological sciences, or permission of instructors.

GEO 305G Global Climate Change LEC (4 crs.) Scientific treatment of climate change during the last 100,000 years. Implications for earth systems in context of past climates and future projections. (Lec. 3, Lab. 1) Pre: GEO 100 or 103 or GEO/OCG 110 or permission of instructor. (D1) (GC)

GEO 320 Earth Materials LEC (4 crs.) Hand-sample identification and characterization of minerals and rocks, including crystallography, composition, classification, origin, and relationship to geological occurrence; also includes aspects of soil-forming minerals, ore deposits, and other mineral resources. (Lec. 3, Lab. 2) Pre: GEO 103, credit or concurrent enrollment in CHM 101 or 103. (D1)

GEO 370 Structure of the Earth LEC (4 crs.) Stress and strain relationships as they pertain to rocks. Manifestations of these phenomena in geologic structures and criteria for recognizing them. (Lec. 3, Lab. 2) Pre: GEO 103, PHY 111 and 185 or PHY 203 and 273.

GEO 397 Geosciences Internship PRA (1-6 crs.) Supervised work or research experience in geosciences. (Practicum) Pre: GEO 103, 320, GEO major, approval of department chair.

GEO 404 Environmental Data Acquisition and Analysis LEC (3 crs.) Cross-listed as (OCG), NRS, GEO 404. Introduction to instrument prototyping and measurements in environmental science. Hands-on with data collection: programming microcontrollers, interfacing hardware and software, wireless sensor networks. Data analysis in Python. (Lec. 2, Lab. 1) Pre: MTH 131 or MTH 141.

GEO 405G Indonesia: Biodiversity, Geology, Water Resources LEC (3 crs.) Students apply their knowledge and gain global competency in an off-campus field experience in Indonesia. Travel required; additional costs apply. (Lec. 3) Pre: Permission of instructor.

GEO 450 Introduction to Sedimentary Geology LEC (4 crs.) Principles underlying formation and composition of lithofacies and sedimentary environments. Methods, procedures, and techniques used to study sedimentary processes, depositional environments, sediment and rock sequences, and paleogeography. (Lec. 3, Lab. 2) Pre: GEO 210 and GEO 320, or permission of instructor.

GEO 462 Biogeochemical Cycles LEC (4 crs.) Introduction to processes controlling water chemistry in low-temperature environments in the context of global biogeochemical cycles, including weathering, ion exchange, acid-base chemistry, redox, mineral equilibria, isotopes, and modeling. (Lec. 4) Pre: GEO 103 and CHM 101 or CHM 103, and one from GEO 320 or CHM 124 or CHM 227. Not for graduate credit.

GEO 465 Geophysics LEC (4 crs.) Physical properties and exploration of the Earth¿s solid interior through geophysical techniques with application toward plate tectonics and subsurface imaging. Topics include gravity, magnetics, seismology, heat-flow, and plate tectonics. (Lec. 3, Lab. 1) Pre: GEO 103, PHY 112 or 204, and MTH 132 or 142; or consent of instructor.

GEO 472 Advanced Evolutionary Biology LEC (3 crs.) Cross-listed as (BIO), GEO 472. A survey of modern evolutionary biology, including classic evolutionary theory, phylogenetics, evolution and development, adaptation, mass extinction and genomic evolution. (Lec./Sem. 3) Pre: BIO/GEO 272, or permission of instructor. Not for graduate credit.

GEO 480 Summer Field Camp PRA (4-8 crs.) Geologic field mapping and principles. (Practicum) Pre: GEO 210, 320, 370, and 450 recommended. Course not offered through URI; prior approval of selected camp required by the Department of Geology. Recommended between junior and senior years. Not for graduate credit in geology.

GEO 482 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 482. Innovative remediation technologies for treating contaminated groundwater and sediments:

theory, applications, and limitations of selected methods. Discussion of case studies. (Lec. 4) Pre: permission of instructor. In alternate years. Not for graduate credit.

GEO 483 Hydrogeology LEC (4 crs.) Study and interpretation of groundwater flow systems and the interaction between groundwater and the geologic framework, including: groundwater flow, aqueous geochemistry, groundwater resource evaluation, and groundwater in geologic processes. (Lec. 3, Lab. 2) Pre: GEO 103, 210, and MTH 131 or 141, or permission of instructor.

GEO 484 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 484. Physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab. 2) Pre: GEO 483 or CVE 588 or NRS 510, or permission of instructor. Not for graduate credit. Offered every other year.

GEO 491 Special Topics IND (1-3 crs.) Advanced work for undergraduates under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. Not for graduate credit in geology.

GEO 497 Field Experience in the Geological Sciences LEC (4 crs.) Capstone field trip. (Lec. 2, field trip) Pre: GEO103, declared GEO major or minor, and permission of instructor. Extended field trip required. May be repeated for credit.

GEO 499 Senior Thesis IND (3 crs.) Independent research. Student selects an area of study and works in close conjunction with a faculty member of his or her choice. (Independent Study) Pre: senior standing and permission of instructor. Not for graduate credit in geology.

GEO 500 Graduate Seminar SEM (1 cr.) Weekly seminar series featuring oral presentations of the results of ongoing, topical research. (Seminar) S/U.

GEO 501 Vertebrate Paleontology IND (1-3 crs.) Advanced work in vertebrate paleontology under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

GEO 502 Readings In Paleontology IND (1-3 crs.) Advanced readings in paleontology under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. S/U.

GEO 510 Glacial Sedimentation Research IND (1-3 crs.) Advanced research in glacial sedimentation under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

GEO 511 Quaternary Paleoclimates IND (1-3 crs.) Advanced work in quaternary paleoclimates under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

GEO 512 Seismology LEC (4 crs.) Concepts in modern day and classical seismology. Topics covered: theories of wave propagation, instrumentation, Earth¿s structure and tomography, seismic source theory, earthquake physics. Emphasis on quantitative, mathematical, and physical methods. (Lec. 3, Lab. 1) Pre: permission of instructor.

GEO 515 Glacial Geology LEC Investigation of glacial environments and processes including areas with presently existing glaciers. Emphasis on the development of glacial landscapes and deposits. Field trips in New England area. (Lec. 2, Lab. 3) Pre: graduate or advanced undergraduate standing in environmental, resource, or engineering major.

GEO 519 Marine Environmental Organic Chemistry LEC (3 crs.) Cross-coded with (OCG), GEO, CVE 519. Physico-chemical properties of organic compounds, their transformations and environmental fluxes with a focus on marine topics. Offered alternate years. (Lec. 3) Pre: graduate standing or permission of instructor.

GEO 525 Chemistry of the Earth LEC (3 crs.) Cross-listed as (OCG), GEO 525. Analysis of the solid Earth, ocean and atmosphere as a geological/chemical/biological system. Fundamentals of geochemistry will be developed within the context of broad Earth science questions: Earth formation, differentiation, evolution and human impacts. (Lec. 3) Pre: graduate or advanced undergraduate standing in a science major or permission of instructor.

GEO 530 Petrogenetic Igneous Processes LEC (4 crs.) Examination of key physico-chemical processes responsible for the diversity of igneous rocks and igneous activity. Emphasis on geochemistry, petrography, field relationships, and tectonic setting. (Lec. 3, Lab. 2) Pre: GEO 320 or permission of instructor. In alternate years.

GEO 531 Metamorphic Petrology LEC (3 crs.) Facies concept and other methods of interpreting metamorphic mineral assemblages. Chemical and fabric changes during metamorphism, including principles of structural petrology. (Lec. 2, Lab. 3) Pre: GEO 321 or permission of instructor. In alternate years.

GEO 532 Analytical Geochemistry IND (1-3 crs.) Advanced work in analytical geochemistry under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

GEO 533 Readings in Petrology and Geochemistry SEM (1-3 crs.) Seminar in petrology and geochemistry with readings drawn from the current professional literature. (Seminar) Pre: permission of instructor. S/U credit.

GEO 535 Geospatial Watershed Modeling LEC (3 crs.) Cross-listed with (GEO) NRS, CVE 535. Tools to simulate the water quantity and quality of a complex watershed; development of models for examining the water quantity and quality issues that are associated with watershed management. (Lec. 2, Lab. 2) Pre: NRS 461 or GEO 483 or CVE 475 or equivalent, or graduate standing, or permission of instructor.

GEO 551 Coastal Sedimentation Research IND (1-3 crs.) Advanced research in coastal sedimentation under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

GEO 552 Readings In Sedimentation SEM (1-3 crs.) Seminar in sedimentary geology with readings drawn from the current professional literature. (Seminar) Pre: permission of instructor. S/U credit.

GEO 562 Biogeochemical Cycles LEC (4 crs.) Introduction to processes controlling water chemistry in low-temperature environments in the context of global biogeochemical cycles, including weathering, ion exchange, acid-base chemistry, redox, mineral equilibria, isotopes, and modeling. (Lec. 4) Pre: Graduate standing or permission of instructor.

GEO 565 Geophysical Models LEC (3 crs.) Model interpretation of gravity, magnetic, and geoelectric field surveys with geologic constraints. Conversion of quantitative geophysical models into geologic/hydrologic structures. (Lec. 2, Lab. 2) Pre: MTH 132, PHY 112 or equivalent. Offered in spring of odd-numbered years.

GEO 568 Isotopes In Hydrogeology LEC (3 crs.) Use of environmental isotopes in groundwater studies; dating groundwater, delineating flow paths and identifying recharge areas; geochemical evolution of groundwater and assessment of contamination. (Lec. 3) Pre: GEO 483 and 468 or permission of instructor. Offered in even-numbered years.

GEO 572 Advanced Evolutionary Biology LEC (3 crs.) Cross-listed as (BIO), GEO 572. A survey of modern evolutionary biology, including classic evolutionary theory, phylogenetics, evolution and development, adaptation, mass extinction and genomic evolution. (Lec./Sem. 3) Pre: BIO/GEO 272, graduate standing, or permission of instructor.

GEO 577 Coastal Geologic Hazards LEC (3 crs.) Geologic hazards in the coastal zone and their impact on people. Includes waves, storm-surge, mass-wasting, and sea-level rise. Geologic effectiveness of engineering structures and management techniques. Emphasis on field study. (Lec. 2, Lab. 3) Pre: graduate or advanced undergraduate standing in environmental, resource, or engineering major.

GEO 580 New England Geology LEC (3 crs.) Review of the bedrock geology of New England, and its applications for the Appalachian/Caledonides mountain chain and theories of orogenesis. Mandatory

field trips. (Lec. 3) Pre: GEO 320 or 370, or permission of instructor. Offered in fall of odd-numbered years.

GEO 581 Topics In Tectonic Geology SEM (3 crs.) Review of selected topics in continental and oceanic tectonics. (Seminar) Pre: permission of instructor. Offered in fall of even-numbered years.

GEO 582 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), EVS 582, NRS 582. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. Offered alternate years (Lec. 4) Pre: permission of instructor.

GEO 583 Groundwater Modeling LEC (3 crs.) Numerical modeling of ground-water flow and solute transport. Numerical methods, model conceptualization, assumptions, boundary conditions, and complex aquifer systems. Modeling exercises including full-scale modeling project using MODFLOW. (Lec. 2, Lab. 3) Pre: GEO 483, or NRS 461 or CVE 588, or permission of instructor. Offered in odd-numbered years.

GEO 584 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), EVS, NRS 584. Develop an understanding of the physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab 2) Pre: GEO 483 or CVE 588 or NRS 510 or permission of instructor.

GEO 586 Readings in Hydrogeology SEM (1-3 crs.) Seminar in hydrogeology with readings drawn from the current professional literature. (Seminar) Pre: permission of instructor. S/U credit.

GEO 587 Environmental Hazards, Risks, Response, and Safety LEC (3 crs.) Cross-listed as (GEO), EVS 587. Environmental, health, and safety regulations and requirements for working with hazardous materials and at hazardous waste site-related work sites. Emphasis on application of knowledge and skills needed to anticipate, recognize, evaluate, and determine controls for various hazards and risks that may be encountered at site investigations, at waste sites, and in the industrial workplace. Includes opportunity to earn OSHA 40-hour certification. (Lec. 3) Pre: Permission of instructor. Respirator clearance required prior to start of classes.

GEO 589 Environmental Hazards, Risks, Response, and Safety: Refresher LEC (1 cr.) Cross-listed as (GEO), EVS 589. Review of the environmental, health, and safety requirements for working with hazardous materials and at hazardous waste site-related work activities. Includes opportunity to earn OSHA 8-hour refresher certification. (Lec. 1) Pre: GEO or EVS 587 or permission of instructor (current OSHA 40-hour HAZWOPER certificate required). May be repeated, but not for program credit.

GEO 590 Special Problems IND (1-3 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

GEO 591 Special Problems IND (1-3 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. S/U credit.

GEO 601 Environmental Sciences Seminar SEM (1 cr.) Cross-listed as (EVS), GEO 601. Guest speakers present the results of research in the field of environmental sciences with special focus on hydrologic environments. (Seminar)

GEO 920 Geoscience Workshop for Teachers WRK (1-3 crs.) Current issues in Geosciences. Specific topics offered for in-service teachers and administrators. May be repeated with different topic. (Workshop/Online) Pre: teacher certification.

GER | German

GER 101 Beginning German I LEC (3 crs.) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3/Online) Pre: no prior German is required. Will not count toward the language requirement if the student has studied German for more than one year within the last six years. (A3) (C2)

GER 102 Beginning German II LEC (3 crs.) Continuation of GER 101. Students enrolling in this course should have taken GER 101 or equivalent. (Lec. 3/Online) (A3) (C2)

GER 103 Intermediate German I LEC (3 crs.) Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. Students enrolling in this course should have taken GER 102 or equivalent. (Lec. 3) (A3) (C2)

GER 104 Intermediate German II LEC (3 crs.) Continuation of GER 103. Students enrolling in this course should have taken GER 103 or equivalent. (Lec. 3) (A3) (C2)

GER 105 Basic Conversation I LEC (1 cr.) Practice in conversational skills. (Lec. 1) Pre: credit or concurrent enrollment in GER 103.

GER 106 Basic Conversation II LEC (1 cr.) Continued practice in conversational skills. (Lec. 1) Pre: credit or concurrent enrollment in GER 104.

GER 111 Intensive Beginning German I LEC (4 crs.) Study of the fundamentals of German with special emphasis on listening and speaking skills. (Lec. 3, Rec. 1/Online) Not for major credit in German. (A3) (C2)

GER 112 Intensive Beginning German II LEC (4 crs.) Study of the fundamentals of German with special emphasis on listening and speaking skills. Students enrolling in this course should have taken GER 111 or equivalent. (Lec. 3, Rec. 1/Online) (A3) (C2)

GER 113 Intensive Intermediate German I LEC (4 crs.) Practice in listening and speaking. Development of basic reading and writing skills. Review of grammatical structure. Students enrolling in this course should have taken GER 112 or equivalent. (Lec. 3, Rec. 1) (A3) (C2)

GER 114 Intensive Intermediate German II LEC (4 crs.) Practice in listening and speaking. Development of basic reading and writing skills. Review of grammatical structure. Students enrolling in this course should have taken GER 113 or equivalent. (Lec. 3, Rec. 1) (A3) (C2)

GER 201 Intermediate Conversation I LEC (1 cr.) Conversation skills for students who have completed intermediate German. Students enrolling in this course should have taken GER 104 or equivalent. (Lec. 3)

GER 202 Intermediate Conversation II LEC (1 cr.) Continuation of GER 201. Students enrolling in this course should have taken GER 104 or equivalent. (Lec. 3)

GER 205 Conversation and Composition LEC (3 crs.) Development of facility in spoken and written German using contemporary writings and topics; special emphasis on general classroom discussion. Students enrolling in this course should have taken GER 104 or equivalent. (Lec. 3) (A3) (C2)

GER 206 Conversation and Composition II LEC (3 crs.) Development of facility in spoken and written German using contemporary writings and topics; special emphasis on general classroom discussion. Students enrolling in this course should have taken GER 104 or equivalent. (Lec. 3) (A3) (C2)

GER 215 Advanced Conversational German LEC (4 crs.) Intensive practice in speaking and listening, with some attention to writing skills. Students enrolling in this course should have taken GER 114 or equivalent. (Lec. 4) (A3) (C2)

GER 216 Advanced Conversational German LEC (4 crs.) Intensive practice in speaking and listening, with some attention to writing skills. Students enrolling in this course should have taken GER 114 or equivalent. (Lec. 4)

GER 221 Introduction to Business German LEC (1 cr.) Conversational practice in German with emphasis on the acquisition of vocabulary pertinent to international business. (Lec. 1) Pre: GER 112 or equivalent.

GER 305 Advanced Conversation LEC (3 crs.) Intensive practice

in spoken German based on matters of current interest in German-speaking countries. (Lec. 3) Pre: GER 206 or equivalent. In alternate years.

GER 306 Advanced Composition LEC (3 crs.) Training in various forms of writing by means of frequent compositions and critiques. (Lec. 3) Pre: GER 206 or equivalent. In alternate years.

GER 315 Language Study Abroad PRA (6 crs.) Credit for advanced language study in a German-speaking country. (Practicum) Pre: GER 206 or equivalent and permission of section head.

GER 316 Language Study Abroad PRA (3-5 crs.) Credit for advanced language study in a German-speaking country. (Practicum) Pre: GER 206 or equivalent and permission of section head.

GER 327 Introduction to German Studies and Literature LEC (3 crs.) Major developments and figures in German culture, literature, art, and society of the 20th century. (Lec. 3) Pre: GER 206 or permission of instructor.

GER 328 Introduction to German Cultural History and Literature LEC (3 crs.) Overview of major German cultural developments starting with the "Germany" of the Romans and ending with unification. Significant figures and developments in literature, art, and society. (Lec. 3) Pre: GER 206 (or equivalent) or permission of instructor.

GER 408 The German Language: Past and Present LEC (3 crs.) Cross-listed as (GER), LIN 408. Introduction to the history and present state of the German languages. Study of standard and colloquial German, dialects, Swiss and Austrian variations, language of youth and professions. Analysis of various text types. Tendencies in present-day German. (Lec. 3) Pre: 305 or permission of instructor.

GER 411 Advanced Technical German LEC (3 crs.) Cross-listed as (EGR), GER 411. Seminar on advanced scientific and engineering topics in an international context. All reading, discussion, and associated writing is conducted in German. (Lec. 3) Pre: One course at the 300 level in German and junior standing. Not for graduate credit.

GER 421 Business German LEC (3 crs.) Study of the concepts and terminology of the German language common to the realm of international business. Intended for advanced students of business and German. (Lec. 3) Pre: junior standing, credit or concurrent enrollment in GER 305 and 306.

GER 485 Special Studies SEM (3 crs.) Special topics in German literature not emphasized in other courses. (Seminar) Pre: one semester of German at the 300 level or permission of section head. May be repeated with a change in topic. In alternate years.

GER 486 Special Studies SEM (3 crs.) Special topics in German literature not emphasized in other courses. (Seminar) Pre: one semester of German at the 300 level or permission of section head. May be repeated with a change in topic. In alternate years.

GER 497 Directed Study IND (1-3 crs.) Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by a faculty member and permission of section head.

GER 498 Directed Study IND (1-3 crs.) Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by a faculty member and permission of section head.

GER 585 Seminar in German Studies SEM (1-3 crs.) Topics in German literature and civilization. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topics.

GER 586 Seminar In German Studies SEM (1-3 crs.) Topics in German literature and civilization. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topics.

GER 598 Directed Studies IND (1-3 crs.) Individual research on problems of special interest. (Independent Study) Pre: graduate standing, acceptance of project by a faculty member, and permission of chairperson. May be repeated with different topics.

GRK | Greek

GRK 101 Ancient Greek I LEC (3 crs.) Grammar and syntax of Attic Greek, reading practice. (Lec. 3) Pre: no previous Greek is required. Will not count toward the language requirement if the student has studied Greek for more than one year within the last six years. (A3) (C2)

GRK 102 Ancient Greek II LEC (3 crs.) Continuation of GRK 101. Students enrolling in this course should have taken GRK 101 or equivalent. (Lec. 3) (A3) (C2)

GRK 301 Intermediate Greek I LEC (3 crs.) Grammar review; readings such as Lysias' Against Eratosthenes. Students enrolling in this course should have taken GRK 102 or equivalent. (Lec. 3) (A3) (C2)

GRK 302 Intermediate Greek II LEC (3 crs.) Readings selected in accordance with interests of students. Students enrolling in this course should have taken GRK 301 or equivalent. (Lec. 3) May be repeated for credit with a different topic. May be taken once for general education credit. (A3) (C2)

GRK 497 Directed Study IND (1-6 crs.) Individual readings and research. (Independent Study) Pre: acceptance of project by faculty member and approval of chairperson. May be repeated for credit with a different topic. (A3) (C2)

GWS | Gender and Women's Studies

GWS 150 Introduction to Gender and Women's Studies LEC (3 crs.) Images of women, the theories and processes of socialization, historical perspectives, and implications for social change. (Lec. 3/Online) Service learning in some sections. (A2) (C3)

GWS 150H Honors Section of GWS 150: Introduction to Gender and Women's Studies LEC (3 crs.) Images of women, the theories and processes of socialization, historical perspectives, and implications for social change. (Lec. 3/Online) Service learning in some sections. Pre: 3.40 overall GPA. (A2) (C3)

GWS 210G Queer Studies: Identities, Perspectives, and Social Justice LEC (3 crs.) Explores field of queer studies, emphasis on contemporary and historical experiences of LGBTQ individuals and groups. (Lec. 3) (C3) (A2) (GC)

GWS 220 Women and the Natural Sciences LEC (3 crs.) An interdisciplinary perspective on women as practitioners and subjects of the natural sciences; history of women in science; science as a gendered discourse. (Lec. 3) (A1) (B4)

GWS 300 Field Experience In Women's Studies PRA (2-6 crs.) Supervised field work allowing students to learn through direct personal experience about the background, problems, and concerns of particular populations of women. (Practicum) Service Learning. Pre: GWS 150 or 315 or permission of instructor. May be taken or repeated for a maximum of 6 credits.

GWS 301 Women's Professional Development and Leadership LEC (3 crs.) Theory, data and skill development for career building and leadership. Gender issues in organizational settings, developing professional skills and responses to challenges in the workplace, and strategies for positive change. (Lec. 3/Online)

GWS 305 Current Issues in Women's Studies LEC (1 cr.) Research and analysis of one issue such as job discrimination or sex trafficking. Class plans a project addressing the issue. (Lec. 1) Pre: GWS 150. May be repeated once if topic changes.

GWS 306 Practicum in Women's Studies LEC (1 cr.) Practicum. Students work alone or in groups to conduct a project developed in GWS 305. May be repeated once if topic changes. (Lec. 1) Pre: GWS 305.

GWS 308 Sustainable Agriculture and Food Cultures LEC (3 crs.) Cross-listed as (APG), SOC, GWS 308. Comparative study of sustainable food systems and cultures focusing on the sociocultural dynamics of production, distribution, and consumption. Areas include comparative food systems, indigenous food cultures, gender and food, food equity, and food movements. (Lec. 3) Pre: sophomore standing.

GWS 308H Honors Section of APG/SOC/GWS 308: Sustainable Agriculture and Food Cultures LEC (3 crs.) Honors Section of APG/SOC/GWS 308: Sustainable Agriculture and Food Cultures. (Lec. 3) Pre: 3.40 overall gpa and sophomore standing.

GWS 310 Race, Class, and Sexuality in Women's Lives LEC (3 crs.) Interconnections among race, ethnicity, class, and sexuality and the impact of sexism, racism, classism, and heterosexism on women's lives are investigated. Alliance building among women is explored. (Lec. 3) Pre: GWS 150 or HPR 110 or GWS 315 or permission of instructor.

GWS 315 Introduction to Feminist Theories and Methodologies LEC (3 crs.) Development of feminist thought, exploration of contemporary feminist theories and research methods, including African-American, lesbian, Western and non-Western perspectives, and the future role of feminist theories and methodologies. (Lec. 3/Online) Pre: GWS 150 or permission of instructor.

GWS 320 Feminisms Into Action LEC (3 crs.) Analyses and discussions of how global feminists' strategies work to impact social change. Civil and human rights. Political thought, analyses and activism in campaigns for gender and women's rights. (Lec. 3) Pre: GWS 150 or permission of instructor. (D1) (C1)

GWS 325G International Women's Issues LEC (3 crs.) Focuses on women's rights in a global context, ideologies and practices that deny women equal status in society, including violence against women, freedom and democracy movements and women's rights. (Lec. 3/Online) Pre: GWS 150 or permission of instructor. (A2) (C2) (GC)

GWS 330 Gender and the Holocaust ONL (3 crs.) This course will examine the Holocaust, Nazi ideology, and antisemitism from the perspective of gender. It will include consideration of Jewish and non-Jewish victims, perpetrators, rescuers, and bystanders. (Online)

GWS 332 Gender and Revolutions ONL (3 crs.) This course will examine the role played by gender in revolutions by looking at the way gender has inspired revolutions and the impact of revolutions on gender identity, and stereotypes. (Online)

GWS 346 (BUS) Gender in Organizations LEC (3 crs.) Cross-listed as (MGT), GSW 346. This course examines intersection of work dynamics and gender that has become critical due to the rapidly changing landscape of business. Addresses the macro and micro effects of gender in the workplace, including the complex reasons for the lack of representation of women in senior leadership positions-within the United States and in the larger global context - "gendered" communication at work, and career and work-life effectiveness for both women and men. (Lec. 3) Pre: MGT (BUS) 341 recommended.

GWS 350 Special Topics in Women's Studies LEC (3 crs.) Selected areas of study pertinent to gender and women's studies. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Lec.3/Online) Topics include "Women and War," "Media Images of Women," "Narrative of the Witch," "Women and Aging," "Women and Health," "Women and the Law," "Women and Music," "Women and Religion," "Women and Business Culture," and "Women in Islam," and "Women in Film." Some topics may be offered online. May be repeated with different topic.

GWS 350H Honors Section of GWS 350: Special Topics in Women's Studies LEC (3 crs.) Honors Section of GWS 350: Special Topics in Women's Studies. (Lec. 3/Online) Pre: 3.40 overall gpa.

GWS 351 Special Topics in Women's Studies LEC (3 crs.) Selected areas of study pertinent to gender and women's studies. Instruction may be offered in class seminar or tutorial environments according to specific needs and purposes. (Lec.3/Online) Topics include "Ecofeminism," "Latin American Women," "Native American Women," "Women and Film," "Women, Violence and Non-violence," "Women and Mental Health," and "Violence Prevention Training." Some topics may be offered online. May be repeated with different topic.

GWS 360 Men and Masculinities SEM (3 crs.) Examines from a feminist perspective, the values, beliefs, myths, realities, research and writings about men and masculinites in contemporary United State life. (Seminar/Online) Pre: GWS 150.

GWS 361 Women's Lives in New England, 1790-1930 LEC (3 crs.) Social, political and literary history of women in New England with an emphasis on women's work and how that work shaped gender relations. Theoretical approaches from women's studies, race and gender studies will inform the treatment of women's history and the history of material culture in New England. (Lec. 3) Pre: junior standing or permission of the instructor.

GWS 365 Sexual Violence LEC (3 crs.) Analysis of sexual violence, abuse, and exploitation. The history and politics of society's recognition of trauma and development of approaches to recovery. The psychological, social, and political harm of sexual violence to victims and society. (Lec. 3) Pre: GWS 150 or permission of the instructor.

GWS 370 Sex Trafficking LEC (3 crs.) Focuses on the commercial sexual exploitation and slavery of women and girls and the impact on their health, rights, and status in society. (Lec. 3/Online) Pre: GWS 150 or permission of instructor.

GWS 373 (370) Environmental Injustice LEC (3 crs.) Cross-listed as (MAF), HIS, GWS 373. Examines environmental issues through a social justice lens. Looking at historical and global contexts, topics may include public health issues, environmental social movements, and "natural" disasters. (Lec. 3) (C3)

GWS 385 Women Writers LEC (4 crs.) Cross-listed as (ENG), GWS 385. Analysis of the poetry, drama, or fiction of women writers. Emphasis on 18th-century, 19th-century, 20th-century, or contemporary authors. May be repeated for credit when taken with different emphasis. (Lec. 3, Project 3) (A3) (B4)

GWS 386 The Economics of Race, Gender, and Class LEC (3 crs.) Cross-listed as (ECN), GWS 386. An economic examination of the historical interrelations of race, class, and gender issues. (Lec. 3) Pre: ECN 100 or 201 or permission of instructor.

GWS 387 Latin American History at the Movies LEC (3 crs.) Cross-listed as (HIS), GWS 387. Latin Americans see themselves very differently than how they are perceived by North Americans. Their self-portrayal, in literature and film, is the key to understanding their history and conflicts. (Lec. 3) Pre: HIS 180 is suggested but not required.

GWS 388 Queer Literatures, Queer Cultures LEC (4 crs.) Cross-listed as (ENG), GWS 388. Study of queer cultural productions, literature, and related theory, with a focus on historical, aesthetic, and political developments in ongoing contestations around the representations of gender, sexuality, and identity. (Lec. 3, Project 3) (A3) (C3)

GWS 400 Critical Issues And Feminist Scholarship SEM (3 crs.) Theoretical and value questions in gender and women's studies; impact of feminist scholarship on traditional disciplines; feminist theory and research methods in selected fields; the future of feminism. (Seminar) Pre: GWS 310 or 315 or 320 and senior standing or permission of instructor.

GWS 401 Human Trafficking and Contemporary Slavery LEC (3 crs.) Focuses on contemporary human trafficking and slavery, including sex trafficking, bonded labor, forced labor, child soldiers, and domestic servant slavery. (Lec. 3/Online) Pre: junior standing or permission of the instructor. Not for graduate credit.

GWS 402 Campaigns and Services for Victims of Trafficking and Slavery LEC (3 crs.) Focuses on historical and contemporary campaigns for ending human trafficking and slavery and on providing services to contemporary victims of human trafficking and slavery. (Lec. 3/Online) Pre: junior standing or permission of instructor. Not for graduate credit.

GWS 410 Portfolio in Women's Studies LEC (1 cr.) Portfolio of student papers and projects as culmination of Gender and Women's Studies course work. (Lec. 1) Pre: GWS majors and minors in senior year. Not for graduate credit.

GWS 430 Women and Human Rights Policy LEC (3 crs.) Focus on women and human rights around the world and human rights policy in the U.S. The human rights movement from the 1970s to the present will be discussed. (Lec. 3/Online) Pre: junior standing.

GWS 441 Women and Politics SEM (4 crs.) Cross-listed as (PSC), GWS 441. Explores the role of women in the American political system, as voters, campaign activists, and office holders, and as members of organized groups in the policy making process. (Seminar 3, Project 1) Pre: PSC 113 or PSC 210 or PSC 310 or permission of instructor. (C3) (D1)

GWS 450 Independent Study IND (3 crs.) Advanced work in gender and women's studies under the direction of a faculty member affiliated with the gender and women's studies program. (Independent Study) Pre: junior or senior standing. May be repeated for a maximum of 6 credits.

GWS 475G Global Perspectives on Reproduction SEM (3 crs.) Cross-list with (SOC), APG, GWS 475G. Explores the impact of inequalities of race, class, age, gender and sexuality on global variations in contraception, fertility, childbirth, and parenthood, and the ethical issues and social forces affecting reproduction. (Seminar) Pre: 300-level coursework in sociology, anthropology, gender and women's studies, or health studies; or permission of the instructor. Not for graduate credit. (A2) (C2)

GWS 490 Advanced Topics In Women's Studies SEM (1-3 crs.) Advanced study in topics of special interest in Gender and Women's Studies. This course will be conducted as a seminar for juniors, seniors and graduate students. Pre: GWS 310 or 315 or 320 and senior standing or permission of instructor. (Seminar/Online) Some topics may be offered online. May be repeated with different topic.

GWS 490H Honors Section of GWS 490: Advanced Topics in Women's Studies LEC (1-3 crs.) Honors Section of GWS 490: Advanced Topics in Women's Studies. (Seminar) Pre: GWS 315 or 310 or 320, and senior standing, and 3.40 or better overall GPA, or permission of instructor.

GWS 490H Honors Section of GWS 490: Advanced Topics in Women's Studies LEC (1-3 crs.) Honors Section of GWS 490: Advanced Topics in Women's Studies. (Seminar) Pre: GWS 315 or 310 or 320, and senior standing, and 3.40 or better overall GPA, or permission of instructor.

GWS 492 Crossing Borders: Writers Writing Their Lives SEM (3 crs.) Cross-listed as (GWS), ENG, WRT 492. This advanced creative nonfiction seminar combines a rigorous commitment to the craft of writing with an investigation of how "crossing borders" functions as a thematic, structural, and feminist framework for helping writers access and create personal essays. (Seminar) Pre: Junior or senior standing or permission of the instructor. (D1) (B1)

GWS 500 Colloquium in Women's Studies SEM (2-3 crs.) Discussion of research methods in gender and women's studies; presentations on current research and issues relevant to women's and gender studies. (Seminar)

GWS 501 Human Trafficking and Contemporary Slavery LEC (3 crs.) Focuses on contemporary human trafficking and slavery, including sex trafficking, bonded labor, forced labor, child soldiers, and domestic servant slavery. (Lec. 3) Pre: graduate standing or permission of instructor.

GWS 502 Campaigns and Services for Victims of Trafficking and Slavery LEC (3 crs.) Focuses on historical and contemporary campaigns for ending human trafficking and slavery and on providing services to contemporary victims of human trafficking and slavery. (Lec. 3) Pre: GWS 501 or permission of instructor.

GWS 550 Independent Study IND (3-6 crs.) Directed readings and research under the supervision of a faculty member arranged to suit the individual requirements of the student. (Maybe repeated for a maximum of 6 credits.) Pre: Graduate standing or permission of faculty member.

HBW | Hebrew

HBW 101 Beginning Hebrew I LEC (3 crs.) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Hebrew is required. Will not count toward the language requirement if the student has studied Hebrew for more than one year within the last six years. (A3) (C2)

HBW 102 Beginning Hebrew II LEC (3 crs.) Continuation of HBW 101. Students enrolling in this course should have taken HBW 101 or equivalent. (Lec. 3) (A3) (C2)

HBW 103 Intermediate Hebrew I LEC (3 crs.) Development of facility in reading narrative and expository prose; exercise in grammar, listening comprehension, and speaking. Students enrolling in this course should have taken HBW 102 or equivalent. (Lec. 3)

HBW 104 Intermediate Hebrew II LEC (3 crs.) Continuation of HBW 103. Students enrolling in this course should have taken HBW 103 or equivalent. (Lec. 3)

HDF | Human Development and Family Studies

HDF 130G "This is Us": Individual and Family Development ONL (3 crs.) Students in this course will watch the television show, This is Us, using it as a basis to learn about contemporary issues of human development, family systems, and cultural diversity. (Online) (C3) (GC)

HDF 150 Human Sexuality LEC (3 crs.) Cross-listed as (NUR), HDF 150. Interdisciplinary approach to the study of individual and societal determinants in the development, integration, and expression of human sexuality and a code of sexual behavior. (Lec. 3/Online) (A2) (C3)

HDF 190 Introduction to Leadership Issues LEC (3 crs.) Leadership development course focusing on leadership theories, personal and academic adjustment issues, civic leadership and community service and basic communication skills. Core requirement for the minor in leadership studies (Lec. 3) Pre: permission of instructor.

HDF 191 Standards-Based Early Childhood Curriculum SEM (1 cr.) An introduction to birth through age five curriculum planning based on the Rhode Island Early Learning and Development Standards, including a focus on process, content, teaching and facilitating, and context. (Portfolio)

HDF 200 Life Span Development I LEC (3 crs.) Physical, social, cognitive, and emotional growth and development of young children within the family and varied cultural settings. Review of contemporary issues and their relevance for social policy. (Lec. 3)

HDF 201 Life Span Development II LEC (3 crs.) Physical, social, cognitive, and emotional growth and development from adolescence to senescence. Attention to varied cultural settings and relevant social policy. (Lec. 3)

HDF 202 Research in Human Development and Family Science LEC (3 crs.) Introduction to research processes in human development and family studies. Emphasis on reading and evaluating the research literature and preparing and presenting literature reviews. (Lec. 3/Online) Pre: admission to the HDF or BIS program.

HDF 203 Introduction to Work with Children LEC (4 crs.) Theory and practice in care, teaching, and guidance of preschool children. Lectures, discussion, and participation in a field setting for three hours a week. Students will be placed in practicum sites at either the Kingston or Providence URI CDC lab schools. Service Learning. (Lec. 3, Practicum 1). Pre: HDF or ECE major and HDF 200, or permission of instructor.

HDF 205G Money Skills for Life LEC (3 crs.) An interdisciplinary framework to review important personal financial issues and to offer applicable tools to help students make good financial choices on earning, spending, borrowing, protecting, investing and saving money.(Lec. 3/Online) (A2) (B4) (GC)

HDF 208 Health and Wellness of the Young Child LEC (3 crs.) Prepares individuals working with young children to establish an environment that promotes a positive state of health and well-being so that children can thrive. The course will focus on planning safe environments, promoting physical activity, and establishing routines and positive experiences in the areas of health, safety, and nutrition. (Lec. 3) (A2)

HDF 225 Consumer In The Economy LEC (3 crs.) Application of basic economic principles to consumer problems in a complex marketplace, buyer-seller relationships, effective consumer decision making, effects of government policies on consumers. (Lec. 3/Online) (A2) (B4)

HDF 230 Couple and Family Relationships LEC (3 crs.) Intimate romantic and family relationships are explored across the life span. An emphasis is placed on understanding how personal, cultural, and economic factors impact the quality of family life. (Lec. 3/Online) Pre: HDF major or permission of instructor.

HDF 290 Modern Leadership Issues LEC (3 crs.) Introductory leadership class. Topics include basic leadership theories, international goverance/economic systems, critical thinking, and leadership in U.S. education; community service organizations; families; diverse workplaces. Core option for the leadership studies minor. (Lec. 3) Pre: permission of instructor.

HDF 291 Rose Butler Browne Peer Mentoring Program LEC (3 crs.) Explores cultural identity, adult development, leadership, body image and the media, issues relevant to women of color, community engagement and mentoring. Elective for leadership minors. (Lec. 3) Pre: permission of instructor.

HDF 297 Contemporary Issues In Student Development SEM (1-3 crs.) Student orientation, leadership, and training practices presented by various Student Affairs and other University programs, such as Student Life, Residential Life, Health Services, University College, and Affirmative Action. (Seminar) May be repeated for up to 6 credits. S/U only.

HDF 298 Contemporary Issues in Student Development SEM (1-3 crs.) Student leadership models and practices in various student development settings, such as Student Affairs, Student Life, Residential Life, University College, and Health Services. (Seminar) May be repeated for a maximum of 6 credits.

HDF 305 Family Engagement in Early Childhood Settings LEC (3 crs.) Examination of the professional behaviors for establishing and maintaining positive, ongoing, effective reciprocal relationships with diverse families in various early childhood settings. (Lec. 3) Pre: HDF 230 or acceptance into the Early Childhood Education Teacher Certification Program.

HDF 306 Infant and Toddler Development LEC (4 crs.) Study of development in the first three years including family interaction and early education. Emphasis is on cultural differences in parenting. Supervised observation/participation working with infants and toddlers three hours a week included. (Lec. 3, Practicum 1) Pre: HDF major and HDF 200 or permission of instructor.

HDF 308 (203) Early Childhood Development LEC (4 crs.) Theory and practice in care, teaching, and guidance of preschool children. Lectures, discussion, and participation in a field setting for three hours a week. Students will be placed in practicum sites at either the Kingston or Providence URI CDC lab schools. Service Learning. (Lec. 3, Practicum 1). Pre: HDF or ECE major and HDF 200, or permission of instructor.

HDF 310 Middle Childhood and Adolescent Development LEC (4 crs.) Physical, psychological, social, and emotional growth and development of the individual during adolescence. Observation/participation working with adolescents three hours a week included. (Lec. 3, Prac. 1) Pre: HDF major and HDF 201 or permission of instructor.

HDF 312 Emerging to Middle Adulthood Development LEC (4 crs.) Identification of influences, processes, and forces shaping adult development through the life course. Integration of theory and research with experiential learning. Lecture, discussion, and participation in a field setting. (Lec. 3, Practicum 1) Pre: HDF major and HDF 201 or permission of instructor.

HDF 314 Later Adulthood Growth and Development LEC (4 crs.) Introduction to the study of aging processes: Biological, psychological, and social theories. Health, social, and other age-related problems. Lecture, discussion, and participation in a field setting. (Lec. 3, Practicum 1) Pre: HDF major and HDF 201 or permission of instructor.

HDF 318G Health and Wealth LEC (3 crs.) This course will draw from the disciplines of economics, public policy, public health, and consumer behavior to offer a comprehensive understanding of the intersection of health and wealth. (Lec. 3/Online) (A2) (B4) (GC)

HDF 333 (433) Family Life Education LEC (3 crs.) History, philosophy and goals of Family Life Education including requirements for certification. Program planning, implementation and evaluation. Current issues, trends, research and theory. Emphasis on diversity of clientele and settings. (Lec. 3) Pre: HDF 202.

HDF 352G Adulting in the 21st Century LEC (3 crs.) Examines being an adult in contemporary society. Explores questions related to cultural influences on sense of self, ethical reasoning, and responsible behaviors in family, work, and community contexts. (Lec. 3) Pre: Junior or senior standing. (A2) (C3) (GC)

HDF 357 Family and Community Health LEC (3 crs.) Individual, family and community health concerns throughout the lifespan. Focus on health disparities amongst groups. (Lec. 3/Online) Pre: Junior standing in HDF or permission of instructor.

HDF 381 Exploring Internships in Human Service Agencies ONL (1 cr.) To prepare HDF students to identify goals and professional interests in human services before applying for Senior Field Placement. This course should be taken before HDF481. (Online) Pre: HDF major or permission of instructor. Students must pass both HDF 381 and HDF 481 to receive Gen Ed credits. (D1) (C1)

HDF 400 Child Development: Advanced Course LEC (3 crs.) Review and critique of major theories of child development. Examination of research studies and issues associated with the first decade of life. Emphasis on cultural contexts. (Lec. 3) Pre: HDF 200 or PSY 232, and HDF 202.

HDF 405 Policy Issues in Health and Aging SEM (4 crs.) Cross-listed as (PSC), HDF 405. Analysis of U.S. social policy and programs related to issues of health and aging. Topics include: health care, long term care, retirement, and social services. (Seminar 4) Pre: PSC 310 or HDF 202 or permission of the instructor. (D1) (B3)

HDF 405H Honors Section of PSC/HDF 405: Policy Issues in Health and Aging SEM (4 crs.) Cross-listed as (PSC), HDF 405H. Honors Section of PSC/HDF 405: Policy Issues in Health and Aging. Analysis of U.S. social policy and programs related to issues of health and aging. Topics include: health care, long term care, retirement, and social services. (Seminar 4) Pre: 3.40 overall GPA and PSC 310 or HDF 202 or permission of the instructor. (D1) (B3)

HDF 412 Historical, Multi-Ethnic, and Alternative Leadership LEC (3 crs.) Examines issues of cultural anthropology, critical thinking, theories of inclusion, and crisis leadership. Capstone requirement for leadership minors. (Lec. 3) Pre: permission of instructor and HDF 190 or 290 and junior or senior standing. Not for graduate credit. (C3) (D1)

HDF 413 Advanced Facilitation and Consulting Skills LEC (3 crs.) Examines experiential education, organizational development, facilitation techniques, and ethical issues of peer leadership. Elective for leadership minors. (Lec. 3) Pre: permission of instructor and HDF 190 or HDF 290. Not for graduate credit.

HDF 414 Leadership for Activism and Social Change LEC (3 crs.) Explores issues related to social change, power and privilege, coalition building, non-violence, civic engagement and activist movements. Elective for leadership minors. (Lec. 3) Pre: permission of instructor and HDF 190 or HDF 290. Not for graduate credit. (D1) (C1)

HDF 415 Peer Leadership Issues LEC (3 crs.) Explores mentoring strategies, leadership and identity development models, leadership style, and community involvement. Elective for leadership minors. (Lec. 2, Lab. 2) Pre: Permission of instructor and HDF 190 or HDF 290. Not for graduate credit.

HDF 416 Personal and Organizational Leadership LEC (3 crs.) Topics include leadership theory and style, experiential learning, peer mentoring, critical thinking, quality improvement, and organizational development. (Lec. 3) Elective for leadership minors. Pre: HDF 290 or 190 and permission of instructor. Not for graduate credit.

HDF 417 Internship for Leadership Minors PRA (3 crs.) Supervised internship experience for leadership studies minors. A core requirement for the minor in leadership studies. (Practicum) Pre: permission of instructor and HDF 190 or HDF 290 and enrollment in leadership minor. Not for graduate credit.

HDF 418 Personal Finance LEC (3 crs.) Personal financial planning and decisions for attaining individual and family goals. Factors that affect, protect, and enhance financial security. (Lec. 3/Online) Pre: completion of 24 or more credits and HDF 202.

HDF 420 Early Language and Literacy Development (Birth-5) LEC (3 crs.) Cross-listed as (HDF), EDC 421. Theoretical foundations of language and literacy development from birth through age 5. Examines practical applications of multi-modal language and literacy in diverse populations, including dual language learners. (Lec. 3) Pre: For HDF: HDF 200 and either HDF 202 or PSY 301; For ECE: admission into the Early Childhood Education Teacher Certification Program; or permission of instructor.

HDF 421 Death, Dying, and Bereavement LEC (3 crs.) Cross-listed as (HDF), THN 421. Exploration of human death, dying and bereavement. Focus on biomedical, psychological, social and multicultural dimensions. Implications for social policy. (Lec. 3) Pre: junior standing or above.

HDF 424 Personal Finance Applications LEC (3 crs.) Application of principles of family financial planning and decision making. Emphasis on mathematical and analytical evaluation and analysis including the use of computer software. (Lec. 3/Online) Pre: HDF 418 and HDF 202, or permission of instructor.

HDF 426 Retirement Planning LEC (3 crs.) Explanation and evaluation of financial information needed for effective retirement planning, including defining goals, estimating expenses, and analyzing resources. (Lec. 3/Online) Pre: HDF 418 or permission of instructor.

HDF 428 Consumer Protection LEC (3 crs.) Effectiveness of diverse approaches to consumer protection. Analysis of techniques such as information disclosure, standards for products and services, government and private agencies, redress channels, and legislation. (Lec. 3/Online) Pre: HDF 225 and HDF 202 or permission of instructor.

HDF 430 Family Interaction LEC (3 crs.) Interdisciplinary approach to the dynamics of intrafamily relationships, interactions of family units and family members within the sociocultural environment. Implications for social policy. (Lec. 3) Pre: HDF 202 and 230.

HDF 431 Families and Aging LEC (3 crs.) Cross-listed as (HDF), SOC 431. An analysis of families and interpersonal relationships of older adults. With attention to social, psychological, cultural, economic, and political factors. (Lec. 3) Pre: HDF 202 or SOC 440.

HDF 432 Perspectives on Parenting LEC (3 crs.) Historic examination of childhood and parenting philosophies and comparison of practices among different cultures. Attention to contemporary social policy and practices surrounding parenting. (Lec. 3) Pre: HDF 200 or PSY 232, and HDF 202.

HDF 433 Family Life Education LEC (3 crs.) History, philosophy and goals of Family Life Education including requirements for certification. Program planning, implementation and evaluation. Current issues, trends, research and theory. Emphasis on diversity of clientele and settings. (Lec. 3) Pre: HDF 202.

HDF 434 Children and Families in Poverty LEC (3 crs.) Interdisciplinary approach to understanding the effects of poverty with attention to cultural, political and policy issues and implications. (Lec. 3) Service learning. Pre: senior standing in the major or permission of instructor and HDF 202.

HDF 434H Honors Section of HDF 434: Children and Families in Poverty LEC (3 crs.) Honors Section of HDF 434: Children and Families in Poverty. (Lec. 3) Pre: 3.40 overall GPA, HDF 202, and senior standing in HDF major or permission of instructor.

HDF 437 Law and Families in the United States SEM (3 crs.) Cross-listed as (HDF), SOC 437. Seminar to investigate family roles, relationships, rights, and responsibilities as defined by the law. Emphasis on explicit and implicit family policy revealed in the various branches of law. (Seminar) Pre: HDF 200 and 230 or SOC 212.

HDF 440 Healthy Living Environments for Older Adults LEC (3 crs.) Study of normal aging related changes as design determinants of the physical environment. Identifies theories and models of person-environment interaction and environment-behavior issues and procedures for post-occupancy evaluation studies. (Lec. 3) Pre: HDF 202. (C1) (A2)

HDF 450 Introduction to Counseling LEC (3 crs.) Introduces students in human sciences to interviewing and counseling skills in both professional and paraprofessional settings. Integrates theory, practice, and application by didactic and experiential learning. (Lec. 3) Pre: HDF 230 and junior standing in HDF; or graduate standing, or permission of instructor.

HDF 451 Financial Counseling and Debt Management LEC (3 crs.) Examination of debt and budgeting problems affecting families. Utilization of a problem-solving approach and inclusion of financial counseling strategies for coping with financial issues and becoming proactive in family financial management. (Lec. 3)

HDF 456 Assessment Practicum PRA (3 crs.) Supervised experience in completing cognitive, affective, and psychomotor assessments of young children. (Practicum) Pre: credit or concurrent enrollment in HDF 455. In alternate years.

HDF 460 Therapeutic Play for Children and Youth LEC (3 crs.) Overview of the principles of therapeutic play for children and youth, including theories, technique, application and the skills within a family systems framework. (Lec. 3) Pre: HDF 200 and HDF 202, or permission of instructor

HDF 471 Responding to Grief LEC (3 crs.) Cross-listed as (HDF), THN 471. Examines conceptual, psychosocial, somatic and pragmatic issues faced when grieving and how to cope or assist others accommodating imminent or realized loss due to death. (Lec. 3) Pre: HDF 421, or prior thanatology course, or permission of instructor.

HDF 480 Senior Field Experiences in Community Agencies PRA (6-12 crs.) Senior field experience in community agencies (Practicum) Service learning. Pre: HDF 381 and concurrent enrollment in HDF 481; senior standing and permission of instructor. Registration occurs in the semester preceding the internship. Not for graduate credit. S/U only.

HDF 481 Field Experience Seminar and Reflections SEM (2 crs.) Group discussion of field experience in community agencies and related academic assignments. Includes service learning, reflections and discussions (Seminar) Not for graduate credit. Pre: HDF381, concurrent enrollment in HDF 480, senior standing in the major, and permission of instructor. Students must pass both HDF 381 and 481 to obtain general education credit. (D1) (C1)

HDF 492 Leadership Minor Portfolio SEM (1 cr.) Preparation of portfolios required for graduation with minor in leadership studies. (Seminar) Pre: enrollment in leadership studies minor. Not for graduate credit.

HDF 497 Special Problems LAB (1-3 crs.) Open to qualified seniors who wish to do advanced work primarily consisting of lab or field experiences. Students must obtain written approval from proposed faculty supervisor prior to registration. Pre: senior standing and per-

mission of chairperson. May be repeated for no more than 9 credits. Not for graduate credit. S/U only.

HDF 498 Special Problems SEM (1-3 crs.) Open to qualified seniors who wish to do advanced work. Conducted as a seminar or supervised individual project. Students must obtain written approval from proposed faculty supervisor prior to registration. Pre: senior standing and permission of chairperson. May be repeated for no more than 9 credits. Not for graduate credit.

HDF 501 Developmental Science in Family Contexts LEC (3 crs.) Critical analysis of developmental science theories and related contemporary research. Using a lifespan perspective, the course will examine individual and family theories of development, and consider relevant practice and research implications. (Lec. 3) Pre: Graduate standing or permission of instructor.

HDF 505 Human Sexuality and Counseling LEC (3 crs.) Historical, cultural, and developmental issues in human sexuality and counseling. Implications for self and client understanding through personal exploration and desensitization to sensitive topics. (Lec. 3) Pre: graduate standing or permission of instructor.

HDF 506 Rhode Island Early Childhood Institute SEM (1-3 crs.) Intensive institute focused on contemporary issues in early childhood education in Rhode Island and the nation. Topics vary, with discussion of theoretical, empirical, and practical issues. (Seminar) Pre: Enrollment in Early Childhood Institute program or permission of instructor. May be repeated as topics vary.

HDF 507 Seminar In Early Childhood Education SEM (3 crs.) Seminar in trends and model programs in early childhood education. Special attention to substantive evaluation and program design issues for the professional early childhood educator. (Seminar) Pre: student teaching or equivalent classroom experience or permission of instructor.

HDF 511 Seminar on Infancy Through Childhood SEM (3 crs.) Examines trajectories, theories and research associated with child development from infancy through childhood. Topics include early brain development, culturally sensitive caregiving, health, education, behavior, and the impact of public policy on this developmental stage. (Seminar) Pre: graduate standing or permission of instructor

HDF 512 Seminar on Adolescence Through Young Adulthood SEM (3 crs.) Examine theories and research associated with adolescence and young adulthood. Topics include transitions, risky behaviors, health issues, work-family tensions, and the impact of public policy on this developmental stage. (Seminar) Pre: Graduate standing or permission of instructor.

HDF 513 Seminar in Older Adulthood SEM (3 crs.) Examine theories and research associated with older adulthood and aging. Emphasis on current research and practice issues. Interdisciplinary focus on biopsychosocial aspects of growing older. (Seminar) Pre: graduate standing or permission of instructor.

HDF 518 Seminar in Life-Span Financial Issues IND (3 crs.) Survey and critical examination of research on life-span financial issues. Implications for diverse populations and human service settings will be drawn. (Independent Study) Pre: HDF 418 or permission of instructor.

HDF 527 Health Care Policy SEM (3 crs.) Development of policy frameworks and their application for understanding current major health care policy issues across lifespan, including economic, political, and ethical dimensions. Exploration of the experiences of other countries. (Seminar) Pre: graduate standing or permission of instructor.

HDF 530 Advanced Family Studies SEM (3 crs.) Intensive study of theories in the family field, integrated with contemporary family issues, and family therapy. (Seminar) Pre: HDF 430 or permission of instructor.

HDF 533 Family Policy and Program Evaluation SEM Seminar examining the political, socio-economic and cultural forces influencing development and implementation of national and local family policies with emphasis on evaluations of child and family programs. (Seminar) Pre: graduate standing or permission of instructor

HDF 535 Families Under Stress: Coping and Adaptation SEM (3 crs.) Theoretical models of family interaction, development, and stress as applied to understanding of family behavior in managing stress or events. Concepts of stress, vulnerability, adaptability, coping, regenerative power, social supports, and related research. (Seminar) Pre: HDF 430 or equivalent course work in family development or family sociology and permission of instructor.

HDF 536 Family Dynamics and Health SEM (3 crs.) Provides an introduction to the research, theory and application of understanding of the major physical and mental health issues facing modern families. (Seminar/Online) Pre: graduate standing in HDF or permission of instructor.

HDF 540 Interdisciplinary Teamwork in Health and Human Services LEC (3 crs.) Basic principles of interdisciplinary teamwork in health care, human service, and education professions. Practice in promoting effective communication, conflict resolution, and leadership in teams. Focus on social and experiential learning. (Lec. 3) Pre: permission of instructor.

HDF 550 Relationship Mediation and Conflict Resolution LEC (3 crs.) Students are introduced to mediation principles, phases of mediation, mediator¿s role, and standards of the profession. The practice of mediation is illustrated via role plays, with a special emphasis on family and interpersonal conflict resolution. (Lec. 3) Pre: graduate standing or permission of instructor.

HDF 551 Counseling Theory and Techniques LEC (3 crs.) Theoretical foundation and practice of counseling with diverse adult populations. (Lec. 3) Pre: graduate standing and permission of instructor.

HDF 559 Diversity in Applied Family Settings SEM (3 crs.) Systemic integration of multicultural and contextual frameworks for service delivery and scholarly work in a diverse world. Emphasis on the development of multicultural competence, awareness, practical applications, and evaluation in family settings. (Seminar) Pre: HDF 450 or equivalent and graduate standing or permission of instructor.

HDF 562 Organization Development in Human Services LEC (3 crs.) Conceptual and technical components of organization development (OD) and consultation to various types of organizations, with emphasis on human service arenas. Approaches to the different phases of intervention in planned change efforts using theoretical frameworks, case, and client applications. (Lec. 2, Lab. 4) Service learning. Pre: graduate standing and permission of instructor.

HDF 563 Marital and Family Therapy I SEM (3 crs.) Major theoretical perspectives, including system theory as related to therapy. Communication and relationship skills, negotiation and behavioral contracting, treating specific relationship problems, therapy evaluation. (Seminar) Pre: HDF 430 and permission of instructor.

HDF 564 Marital and Family Therapy II SEM (3 crs.) Major contemporary theories of family therapy and the development of family therapy as a unique intervention strategy; special consideration of issues and problems commonly confronted in conducting family therapy. (Seminar) Pre: permission of instructor.

HDF 565 Family Therapy Practicum PRA (3 crs.) Preparation for and practice of couple and family therapy. Live supervision, student-presented case material, and review of recordings of actual counseling sessions. (Practicum 3) Pre: Admission to CFT program or permission of instructor. May be repeated for a maximum of 18 credits.

HDF 566 Theoretical and Clinical Problems LEC (3 crs.) Examination of major ongoing and emerging theoretical issues in family therapy. The implications of these problems in clinical practice with families. (Lec. 3) Pre: HDF 564 and graduate standing.

HDF 569 Assessment in Family Therapy SEM (3 crs.) Administration and interpretation of assessment instruments for treatment, planning, and evaluation. Ethical, legal, and theoretical issues related to family systems assessment are discussed. (Seminar) Pre: graduate standing or permission of instructor.

HDF 570 Research Methods in Human Development LEC (3 crs.) Historical, philosophical, and procedural foundations of scientific

inquiries into individuals and families. Explores the various ways to acquire information about human development and family relationships. (Lec. 3) Pre: graduate standing or permission of instructor.

HDF 577 Topics in Human Development & Family Studies SEM (1-3 crs.) Recent developments and current issues in Human Development and Family Studies. May be repeated for a maximum of 6 credits. (Seminar)

HDF 578 Ethical, Legal, and Professional Concerns in Family Therapy SEM (3 crs.) Ethical, legal, and professional issues encountered by family therapists in the delivery of services. These aspects of therapy practice along with systemic theory are cornerstones of competent practice. (Seminar) Pre: Graduate standing or permission of instructor.

HDF 580 Professional Seminar SEM (1-3 crs.) Emphasizes initial implementation phases of master's research requirement as well as legal, ethical, and professional issues. (Seminar) Pre: advanced standing and permission of instructor.

HDF 581 Professional Seminar SEM (1-3 crs.) Emphasizes research applications, completion of master's research requirement, and making a transition to a professional position. (Seminar) Pre: permission of instructor.

HDF 583 Master's Internship PRA (3 or 6 crs.) Supervised field experience in various settings. Culminating experience integrates program theory and skills. (Practicum) Pre: advanced standing and permission of instructor. S/U credit.

HDF 584 Master's Internship PRA (3 or 6 crs.) Supervised field experience in various settings. Culminating experience integrates program theory and skills. (Practicum) Pre: advanced standing and permission of instructor. S/U credit.

HDF 595 Master's Project: Action Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor. Minimum of 6 credits is required of students who have chosen the action-thesis option. (Independent Study) S/U credit.

HDF 597 Advanced Study IND (1-3 crs.) Survey of important research contributions significant to the understanding of human development and relationships. (Independent Study)

HDF 598 Advanced Study IND (1-3 crs.) Survey of important research contributions significant to the understanding of human development and relationships. (Independent Study)

HDF 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. Minimum of 6 credits is required of students who have chosen the thesis option. (Independent Study) S/U credit.

HDF 691 Research in Human Development & Family Science IND (1-3 crs.) Assigned research on an advanced level. Students are required to outline the problem, conduct the necessary literature survey and experimental work, and present their observations and conclusions in a report. (Independent Study). Pre: Enrollment in the Doctoral Program in Health Sciences. May be repeated for up to 6 credits.

HDF 699 Doctoral Dissertation Research IND (1-12 credits) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study). Pre: Enrollment in the Doctoral Program in Health Sciences. S/U credit.

HIS | History

HIS 110 Ancient Greece: History and Archaeology LEC (3 crs.) Cross-listed as (HIS), CLA 110. An introduction to the history and archaeology of ancient Greece and Greek Civilization from the Bronze age to the death of Alexander the Great. (Lec. 2, Rec. 1) (A3) (B1)

HIS 111 Ancient Rome: History and Archaeology LEC (3 crs.) An introduction to the history and archaeology of ancient Rome and Roman Civilization from the founding of the city through to the death of the emperor Nero. (Lec. 3)

HIS 112 History of Medieval Europe LEC (3 crs.) Primarily western Europe. Continuation of 111. Medieval church, feudalism, revival of town life, commerce, industry, and money economy, rise of national states, and development in the arts. (Lec. 3) (A2) (C2)

HIS 113 History of Western Civilization from the Late Middle Ages to 1789 LEC Introductory course treating Western civilization in its broadest sense from the late Middle Ages to the French Revolution and the beginnings of industrialization. (Lec. 3)

HIS 114 Europe Since 1789 LEC (3 crs.) European history since the French Revolution. Major themes include: transformation of the state in Europe,European approach to violence, relationship of Europe to modernity, European relationship to the world. (Lec. 3) (A3) (B1)

HIS 114H Honors Sections of HIS 114:Europe Since 1789 LEC (3 crs.) Honors Sections of HIS 114:Europe Since 1789. European history since the French Revolution. Major themes include: transformation of the state in Europe, European approach to violence, relationship of Europe to modernity, European relationship to the world. (Lec. 3) Pre: 3.40 overall GPA or better. (A3) (B1)

HIS 115G Sex and Western Society LEC (3 crs.) Interdisciplinary perspectives to sexual practices, ideologies, and identities in the Western World from the Classical era to the modern USA. (Lec. 3) (A3) (C3) (GC)

HIS 116 History of Western Science LEC (3 crs.) Development of western science from ancient Greece and Rome until the present. Topics include relations of science and religion, emergence of science-based industry, and interaction between science and politics, especially during war. (Lec. 3).

HIS 117 History of Medicine LEC (3 crs.) Professionalization of medicine, status of healers in different cultures, creation of scientific medicine, alternative medical practice, effect of changing disease patterns on medical theory/practice. Focus on the U.S. in the 19th and 20th centuries. (Lec. 3) (A3) (B4)

HIS 119G Vaccines and Society LEC (3 crs.) Examines the history of vaccination, its ethical and legal frameworks, global vaccination campaigns, and scientific debates about the safety and efficacy of vaccination. (Lec. 3) (A3) (C1) (GC)

HIS 119GH Honors Section of HIS 119G: Vaccines and Society LEC (3 crs.) Honors Section of HIS 119G: Vaccines and Society. (Lec. 3) Pre: Must have a 3.40 overall GPA. (A3) (C1) (GC)

HIS 130 History and the Sea LEC (3 crs.) The history of seafaring from ancient times to the 20th century. The course considers the political, military, economic, and social history of the maritime world. (Lec. 3)

HIS 141 History of The United States to 1877 LEC (3 crs.) Colonial and Revolutionary periods, and economic, social, and political development of the United States through the Civil War and Reconstruction. (Lec. 2, Rec. 1) (A3) (C1)

HIS 142 History of the United States Since 1877 LEC (3 crs.) General social, economic, and political development from 1877 to the present. (Lec. 2, Rec. 1) (C3) (A3)

HIS 145 Women in the North American Colonies and the United States, 1500-1890 LEC (3 crs.) Legacies of Native-American, Hispanic, and Anglo-American culture; slavery and abolition; women's work and sexuality; women's rights movements; ethnic and regional diversity, with emphasis on women in the West, the South, and Northeast. (Lec. 3) (B4) (C1)

HIS 146 Women in the United States, 1890-Present LEC (3 crs.) Impact of immigration and industrialization; legacy of slavery and segregation; changes in sexuality, reproduction, and work; images of women in popular culture; women's political movements. (Lec. 3) (B4) (C1)

HIS 150 Introduction to Afro-American History LEC (3 crs.) Cross-listed as (HIS), AAF 150. Survey of Afro-American history from African origins to the current racial confrontation. (Lec. 3) (A3) (C3)

HIS 150H Honors Section of HIS/AAF 150: Introduction to Afro-American History LEC (3 crs.) Honors Section of HIS/AAF 150: Introduction to Afro-American History. Cross-listed as (HIS), AAF 150. Survey of Afro-American history from African origins to the current racial confrontation. (Lec. 3) Pre: 3.40 overall GPA or better. (A3) (C3)

HIS 164 Global Environmental History LEC (3 crs.) A history of human interactions with the natural world from prehistoric times to the present. (Lec. 3) (C2) (A3)

HIS 171 East Asian Culture and History LEC (3 crs.) Introduction to the culture and history of East Asia. Emphasis on the literary, artistic, and philosophical traditions of East Asia, especially those aspects which relate to and influence contemporary developments. (Lec. 3) (B1) (C2)

HIS 172 Southeast Asian Culture and History LEC (3 crs.) Broad overview of the culture and history of Southeast Asia. Emphasis on society, culture, and religion and their influence on contemporary developments. (Lec. 3) (B1) (C2)

HIS 176 Islamic History: From the Origins of Islam to 1492 LEC (3 crs.) Introduces core ideas and events which have shaped the Islamic world. Topics include Muhammad and the Qur'an, the Sunni/Shii divide, the development of Sharia law and encounters with the West. (Lec. 3) (A3) (C2)

HIS 178 History of the Modern Middle East LEC (3 crs.) (Previously HIS 177X) Course covers the major social and political issues which have shaped the history of the contemporary Middle East. Topics include the impact of colonialism, nationalism, socialism, and Islamic revival movements. (Lec. 3) (A3) (C2)

HIS 180 Introduction to Latin American Civilization LEC (3 crs.) Social, cultural, and political history of the Latin American region from the preconquest era to the present time. (Lec. 3) (A3) (C2)

HIS 300 (393) Topics In History LEC (3 crs.) Subject, course content, and years offered will vary according to expertise and availability of instructors. (Lec. 3) May be repeated for credit with permission of chairperson. Pre: sophomore standing or permission of instructor. (A3) (B1)

HIS 301 The Hellenistic World LEC (3 crs.) Cross-listed as (HIS), CLA 301. The history, archaeology, and civilization of the Hellenistic World from Alexander the Great to the Death of Cleopatra VII. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 302 The Roman Empire LEC (3 crs.) Cross-listed as (HIS), CLA 302. The history, archaeology, and civilization of the Roman Empire from Augustus to Constantine. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 304 Western Europe in the High Middle Ages LEC (3 crs.) Primarily France and England in the 12th and 13th centuries. Emphasis on the Medieval Gothic-Catholic culture, the rise of towns, and the development of a money economy. (Lec. 3) Pre: Sophomore standing or permission of instructor. (D1) (B4)

HIS 305 The Renaissance LEC (3 crs.) Europe in transition during the 14th through the early 16th centuries. The economic, social, and religious backgrounds of the Renaissance. Emphasis on culture and artistic developments. (Lec. 3) Pre: Sophomore standing or permission of instructor. (A2) (B1)

HIS 305H Honors Section of HIS 305: The Renaissance LEC (3 crs.) Honors Section of HIS 305: The Renaissance (Lec. 3) Pre: must have a 3.40 overall GPA. Sophomore standing or permission of instructor. (A2) (B1)

HIS 308G Between Eve and Mary: Women in the Middle Ages LEC (3 crs.) History of women in western Europe from about 500 A.D. to about 1500 A.D. Understanding the variety of medieval women's experiences (rich or poor, secular or religious, urban or rural) and how women were perceived by their society. (Lec. 3) Pre: Sophomore standing or permission of instructor. (A2) (B1) (GC)

HIS 309 The French Revolution and Napoleon LEC (3 crs.) Examination of the Revolution and Napoleonic eras with emphasis on the connections among economic, social, and political developments. Special attention to problems in interpretation. (Lec. 3) Pre: junior standing.

HIS 310 History of Europe: 1815-1914 LEC (3 crs.) Major political, economic, and intellectual developments in Europe from the defeat of Napoleon I to the outbreak of World War I; emphasis on the Revolutions of 1848, unification of Italy and Germany, impact of the Industrial Revolution, nationalism and imperialism, background of World War I. (Lec. 3) Pre: sophomore standing or permission of instructor. (B4) (B1)

HIS 311 History of Europe Since 1914 LEC (3 crs.) Detailed study of developments from 1914 to present: wars, postwar adjustments, communist and fascist ideologies, history of individual states, and social and intellectual trends. (Lec. 3) Pre: sophomore standing or permission of instructor. (B4) (B1)

HIS 314 Seventeenth- and Eighteenth-Century European Cultural History LEC (3 crs.) Intellectual and social movements of the Age of Reason and the Age of Enlightenment. (Lec. 3) Pre: Sophomore standing or permission of instructor.

HIS 318 The Jews: Religion and People LEC (3 crs.) Explores Jewish history, from the Bible to the present. By examining both text and art, we investigate how Jewish ideas and practices developed in dialogue with non-Jewish culture. (Lec. 3) Pre: Sophomore standing or permission of instructor. (A3) (C2)

HIS 327 German History Since 1914 LEC Topics in German social and political history from the first world war to the present. Emphasis on the history of National Socialism. (Lec. 3) Pre: Sophomore standing or permission of instructor. (B1) (B4)

HIS 328 The Holocaust LEC (3 crs.) Study of Nazi efforts to exterminate Jews and others in Europe. Focuses on Nazi programs and policies; Jewish experiences; and the responses of the outside world. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 328H Honors Section of HIS 328: The Holocaust LEC (3 crs.) Honors Section of HIS 328: The Holocaust. (Lec. 3) Pre: Must have a 3.40 overall GPA and sophomore standing or permission of instructor.

HIS 333 Russia Since 1900 LEC (3 crs.) From late Tsarism, through the Soviet experiment, into Putin's Russia. Special attention to Russia's multiple revolutions, its experience with human rights, and its place in the world. (Lec. 3) Pre: sophomore standing or permission of instructor. (B4) (B1)

HIS 335 American Colonial History to 1763 LEC (3 crs.) American history from the founding of the colonies to the end of the French and Indian War, including developments within the colonies as well as their relationship with England. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 336 The American Revolution and Confederation: 1763-1789 LEC (3 crs.) Social, political, and economic aspects of the Revolution and Confederation periods. (Lec. 3) Pre: sophomore standing, or permission of instructor.

HIS 337 Creation of the Union: America from 1789-1848 LEC (3 crs.) The development of the new nation through the Jacksonian years, with emphasis on the transformation of society and politics. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 339 Emergence of Industrial America: 1877-1914 LEC (3 crs.) Growth and consolidation of business, urbanization, and the Populist and Progressive movements. America's emergence as a world power. (Lec. 3) Pre: Sophomore standing or permission of instructor. (C1) (B4)

HIS 340 United States History from 1914 to 1941 LEC (3 crs.) Social, political, and economic developments in the U.S. from the onset of World War I through the end of the Great Depression. (Lec. 3) Pre: Sophomore standing or permission of instructor.

HIS 341 United States History from 1941 to 1974 LEC (3 crs.) U.S. Involvement in World War II. Social, political and economic developments in the postwar era. Equal emphasis on the domestic sphere and America's role in world affairs. (Lec. 3) Pre: Sophomore standing or permission of instructor. (A3) (C3)

HIS 342 United States History from 1968-2001 LEC (3 crs.) From Woodstock to the AIDS crisis, Richard Nixon to George Bush, Vietnam to Iraq, and Bob Dylan to Jay-Z, students will explore the developments that created today's United States. (Lec. 3) Pre: HIS 142 and sophomore standing. (B1) (C3)

HIS 344 History of the North American Indian LEC (3 crs.) Native North Americans from pre-Columbian times to present. Emphasis on ideological conflict between Indians and whites. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 344H Honors Section of HIS 344: History of the North American Indian LEC (3 crs.) Honors Section of HIS 344: History of the North American Indian. Native North Americans from pre-Columbian times to present. Emphasis on ideological conflict between Indians and whites. (Lec. 3) Pre: 3.40 overall GPA, sophomore standing, or permission of instructor.

HIS 346 Immigration, Ethnicity, and Race in America LEC (3 crs.) History of immigration to the U.S. from the colonial period to the present, with emphasis on the 19th and 20th centuries. Compares different waves, explores shifting attitudes toward immigrants, and discusses how race and ethnicity shaped immigrants' experiences. (Lec. 3/Online) Pre: Sophomore standing or permission of instructor. (C3) (B1)

HIS 349 History of American Labor LEC (3 crs.) Changes in work, lifestyle, and political consciousness of American workers in the 19th and 20th centuries; conflicts between labor and capital, and relationship to emergence of labor movements. (Lec. 3) Pre: Sophomore standing or permission of instructor. (A3) (B4)

HIS 350 Documenting Rhode Island LEC (3 crs.) Using oral history, photography, film, and other media, students identify, capture, and document the local histories that have shaped the lives of Rhode Island and its residents. (Lec. 3) Pre: permission of instructor. (B2) (C1)

HIS 350H Honors Section of HIS 350: Documenting Rhode Island LEC (3 crs.) Honors Section of HIS 350H, Documenting Rhode Island. Using oral history, photography, film, and other media, students identify, capture, and document the local histories that have shaped the lives of Rhode Island and its residents. (Lec. 3) Pre: overall gpa 3.40 or higher and permission of instructor. (B2) (C1)

HIS 352 Topics in the History of Women and Gender LEC (3 crs.) Themes in women's history, sexual identities, and the construction of gender roles. Primarily deals with United States since 1800. (Lec. 3) Pre: sophomore standing or permission of instructor. May be repeated. (A3) (C3)

HIS 353G The Cold War: History and Current Implications LEC (3 crs.) Soviet-American competition 1945¿1991, with emphasis on current implications. Main themes: roots of the cold war, diplomacy, nuclear weapons, civic engagement, cultural impact, and the Cold War end game. (Lec. 2, Rec. 1) Pre: Sophomore standing or instructor permission. (B1) (C1) (GC)

HIS 354 U.S. and the World, 1890-Present LEC (3 crs.) Analysis of Americans' interactions with other nations, ideas, and cultures between 1890 and the present. (Lec. 3) Pre: Sophomore standing or permission of instructor. (B4) (C1)

HIS 355 Black Women in the U.S.: Colonial Times to the Present LEC (3 crs.) Cross-listed as (HIS), AAF 355. Women's experiences in the study of African-American history. Assigned readings familiarize students with the state of scholarship and examine the intersection of race, class, and gender in that experience. (Lec. 3) Pre: sophomore standing. (A3) (C3)

HIS 356 Black Urban History: Late 19th and 20th Centuries LEC (3 crs.) Cross-listed as (HIS), AAF 356. Examines the historical black experience in urban environments in the U.S. Assigned readings, research, and group discussions examine the issues of migration, community, politics, class, and gender. (Lec. 3) Pre: sophomore standing.

HIS 357 History of Religion in the United States LEC (3 crs.) Diversity of religious traditions in the U.S. especially in the 19th and 20th centuries. Emphasis on political, cultural and ethic/racial dimensions of religion. (Lec. 3) Pre: sophomore standing or permission of instructor. (C3) (B1)

HIS 358 Recent America in Film LEC (3 crs.) An investigation of American culture and history since 1930 using films as the major resource for study, with emphasis on the Great Depression, World War II, sexual interaction, and race relations. (Lec. 1, Lab. 4) Pre: Sophomore standing or permission of instructor. (B1) (A3)

HIS 359 History of Slavery in America LEC (3 crs.) Cross-listed as (HIS), AAF 359. Origins, development, and demise of slavery, with emphasis on the area that currently constitutes the United States. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 360 American Culture 1865-1940 LEC (3 crs.) Explores the nature and sources of American culture with emphasis on the diversity of its origins and forms of expression. (Lec. 3) Pre: Sophomore standing or permission of instructor.

HIS 362 History of Rhode Island LEC (3 crs.) History of Rhode Island from the first English settlement to the present day. Social, political, and economic aspects of internal development and the relation of the state to the region and the nation. (Lec. 3) Pre: sophomore standing or permission of instructor. (B4) (C1)

HIS 363 Public History: Presenting Rhode Island's Past LEC (3 crs.) The presentation of Rhode Island's history to the public through such media as museums, historic sites, monuments, documentaries, websites, and social networking media from the state's colonial beginnings. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 364 U.S. Environmental History LEC (3 crs.) This course explores the historical interactions between people and nature from pre-Columbian America to the present, including environmental movements, agriculture, cities, water, land use, food, and pollution. (Lec. 3) Pre: sophomore standing or permission of instructor. (C1) (B4)

HIS 365 Civil War and Reconstruction LEC (3 crs.) American history during the period 1850-1877, giving equal emphasis to the background of the Civil War, the war itself, and the social, political, and economic aspects of Reconstruction. (Lec. 3) Pre: Sophomore standing or permission of instructor. (C1) (B4)

HIS 366 Twentieth-Century Black Politics and Protest LEC (3 crs.) Cross-listed as (HIS), AAF 366. Explores the development and evolution of black politics and protest in the twentieth century including the Civil Rights and Black Power Movements and their legacies. (Lec. 3) Pre: HIS 150 or AAF 150 or HIS 142 and sophomore standing or permission of instructor. (C3) (B1)

HIS 373 (370) Environmental Injustice LEC (3 crs.) Cross-listed as (MAF), HIS, GWS 373. Examines environmental issues through a social justice lens. Looking at historical and global contexts, topics may include public health issues, environmental social movements, and "natural" disasters. (Lec. 3) (C3)

HIS 374 History of Modern China LEC (3 crs.) Political, social, economic, and cultural development of China since 1800 with emphasis on the development of Chinese nationalism and on the rise, theory, and practice of Chinese communism. (Lec. 3) Pre: sophomore standing or permission of instructor. (A3) (B1)

HIS 375 History of Modern Japan LEC (3 crs.) Background and significance of the Meiji restoration (1868) and modernization; the development of Japanese militarism, the fall of the Japanese Empire, and the emergence of the "New Japan." (Lec. 3) Pre: sophomore standing or permission of instructor. (A3) (B1)

HIS 378 Judaism, Christianity and Islam in Medieval Culture and Society LEC (3 crs.) Explores how medieval Jews, Christians and Muslims negotiated difference, including differences of religion, status, region, gender, sexual orientation and disability. (Lec. 3) (A3) (C2)

HIS 379 The Jews of Islamic Lands: A History LEC (3 crs.) This course introduces the Jews of Islamic lands. It examines their social, religious, intellectual, and political experiences from the beginning of Islam to 19th-century European colonialism in the Middle East. (Lec. 3) (A3) (C2)

HIS 381 History of Colonial Latin America LEC (3 crs.) The interaction of American-Indian civilizations with European and African elements in the Spanish and Portuguese empires of the New World, concluding with the wars for independence. (Lec. 3) Pre: Sophomore standing or permission of instructor.

HIS 382 History of Modern Latin America LEC (3 crs.) Historical analysis of the political, cultural, and social-economic dimensions of tradition, reform, and revolution in Latin America since 1810. (Lec. 3) Pre: Sophomore standing or permission of instructor.

HIS 385 Revolution and Unrest in Central America and the Caribbean LEC (3 crs.) Historical origins of social unrest in Central America and the Spanish-speaking Caribbean. Cuban and Nicaraguan revolutions, civil conflict in Guatemala and El Salvador, U.S. policy. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 387 Latin American History at the Movies LEC (3 crs.) Cross-listed as (HIS), GWS 387. Latin Americans see themselves very differently than how they are perceived by North Americans. Their self-portrayal, in literature and film, is the key to understanding their history and conflicts. (Lec. 3) Pre: HIS 180 is suggested but not required.

HIS 388 History of Sub-Saharan Africa LEC (3 crs.) Cross-listed as (HIS), AAF 388. Ancient and medieval Africa, and the impact of Islam; the "Glorious Age" of the Sudanic empires; the slave trade and the age of exploration; the period of European partition and the rise of African nationalism. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 389 Exploration, Commerce and Conflict in the Atlantic World, 1415-1815 LEC (3 crs.) The Atlantic world from the 15th to early 19th centuries. Voyages of exploration, cultural contact, Atlantic economy, piracy, smuggling, fishing, naval warfare, imperialism, migration, and life at sea in the Age of Sail. (Lec. 3) Pre: sophomore standing or permission of instructor.

HIS 390 The Atlantic World in the Age of Iron, Steam, and Steel LEC (3 crs.) The Atlantic world in the 19th and early 20th centuries. Maritime technology, seaborne commerce, naval warfare, imperialism, migration, whaling, the slave trade, piracy, and life at sea. (Lec. 3) Pre: Sophomore standing or permission of instructor.

HIS 391 Directed Study or Research IND (3 crs.) Special work arranged to meet the needs of individual students who desire advanced work. (Independent Study) Pre: permission of chairperson. May be repeated for a total of 6 credits with permission of instructor and chairperson.

HIS 396 Maritime History and Underwater Archaeology Field School LEC (3 crs.) Usually, but not exclusively taught in Bermuda. Students may select an archaeological diving option, an archaeological non-diving option, or an archival research option. Pre: junior standing and those students who select the archaeological diving option will be required to go through the URI research diving certification process prior to departure.

HIS 401 Advanced Topics in European History LEC (3 crs.) Subject and course content will vary from semester to semester. Student work will emphasize historiographical analysis and the use of specialized research materials. (Lec. 3) Pre: junior, senior, or graduate standing in history or permission of instructor. May be repeated for credit with permission of chairperson.

HIS 441 Advanced Topics in American History LEC (3 crs.) Subject and course content will vary from semester to semester. Student work will emphasize historiographical analysis and the use of specialized research materials. (Lec. 3) Pre: junior, senior, or graduate standing in history or permission of instructor. May be repeated for credit with permission of chairperson.

HIS 477 History Internship PRA (3-4 crs.) Supervised professional experience with a relevant agency or organization. Activities and expectations to be determined between site supervisor and intern and approved by a faculty advisor prior to registration. (Practicum) Pre: Junior or Senior Status or permission of the Chair. Enrollment by permission number only. Students do not have to be history majors to undertake a history internship for academic credit. Not for graduate credit. S/U only.

HIS 481 Advanced Topics in Asian or Latin American History LEC (3 crs.) Subject and course content will vary from semester to semester. Student work will emphasize historiographical analysis and the use of specialized research materials. (Lec. 3) Pre: junior, senior, or graduate standing in history or permission of instructor. May be repeated for credit with permission of chairperson.

HIS 490 Underwater Historical Archaeology SEM (3 crs.) Cross-listed as (HIS), APG 490. Methodological and theoretical foundations of underwater historical archaeology. Examines the contribution of shipwrecks and other inundated sites to our understanding of the global nature of modern life. (Seminar) Pre: at least 3 credits of course work at the 300-level in history, anthropology or art history, or permission of instructor.

HIS 495 Seminar In History SEM (3 crs.) Development of skills in historical research and writing and in the critical analysis of historical works. Topics vary. (Seminar) Pre: completion of HIS 401 or 441 or 481, with the same instructor, or permission of the department. This course is required of undergraduate history majors. May be repeated for credit with different topic with permission of instructor. (D1) (B4)

HIS 500 Introduction to Historical Study SEM (3 crs.) Introduces incoming graduate students to the culture, expectations, and practices of professional historians. It exposes students to the most significant historical theories, approaches, and methodologies in the field. (Seminar) Pre: graduate student or ABM student status

HIS 502 Special Readings in European History IND (3 crs.) Intensive tutorial work, research, and readings in European history. (Independent Study) Pre: graduate standing, permission of instructor, and concurrent audit of parallel 300-level course. May be repeated.

HIS 503 Special Readings in European History IND (3 crs.) Intensive tutorial work, research, and readings in European history. (Independent Study) Pre: graduate standing, permission of instructor, and concurrent audit of parallel 300-level course. May be repeated.

HIS 506 Seminar In European History SEM (3 crs.) Selected topics in European history, with intensive reading of important secondary and/or primary sources; critical written analysis of historical method, research, and modes of interpretation. May be repeated for credit with different topics. (Seminar) Pre: graduate standing or permission of instructor.

HIS 507 Seminar In United States History SEM (3 crs.) Selected topics in United States history, with intensive reading of important secondary and/or primary sources; critical written analysis of historical method, research, and modes of interpretation. May be repeated for credit with different topics. (Seminar) Pre: graduate standing or permission of instructor.

HIS 508 Seminar in Asian, Latin American, or Middle Eastern History SEM (3 crs.) Selected topics in Asian, Latin American or Middle Eastern history, with intensive reading of important secondary and/or primary sources; critical written analysis of historical method, research, and modes of interpretation. May be repeated for credit with different topics. (Seminar) Pre: graduate standing or permission of instructor.

HIS 530 Marine Environmental History SEM (3 crs.) Cross-listed with (MAF) HIS 530. Provides background on the history of human interactions with the marine environment with insight into historical methodologies. (Seminar) Pre: Graduate standing of permission of instructor.

HIS 536 Special Readings in American History IND (3 crs.) Intensive tutorial work, research, and readings in American history. (Independent Study) Pre: graduate standing, permission of instructor, and concurrent audit of parallel 300-level course. May be repeated.

HIS 537 Special Readings in American History IND (3 crs.) Intensive tutorial work, research, and readings in American history. (Independent Study) Pre: graduate standing, permission of instructor, and concurrent audit of parallel 300-level course. May be repeated.

HIS 544 Historical Roots of Modern Labor Issues SEM (3 crs.) Cross-listed as (LHR), HIS 544. Historical roots of contemporary workplace issues, including unions, outsourcing, deindustrialization, service work, globalization, labor law, wages, and working conditions. (Seminar) Pre: graduate standing or permission of instructor.

HIS 577 Graduate History Internship PRA (3 crs.) Supervised professional experience with a relevant agency or organization. Activities and expectations to be determined between site supervisor and intern and approved by a faculty advisor prior to registration. (Practicum) Pre: Second semester graduate status, or by permission of the graduate director. Enrollment by permission number only. Students must be graduate history students to undertake a history internship for academic credit.

HIS 588 Special Readings in Asian or Latin American History IND (3 crs.) Intensive tutorial work, research, and readings in Asian or Latin American history. (Independent Study) Pre: graduate standing and permission of instructor. Concurrent audit of parallel 300-level course required. May be repeated.

HIS 591 Directed Study or Research IND (3 crs.) Directed readings, research, or study designed to meet the particular needs of individuals or small groups of graduate students. (Independent Study) Pre: permission of chairperson.

HIS 599 Master's Thesis Research IND Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

HLT | Health

HLT 100G Perspectives on Public Health in the 21st Century LEC (3 crs.) Introduces students to current and controversial public health topics; addresses the implications of contemporary public health topics from a health policy perspective (cost, quality, access) and from ethical standpoints. (Lec. 3/Online) (A2) (C1) (GC)

HLT 200 Interdisciplinary Approaches to Health LEC (4 crs.) Foundational and intermediate concepts, theories, and research in interdisciplinary perspectives on health. Includes applications to real world health-related problems. Emphasis on developing key knowledge and skills bases for the major. (Lec. 4/Online) (A2) (B4) Pre: Completion of HLT 100 and sophomore standing.

HLT 312 Intersecting Social Identities and Health SEM (3 crs.) Examines how identities, social roles, and social categories (i.e., race, class, gender, sexuality, ability, age, etc.) affect health from an interdisciplinary perspective. (Seminar) Pre: HLT 200 or HDF 357.

HLT 313 Interdisciplinary Approaches to Burnout ONL (3 crs.) This course will guide students through foundational works and will evaluate evidence-based research addressing burnout from multiple disciplinary perspectives. (Accelerated Online Program) Pre: HLT 100. (D1) (B4)

HLT 320 Health Communication LEC (3 crs.) Cross-listed as (HLT), COM 320. Communication is critical in disease prevention, health promotion and healthcare delivery. Ecological and systems perspectives guide the examination of health communication messages in individual, interpersonal, group, organizational, and mass/mediated contexts. (Lec. 3) Pre: HLT200 or HDF357 or COM221 or COM251 or COM210 or permission of instructor.

HLT 401 (KIN) Current Issues in Health Education LEC (3 crs.) Cross-listed as (HLT), EDC 401. Designed to develop student awareness of contemporary issues that are of concern to school health and other health educators. Extensive review of contemporary literature and film and critical analysis of selected issues and their effect on health education at the local, national, and global level. (Lec. 3) Pre: Acceptance into teacher education program or permission of instructor.

HLT 450 Advanced Interdisciplinary Health Studies SEM (4 crs.) Capstone course required for all majors. Subject and content will vary from semester to semester. Student will research and offer solutions to a problem in health studies using interdisciplinary approaches. (Seminar/Online) Pre: completion of PSY 200 or STA 307 or STA 308; completion of HLT 200 with a C or higher; senior standing in health studies or permission of instructor.

HLT 490 Literature-based Research Independent Study IND (1-3 crs.) With faculty approval, students can select to complete a research-based independent study. (Independent Study) Pre: HLT 200 and HLT 450 and permission of director.

HLT 491 Experiential Learning Independent Study IND (1-3 crs.) With faculty approval, students can select to complete an experiential learning independent study. (independent Study) Pre: HLT 200 and HLT 450 and permission of director.

HPR | Honors Program

HPR 109 Honors Seminar in Natural Sciences SEM (3-4 crs.) Exploration of themes and topics in the natural sciences. Topics include: Life in the Universe; Biological Consequences of Global Change; Biology for the Citizen; the Physics of Sports; Oceans, Atmospheres, and Global Change. (Seminar) Must have 3.40 overall GPA.

HPR 124 Honors in Social Sciences and Civic Knowledge SEM (3-4 crs.) Honors Seminar in Social Sciences and Civic Knowledge. Topics include : Loss in the Lives of Children and Adolescents. (Seminar) Pre: Must have a 3.4 overall GPA. (A2) (C1)

HPR 131G Honors in STEM and Communicate Effectively LEC (3 crs.) Exploration of themes and topics in the field of Science, Technology, Engineering, and Mathematics (STEM) and Communicating Effectively. (Lec. 3) Pre: 3.40 overall GPA or better. (A1) (B2) (GC)

HPR 135 Honors in STEM and Global Responsibilities SEM (3 crs.) Exploration of themes and topics in the Science, Technology, Engineering and Mathematics and Global Responsibilities. (Seminar) Pre: 3.40 overall or better GPA. (A1) (C2)

HPR 142 Honors in Writing and Information Literacy SEM (3-4 crs.) Exploration of the elements of writing and developing information literacy. Topics include: Building Bridges: Writing about Common Reading; Writing and Empathy; Writing to Understand: Ethnographic Explorations. (Seminar) Pre: must have 3.40 overall GPA. (B1) (B4)

HPR 147 Honors in Humanities and Writing SEM (3 crs.) Exploration of themes, topics, and techniques in literature, humanities and writing. (Seminar) Pre: 3.40 overall or better GPA. (A3) (B1)

HPR 183G Honors in Diversity & Inclusion and Information Literacy SEM (3 crs.) Exploration of themes and topics in Diversity & Inclusion and Information Literacy. (Seminar) Pre: 3.40 overall GPA. (C3) (B4) (GC)

HPR 216G Honors Colloquium in Humanities and Diversity and Inclusion LEC (3-4 crs.) HPR Honors Colloquium may be repeated for a maximum of 8 credits. Topics include: Religion in America. (Lec. 3, Rec. 1) Pre: GPA of 3.4 or above and one completed honors course, or permission of the director of the honors program. (A3) (C3) (GC)

HPR 224G Honors Colloquium in Soc. Science and Civic Knowledge LEC (3-4 crs.) HPR Honors Colloquia may be repeated for a maximum of 6-8 credits. Topics include: Trekonomics: Life and Economics in a Post-Scarcity World. (Lec. 3 or Lec. 3, Rec. 1) Pre: GPA of 3.4 or above and one completed honors course, or permission of the director of the honors program. (A2) (C1) (GC)

HPR 226G Honors Colloquium in Diversity and Social & Behavioral Sciences LEC (3-4 crs.) HPR Honors Colloquia may be repeated for a maximum of 8 credits. (Lec. 3, Rec. 1) Pre: GPA of 3.4 or above and one completed honors course, or permission of the director of the honors program. (C3) (A2) (GC)

HPR 230G Honors Colloquium in STEM LEC (3-4 crs.) May be repeated for a maximum of 8 credits. (Lec. 2-3, Rec. 1-2) Pre: GPA of 3.40 or better and one completed Honors course or permission of the director of the Honors Program. (A1) (GC)

HPR 233 Honors Colloquium in STEM and Information Literacy LEC (3-4 crs.) May be repeated for a maximum of 8 credits. (Lec. 2-3, Rec. 1-2) Pre: GPA of 3.40 or better and one completed Honors course, or permission of the director of the Honors Program. (A1) (B4)

HPR 301 Honors Tutorial Topic: Administrative Internship PRA (1-4 crs.) Experiential course that provides an opportunity for students to learn and practice administrative decision-making and to develop research skills in an administrative setting. Placements include Brown Medical School, the Institute for International Sport, RI Planned Parenthood, and the URI Honors program. (Practicum) Pre: GPA of 3.50 or better and permission of the Director of the Honors Program.

HPR 302 Honors Tutorial Topic: Administrative Internship PRA (1-4 crs.) A continuation of HPR 301. (Practicum) Pre: GPA of 3.50 or better and permission of the Director of the Honors Program.

HPR 316 Honors Seminar in Diversity & Inclusion and Humanities SEM (3-4 crs.) Honors Seminar in the exploration of themes and topics in Diversity & Inclusion and Humanities. (Seminar) Pre: 3.40 GPA or better or permission of the director of the honors program. (C3) (A3)

HPR 344 Honors Seminar in Arts & Design and Writing SEM (3-4 crs.) Honors seminar in arts and design and writing. (Seminar) Pre: 3.40 GPA or better or permission of the director of the Honors Program. (A4) (B1)

HPR 346G Honors Seminar in Communicate Effectively and Integrate & Apply LEC (3 crs.) Honors Seminar exploring themes and topics in the fields of Communicating Effectively and Integrate and Application. (Lec. 3) Pre: 3.40 or better overall GPA. (B2) (D1) (GC)

HPR 347 Honors Seminar in Humanities and Writing SEM (3-4 crs.) Honors Seminar in Humanities and Writing. (Seminar) Pre: 3.4 overall GPA. (A3) (B1)

HPR 375 Honors Seminar in Global Responsibility and Social Sciences SEM (3-4 crs.) This course engages undergraduate Honors' students in the core aspects of global responsibility and social science. (Lec. 3-4) Pre: Overall GPA 3.40 or better. (A2) (C2)

HPR 392 Honors Seminar in Civic Engagement & Soc. and Beh. Science LEC (3 crs.) Engages undergraduate honor¿s students in the core aspects of citizen science with a focus on self-experimentation in social, behavioral, health and medical realms. The course involves engaging with citizen science networks, self-and group change in networked contexts, and associated computing, research methods and interpretive skills. (Lec., Rec., Seminar) Pre: 3.40 over GPA or better. (C1) (A2)

HPR 397 Honors Directed Study IND (1-4 crs.) (Independent Study) Pre: 3.40 GPA or better or permission of the director of the honors program.

HPR 401 Honors Project IND (3 crs.) (Independent Study) Pre: permission of the director of the Honors Program, and overall GPA of 3.40 or better. (D1)

HPR 402 Honors Project IND (3 crs.) (Independent Study) Pre: permission of the director of the Honors Program, and overall GPA of 3.40 or better.

HPR 411 Honors Seminar SEM (3 crs.) Topics include: "Controversies in Environmental Science;" and "Film and Video Practicum." (Seminar) Pre: overall GPA 3.40 or better.

HPR 412 Honors Seminar SEM (3-4 crs.) (Seminar) Pre: overall GPA 3.40 or better.

HSA | Health Services Administration

HSA 360 Health Services Administration SEM (3 crs.) Introduction to key concepts and principles in health services administration through both didactic and experiential means. (Seminar/Online) Pre: admission to the B.I.S. program as a health services administration major and a minimum of 60 credits.

HSA 380 Introductory Practicum In Health Services Administration PRA (3 crs.) Didactic and experiential introduction to the delivery of health services including acute care, long-term care, nursing homes, and special services problems such as hepatitis, tuberculosis, and HIV. (Practicum) Pre: admission to the B.I.S. program as a health services administration major and a minimum of 75 credits.

HSA 480 Advanced Practicum In Health Services Administration PRA (6 crs.) An intensive experience in a health care setting selected by the student, combined with class meetings. (Practicum) Pre: admission to the B.I.S. program as a health services administration major and a minimum of 90 credits. Not for graduate credit.

HSS | Human Science and Services

HSS 130G The Problem of Hunger in the U.S. LEC (3 crs.) Cross-listed as (HSS), PSY 130G. Survey of the problem of hunger in the United States, the causes, effects on individuals and society, and the policies and programs intended to help hungry people. (Lec. 2, Seminar 1) (A2) (C1) (GC)

HSS 270 Field Experience in Human Science and Services II PRA (2-6 crs.) Didactic and experiential learning in student-selected settings. Emphasis on achievement of pre-established learning goals leading to selected competencies. Goals established by the students, instructor, and site supervisor. (Practicum) Pre: admission to the human science and services program and permission of instructor.

HSS 370 Field Experience In Human Science And Services PRA Supervised field experience in human service agencies. Prior to placement, the student must develop a learning contract in consultation with the agency and his or her faculty advisor. (Practicum) Pre: junior standing in human science and services and permission of instructor. S/U only.

HSS 470 Fourth-Year Field Experience In Human Science and Services PRA (2-6 crs.) Didactic and experiential learning in student-selected settings. Emphasis on achievement of pre-established learning goals leading to selected competencies. Goals established by the students, instructor, and site supervisor. (Practicum) Pre: admission to the human science and services program and permission of instructor. Not for graduate credit.

HSS 480 Senior Seminar In Human Science And Services SEM (3 crs.) Interdisciplinary capstone seminar, with content developed to fit learning goals and programs of study of the students. Portfolio development and assessment as culminating experience. (Seminar) Pre: senior standing in human science and services and permission of instructor. Not for graduate credit.

HSS 530 Multidisciplinary Health Seminars For The Elderly SEM (3 crs.) Field experience for students in various health disciplines. Development of assessment techniques, curricular materials, and team delivery of health seminars to the elderly at community sites. (Seminar) Service learning. Pre: graduate standing or permission of instructor.

INE | Innovation and Entrepreneurship

INE 140G (BUS) The Power of Business LEC (3 crs.) Nature, philosophy, objectives, and scope of the American business system. Emphasis on the interrelations of the functional areas. (Lec. 3) Not open to juniors and seniors in the College of Business. (A2) (GC)

INE 149 (BUS) Introduction to Entrepreneurship LEC (3 crs.) This introductory course to provide students with broad knowledge of the skills and competencies that are essential to entrepreneurs, intrapreneurs and other innovators in bridging the divide from 'idea' to 'business.' (Lec. 3)

INE 247 (BUS) Business of Innovation: The Design Process LEC (3 crs.) In the context of entrepreneurship and intrapreneurship, students will learn practical skills that promote efficient and effective creative design, understand the creative design process and develop strategies through design thinking. (Lec. 3)

INE 249 (BUS) Business of Innovation: Lean Startup LEC (3 crs.) Applies the Lean Startup Scientific Method for developing and commercializing ideas for new ventures (entrepreneurship), and innovating new products, services or business models within existing companies (intrapreneurship). (Lec. 3)

INE 315 (BUS) Legal Environment of Business LEC (3 crs.) An introduction to the origins, framework, and concepts of the legal environment of business. Emphasis on the constitutional authority of government to regulate business, contracts, and their applications. (Lec. 3)

INE 315H (BUS) Honors Section of INE (BUS) 315: Legal Environment of Business LEC (3 crs.) Honors Section of INE (BUS) 315: Legal Environment of Business. An introduction to the origins, framework, and concepts of the legal environment of business. Emphasis on the constitutional authority of government to regulate business, contracts, and their applications. (Lec. 3) Pre: Must have 3.40 or better overall GPA.

INE 316 (BUS) Legal and Ethical Environment of Business II LEC (3 crs.) Operations of the U.S. system of jurisprudence and ethics as it affects the law of contracts, sales, debtor-creditor rights, and business organizations. (Lec. 3) Pre: INE (BUS) 315.

INE 348 (BUS) Business of Innovation: Social Design LEC (3 crs.) An experiential social entrepreneurship course where students will learn and apply theories of affordable product and service design to investigate and identify new social venture opportunities. (Lec. 3)

INE 349 (BUS) Special Topics in Entrepreneurship & Innovation LEC (3 crs.) Selected topics of current interest in entrepreneurship and innovation. (Lec. 3) Pre: INE (BUS) 149 and ACC (BUS) 201, or permission of instructor.

INE 390 Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

INE 449 (BUS) Entrepreneurship LEC (3 crs.) Procedures for starting one's own business including business plans, financial data analysis, legal issues, and assessing feasibility of business ideas. Also addresses evaluating career interests and skills in entrepreneurship. (Lec. 3) Pre: ACC (BUS) 201 or 201H and senior standing in the College of Business or permission of instructor; not open to students with credit in EEC 325.

INE 491 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

INE 492 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

INE 493 Internship in Innovation and Entrepreneurship PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: admission into internship program, and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

INE 691 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

INE 692 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

INE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

ISE | Industrial and Systems Engineering

ISE 220 Introduction to Systems Engineering SEM (1 cr.) An exploration of the practice of systems engineering and the interrelationships between industrial, mechanical and other systems. Systems performance evaluation, improvement and planning. Ethics in the practice of engineering. (Seminar)

ISE 240 Manufacturing Processes and Systems LEC (3 crs.) Introduction to a wide variety of manufacturing processes. Basic facility layout and manufacturing system design, including material handling and lean principles. (Lec. 3) Pre: CHM 101.

ISE 241 Laboratory for Manufacturing Processes and Systems LEC (1 cr.) Laboratory demonstrations and experiments in machining, casting, metrology, and rapid prototyping. Plant visits and lab tours. (Lab. 3) Pre: Credit or concurrent enrollment in ISE 240.

ISE 261G Waste Not, Want Not: Sustainable Lean Production LEC (3 crs.) Cross-listed as (ISE), SUS 261G. Students will learn about sustainability and the science and impact of decisions regarding the design, production, and consumption of goods. Product life cycle analysis including remanufacturing and recycling. (Lec. 3) (A1) (B4) (GC)

ISE 304 (404) Engineering Economy and Project Planning LEC (3 crs.) Effects of economics on engineering decisions in design, selection, and product or project proposals, project planning, resource allocation and scheduling using computer based tools. (Lec. 3)

ISE 311 Probability and Statistics for Engineers LEC (3 crs.) Cross-listed as (ISE 311), MCE 411. Introduction to probability and statistics in engineering applications including data analysis, probability theory, probability distributions, sampling distributions, statistical inference, hypotheses testing, confidence intervals, analysis of variance, and receiver operating characteristics. (Lec. 3) Pre: MTH 142 or permission of instructor.

ISE 312 (412) Statistical Methods and Quality Systems LEC (3 crs.) Study of statistical methods and quality systems in engineering applications including statistical methods, quality improvement tools, control charts, process capability, linear regression, design of experiments, and acceptance sampling. (Lec. 3) Pre: ISE 311 or STA 409 or MTH 451 or permission of instructor.

ISE 325 Computer Tools for Engineers LEC (3 crs.) The study and application of engineering tools for computing and information technology. This course will provide students with the principles and applications of tools for data science and an introduction to computational methods. (Lec. 2, Lab. 3) Pre: MTH 141.

ISE 332 (432) Operations Research: Deterministic Systems LEC (3 crs.) Introduction to major areas of operations research and their application to systems analysis. Linear programming, transportation and transshipment models, elementary network analysis, integer programming, and related topics. (Lec. 3) Pre: MTH 362 or 215 or permission of instructor.

ISE 333 (433) Operations Research: Stochastic Systems LEC (3 crs.) Markov chains, dynamic programming, queuing theory, simulation, forecasting, game theory, simple stochastic models, and their relation to selected problems. (Lec. 3) Pre: ISE 311 (411) and MTH 362 or MTH 244 or permission of instructor.

ISE 334 Simulation Modeling and Analysis LEC (3 crs.) Simulation of complex deterministic/stochastic systems. Random number generation. Input and output analyses. Spreadsheet simulations Design of simulation experiments. Applications in manufacturing, supply-chain, networks, military, health care, service systems. (Lec. 2, Lab. 3) Pre: ISE 311 (411) or permission of instructor.

ISE 391 Special Problems in Industrial Engineering IND (1-3 crs.) Independent study and seminar work under close faculty supervision. Discussion of advanced topics in preparation for graduate work. (Independent Study) Pre: junior standing and permission of instructor.

ISE 392 Special Problems in Industrial Engineering IND (1-3 crs.) Independent study and seminar work under close faculty supervision. Discussion of advanced topics in preparation for graduate work. (Independent Study) Pre: junior standing and permission of instructor.

ISE 401 Industrial and Systems Engineering Capstone Design I LEC (3 crs.) Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. First of a two-course sequence. (Lec. 2, Lab. 3) Pre: ISE 240, 312 (412), and 332 (432) or 333 (433), or permission of instructor. Not for graduate credit.

ISE 402 Industrial and Systems Engineering Capstone Design II LEC (3 crs.) Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. Second of a two-course sequence. (Lec. 2, Lab. 3). Pre: ISE 401 or permission of instructor. Not for graduate credit. (D1)

ISE 420 Introduction to Human Factors and Ergonomics LEC (3 crs.) Cross-listed with (ISE), PSY 420. A study of human capabilities and their interactions with the systems where they perform their jobs to help engineers and psychologists to optimize design, improve jobs, and enhance system performance. (Lec. 2, Lab. 1) Pre: ISE 311 (411) / MCE 411 or STA 412 or permission of instructor. Not for graduate credit.

ISE 445 Facilities Planning and Material Handling LEC (3 crs.) Facility layout, facility location, and material handling topics including system requirements, planning, performance analysis, equipment, and economic considerations. Applications include facilities for manufacturing, distribution, healthcare, and service industries. (Lec. 3) Pre: ISE 240 and 332 (432), or permission of instructor.

ISE 449 Product Design for Manufacture LEC (3 crs.) Cross-listed as (ISE), MCE 449. Techniques for analyzing product structures for ease of assembly and manufacture. Manual, robot, and high-speed mechanized assembly systems considered for mechanical and electronic products. Covers choice of material and processes in early design. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit.

ISE 451 Production System Design LEC (3 crs.) Stochastic and deterministic models of production and inventory systems. Push and pull production control systems. Manufacturing system design, scheduling, material handling and facility layout. (Lec. 3) Pre: ISE 332 (432) or 333 (433) or permission of instructor.

ISE 460 Product Design for the Environment LEC (3 crs.) Principles and practices of designing more environmentally beneficial products. Environmental effects. Life cycle analysis, recycling and remanufacturing. Design for disassembly and environment. Group projects on product and process design using LCA and DFE analysis tools. (Lec. 3) Pre: ISE 240, CHE 333 or 437.

ISE 461G Solar Energy Systems LEC (3 crs.) Cross-listed as (ISE) SUS 461. The study of renewables via solar energy systems. Methods, economic criteria, and background for assessing the systems of solar energy conversion technologies both in local and international settings. (Lec. 3) Pre: (junior standing, PHY 204, and MTH 142), or permission of instructor. (C2) (A1) (GC)

ISE 491 Special Problems IND (1-6 crs.) Advanced work under the supervision of a member of the faculty and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

ISE 492 Special Problems IND (1-6 crs.) Advanced work under the supervision of a member of the faculty and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

ISE 500 Project Planning and Management in Systems Engineering LEC (3 crs.) Cross-listed (ISE) ELE 500. Presents the tools and processes to help plan and manage real-world systems engineering projects including network planning, scheduling, analysis, synthesis; critical path method/PERT; computer-aided planning; and other contemporary tools. (Lec. 3) Pre: ISE 332 (432) or permission of instructor.

ISE 513 Quality Systems LEC (3 crs.) Cross-listed as (ISE), STA 513. Topics in statistical quality control systems. Single, multiple, and sequential sampling. Design and analysis of a wide variety of statistical control systems used in conjunction with discrete and continuous data, for several kinds of data emission. (Lec. 3) Pre: ISE 311 (411) or equivalent.

ISE 520 Human Factors & Ergonomics LEC (3 crs.) Cross-listed as (ISE), PSY 520. A study of human capabilities, mental and physical, and their interactions within the systems where they perform their jobs to help optimize design, improve jobs, and enhance system performance. (Lec. 2, Lab. 1) Pre: Graduate standing or permission of instructor. This course is not open for the students who have prior credit in the 400-level version (ISE/PSY 420).

ISE 521 Human Systems Engineering LEC (3 crs.) Cross-listed as (ISE), PSY 521. A study of human capabilities via mental processing and decision making models where students will learn to develop, use, and validate models of human cognitive performance for individuals and teams. (Lec. 3) Pre: Graduate standing or permission of instructor.

ISE 525 Systems Simulation LEC (3 crs.) Cross-listed as (ISE), CSC 525, ELE 515. Simulation of random processes and systems. Continuous and discrete simulation models. Data structures and algorithms for simulation. Generation of random variates, design of simulation experiments for optimization and validation of models and results. Selected engineering applications. (Lec. 3) Pre: CSC 212 or ISE 325, ISE 333 (433) or ELE 509, or permission of instructor.

ISE 533 Advanced Statistical Methods for Research and Industry LEC (3 crs.) Describing and analyzing data, design of experiments, analysis of variance, regression analysis and applications in industry and applied science research. (Lec. 3) Pre: ISE 311 (411) or permission of instructor.

ISE 540 Production Control and Inventory Systems LEC (3 crs.) Theory and practice of industrial production control and inventory systems. A broad spectrum of mathematical models for static, dynamic, perpetual, and periodic inventory systems as they affect and relate to production. (Lec. 3) Pre: ISE 332 (432) or permission of instructor.

ISE 541 Advanced Materials Processing LEC (3 crs.) Continuation of 340. Engineering analyses in the processing of materials. Dynamic coupling, tool-work-piece interaction, energy and thermal analysis; mechanics of material removal and displacements; advanced topics in mechanical electrical systems for processing of materials. (Lec. 3) Pre: ISE 240 or permission of instructor.

ISE 542 Introduction to Computer-Aided Manufacturing LEC (3 crs.) Use of computers in manufacturing. Solid modeling principles and applications. Numerical and adaptive control. CNC programming. Introduction to rapid manufacturing. (Lec. 3) Pre: ISE 240 or permission of instructor.

ISE 543 Fundamentals of Machining LEC (3 crs.) Fundamental treatment of the mechanics and economics of metal machining and grinding. Includes an introduction to numerical control and computer-aided programming of CNC machine tools. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit for students with credit in 443.

ISE 544 Automatic Assembly Systems LEC (3 crs.) Types and economics of automatic assembly systems. Analysis of automatic feeding and orienting techniques for small parts. Application of robots in assembly. Economics of assembly systems for printed circuit boards. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit for students with credit in 444.

ISE 545 Manufacturing Systems: Analysis, Design, Simulation LEC (3 crs.) Problems in system analysis and design as related to modern manufacturing. Quantitative models and simulation methods for

manufacturing planning, control scheduling, flexible manufacturing and highly automated manufacturing systems. (Lec. 3) Pre: ISE 332 (432) or permission of instructor.

ISE 546 Advanced Metal Deformation Processes LEC (3 crs.) Theory of metal flow under different loading conditions. Prediction of metal forming process capabilities. Advanced topics include effects of anisotropy and mechanics of powder forming. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit for students with credit in 446.

ISE 549 Advanced Product Design for Manufacture LEC (3 crs.) Cross-listed as (ISE), MCE 549. Techniques for analyzing product structures for ease of assembly and manufacture. Considers mechanical and electronic products and choice of materials and processes. A design project and term paper are required. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit for students with credit in ISE 449.

ISE 550 Design for Producibility IND (3 crs.) Project work on product development, collaboration with industry, and submission of design project report. Concentration on effect of design decisions on manufacturing efficiency and cost. (Independent Study) Pre: ISE 449 or 549 or permission of instructor.

ISE 552 Lean Systems LEC (3 crs.) Advanced study of enterprise system design including application of lean principles to service industries. Specific topics include lean manufacturing, waste elimination, reduction of cycle and set-up times, reconfigurable systems, quality and performance analysis. (Lec. 3) Pre: ISE 451 or 540 or permission of instructor.

ISE 555 Deterministic Systems Optimization LEC (3 crs.) Linear, nonlinear and integer formulations and solutions. Sensitivity analysis and pricing problems; degeneracy and duality; decomposition methods for large-scale systems; use of mathematical programming languages and applications. Pre: ISE 332 (432) or permission of instructor. In alternate years.

ISE 591 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

ISE 592 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

ISE 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

ISE 634 Design and Analysis of Experiments LEC (3 crs.) Advanced topics in the design and analysis of experiments: factorial designs, blocking and confounding in factorial designs, fractional factorial designs, response surface methods and designs, nested and split-plot designs, other design and analysis topics. (Lec. 3) Pre: ISE 533 or permission of instructor.

ISE 660 Nonlinear Systems Optimization LEC (3 crs.) Methods of optimization: indirect, direct elimination, climbing. Geometric programming. Problems and other topics in applied optimization. (Lec. 3) Pre: ISE 332 (432) or permission of instructor.

ISE 691 Advanced Special Problems In Industrial Engineering IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

ISE 692 Advanced Special Problems in Industrial Engineering IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits.

ISE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U only.

ITL | Italian

ITL 100 Accelerated Elementary Italian LEC (6 crs.) Equivalent to ITL 101 and 102. Develops basic communication skills in Italian. Explores the products, practices, and perspectives of Italian culture. (Lec. 6) Pre: Freshman or sophomore status only. (C2) (A3)

ITL 101 Beginning Italian I LEC (3 crs.) Elements of the language, pronunciation, grammar, inductive reading; exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Italian is required. Will not count toward the language requirement if the student has studied Italian for more than one year within the last six years. (C2) (A3)

ITL 102 Beginning Italian II LEC (3 crs.) Continuation of ITL 101. Students enrolling in this course should have taken ITL 101 or equivalent. (Lec. 3) (C2) (A3)

ITL 103 Intermediate Italian I LEC (3 crs.) Development of facility in reading texts of moderate difficulty, supplemented by further work in grammar, conversation, and composition. Students enrolling in this course should have taken ITL 102 or equivalent. (Lec. 3) (C2) (A3)

ITL 104 Intermediate Italian II LEC (3 crs.) Continuation of ITL 103. Students enrolling in this course should have taken ITL 103 or equivalent. (Lec. 3) (C2) (A3)

ITL 205 Conversation and Composition LEC (3 crs.) Intensive course in conversation and composition. Promotes facility in speaking and understanding idiomatic Italian. Students enrolling in this course should have taken ITL 104 or equivalent. (Lec. 3) (C2) (A3)

ITL 206 Conversation and Composition LEC (3 crs.) Intensive course in conversation and composition. Promotes facility in speaking and understanding idiomatic Italian. Students enrolling in this course should have taken ITL 104 or equivalent. (Lec. 3) (C2) (A3)

ITL 301 Civilization of Italy LEC (3 crs.) The most important aspects of Italian civilization. From the Middle Ages to the end of the Renaissance. (Lec. 3) Pre: ITL 205 or 206 or permission of chairperson.

ITL 302 Civilization of Italy LEC (3 crs.) The most important aspects of Italian civilization. From the 17th century to the present. (Lec. 3) Pre: ITL 205 or 206 or permission of chairperson.

ITL 305 Advanced Conversation and Composition LEC (3 crs.) Intensive practice in spoken and written Italian. (Lec. 3) Pre: ITL 205 or 206 or permission of chairperson.

ITL 310 Italian in the Real World: Conversation and Current Events LEC (3 crs.) Enhance your knowledge of Italian contemporary culture and current events around the world through direct video-conversations with young Italians and the analysis of breaking news stories in Italy and the world. (Lec. 3) Pre: successful completion of one 200-level ITL course or equivalent, or permission of instructor.

ITL 315 Italian Cinema LEC (3 crs.) Representative Italian films and their directors through viewing and discussions of films, lectures, and readings. Course taught in English. (Lec. 3) Students counting the course for a major or minor in Italian are required to do written work in Italian and must have credit for ITL 205 or 206 or permission of instructor. May be repeated with different topics for a maximum of 9 credits. (Lec. 3) (A3) (C2)

ITL 316 Italian Language and Culture Study Abroad I PRA (3 crs,) Supervised cross-cultural experience in an Italian-speaking country for advanced language students. (Practicum 3). Pre: ITL 205 or ITL 206 or permission of instructor.

ITL 317 Italian Language and Culture Study Abroad II PRA (3 crs.) Supervised cross-cultural experience in an Italian-speaking country for advanced language students. (Practicum 3). Pre: ITL 205 or ITL 206 or permission of instructor.

ITL 320 Exploring Italian Literature for Children SEM (3 crs.) Introduction to Italian literature for children including counting books, alphabet books, fables, fairy tales, fantasy/adventure stories, and historical fiction. Creative, analytical and biographical writing; focus on pronunciation for reading aloud. (Seminar) Pre: ITL 205 and 206 or equivalent; or permission of instructor. (A3) (C2)

ITL 325 Introduction to Italian Literature LEC (3 crs.) Appreciation of literature. Representative texts of Italian narrative, drama, and lyric poetry. Elements of the methods of criticism. (Lec. 3) Pre: ITL 205 or 206 or permission of chairperson.

ITL 326 Introduction to Italian Literature LEC (3 crs.) Appreciation of literature. Representative texts of Italian narrative, drama, and lyric poetry. Elements of the methods of criticism. (Lec. 3) Pre: ITL 205 or 206 or permission of chairperson.

ITL 390 Italian Literature in Translation LEC (3 crs.) Study of representative Italian authors in English translation. Students may use up to three credits from ITL 390 or 395 towards the Italian major. (Lec. 3, Sem.) (A3) (C1)

ITL 395 Dante's Divine Comedy LEC (3 crs.) Reading in English translation of Dante's chief work. Students may use up to three credits from ITL 390 or 395 towards the Italian major. (Lec. 3)

ITL 450 Women Writers: Renaissance to the Enlightenment LEC (3 crs.) Examines Italian women who were active participants in the literary and artistic developments of Italian and European culture from the Renaissance to the Enlightenment: poets, playwrights, journalists, courtesans, matrons, and nuns. Study of their correspondence, dialogues, poetry, plays, literary periodicals, and fashion magazines in the context of the contemporary debates on the condition of women in society. (Lec. 3) Pre: one 300-level ITL course or permission of instructor. Not for graduate credit.

ITL 455 Selected Italian Authors LEC (3 crs.) Works of one or more major authors of Italian literature. Specific author(s) are designated the semester before the course is given. (Lec. 3) Pre: one 300-level course or permission of instructor. May be repeated for a maximum of 12 credits with different topics.

ITL 465 Topics in Italian Literature LEC (3 crs.) Special topics or themes in Italian literature not treated or emphasized in other courses. (Lec. 3) Pre: one 300-level course or permission of instructor. May be repeated with change in topic for a maximum of 9 credits.

ITL 480 Business Italian LEC (3 crs.) Study of concepts and terminology relating to the Italian business world. (Lec. 3) Pre: junior standing, credit or concurrent enrollment in at least one 300-level Italian course, or permission of instructor.

ITL 481 The Works of Dante Alighieri LEC (3 crs.) Dante's works with special attention given to analysis and interpretation of the Divine Comedy from the social, religious, philosophical, and political viewpoints of the Middle Ages. (Lec. 3) Pre: one 300-level course or permission of instructor.

ITL 497 Directed Study IND (3 crs.) Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by a faculty member and approval of chairperson.

ITL 498 Directed Study IND (3 crs.) Designed particularly for the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: acceptance of project by a faculty member and approval of chairperson.

ITR | Internships/Experiential Education

ITR 300 Career Planning: Concepts and Skills SEM (1-3 crs.) Identify personal strengths, interests, and professional values related to career exploration. Develop professional job and internship search skills. (Seminar/Online) Pre: sophomore standing; NOT for BUS or Wanting BUS students.

ITR 301 Field Experience I PRA (3-12 crs.) Field experience gained at placement site through participation in the ITR program. The experience will be defined by a job description and learning contract arranged by the ITR director between the student intern, the intern's faculty advisor, and the relevant agency supervisor. (Practicum) Pre: junior and senior standing, participation in the ITR program, permission of faculty advisor, and (a minimum quality point average of 2.00 or permission of the department chair of the student's major). May be repeated for a maximum of 24 ITR credits. S/U credit.

ITR 302 Field Experience II PRA (3-12 crs.) Field experience gained at placement site through participation in the ITR program. The experience will be defined by a job description and learning contract arranged by the ITR director between the student intern, the intern's faculty advisor, and the relevant agency supervisor. (Practicum) Pre: junior and senior standing, participation in the ITR program, permission of faculty advisor, and (a minimum quality point average of 2.00 or permission of the department chair of the student's major). May be repeated for a maximum of 24 ITR credits. S/U credit.

ITR 303 Colloquium I SEM (3 crs.) Seminar format. Discussions of issues and problems raised by internship experiences in public service agencies. (Seminar) Pre: concurrent enrollment in 301 for 303. Required for and open only to students enrolled in the ITR program.

ITR 304 Colloquium II SEM (3 crs.) Seminar format. Discussions of issues and problems raised by internship experiences in public service agencies. (Seminar/Online) Pre: concurrent enrollment in 302 for 304. Required for and open only to students enrolled in the ITR program.

ITR 305 Workplace Readiness for Social Science Majors ONL (1 cr.) An online career readiness workshop designed for social science majors in the College of Arts and Sciences. Students create personalized content and discuss various related topics with associated URI alumni. (Online) Pre: sophomore, junior or senior standing; for CCJ, ISD, AAF, SOC, APG, ECN, GWS, or PSC majors only. S/U only.

ITR 400 Off Campus Field Experience/Internship PRA (0 cr.) Undergraduate students completing approved off-campus Field Experience or Internship for zero credit. Fall, Spring, Summer Semester. Minimum 40 hours field experience. Registration by permission number only. (Practicum) Pre: permission of instructor. S/U only.

JOR | Journalism

JOR 110 Introduction to Mass Media LEC (3 crs.) Surveys newspapers, magazines, radio, movies, television, advertising, and emerging technologies. Examines economic and news functions of each. Considers First Amendment, legal and ethical problems, restrictions, and social consequences of media. (Lec. 3) Recommended for nonmajors. Not for major credit in journalism. (A3) (C1)

JOR 110H Honors Section of JOR 110: Introduction to Mass Media LEC (3 crs.) Honors Section of JOR 110: Introduction to Mass Media. (Lec. 3) Pre: overall GPA of 3.40 or better. (A3) (C1)

JOR 115 Foundations of American Journalism LEC (3 crs.) Introduction to basic theories and principles of American journalism, and some of the major issues journalists confront. Examines news media audiences, effects, freedom, and responsibility. (Lec. 3) For journalism majors only.

JOR 210 History of American Journalism LEC (3 crs.) Development of American newspapers, magazines, and broadcast industry with analysis of the ideas that have changed American journalism. Exploration of the journalist's experience at periods in American history; the effects of economic and social changes on the press. (Lec. 3) Pre: JOR 110 or 115 or permission of instructor. In alternate years.

JOR 211 History of Broadcasting LEC (3 crs.) Survey of broadcasting. Examines its pioneers and the impact of significant historical events as covered by radio and television. Considers the origins of modern news shows, talk-show formats, magazine broadcasts, and quiz shows. (Lec. 3) Pre: JOR 110 or 115. In alternate years.

JOR 215 Free Speech And American Society LEC (3 crs.) Legal and social parameters of freedom of speech in the United States. The legal and social history of freedom of speech will be examined and applied to discussions of recent free-speech controversies. (Lec. 3) Pre: JOR 110 or 115.

JOR 220 Media Writing LEC (3 crs.) An introduction to writing for newspapers, magazines, broadcasting, and public relations. Includes consideration of objectivity, information gathering, language use, clarity and style, legal and ethical concerns. (Lec. 2, Lab. 2) Pre: WRT course with a grade of B or better and major in journalism or sports media and communication, or permission of instructor.

JOR 221 Multimedia Reporting LEC (3 crs.) Introduces students to reporting and writing stories for listeners and viewers as well as readers, including gathering and using sound, video and still pictures. Frequent out-of-class assignments. (Lec. 2, Lab. 2) Pre: journalism majors only; JOR 220 with grade of C or better. Not open to students with credit in 230.

JOR 310 Media Law for Journalists LEC (3 crs.) Role of government and the law in the communication of news, including basic laws affecting freedom of the press, journalists' privileges and responsibilities, privacy, broadcasting, and advertising. Case studies. (Lec. 3) Pre: junior standing and 110 or 115 and one 300-level journalism skills course or permission of instructor.

JOR 311 Journalism Criticism LEC (3 crs.) Examines news media performance in the United States by studying the works of media critics, both historical and contemporary. Practice in media monitoring and writing media criticism. (Lec. 3) Pre: JOR 110 or 115 or permission of instructor.

JOR 313 Alternative News Media in the United States LEC (3 crs.) Critical analysis of nontraditional media in the United States, including black, religious, feminist, gay and lesbian press, as well as broadcast stations operated by and for minority groups. (Lec. 3) Pre: JOR 110 or 115. In alternate years.

JOR 320 Public Affairs Reporting And Writing LEC (3 crs.) Practice in gathering and writing news of public affairs, including local and state government, courts, law enforcement. Introduces public records, alternatives to straight news story, interviewing techniques, rewriting. Frequent out-of-class and off-campus assignments. (Lec. 2, Lab. 2) Pre: JOR 220 with a grade of C or better and major in journalism or public relations, or permission of instructor.

JOR 321 Magazine Article and Feature Writing SEM (3 crs.) Planning, researching, and writing articles and feature stories for magazines and newspapers. Discussion of markets, freelance and job opportunities. Articles written and submitted to publications. (Seminar) Pre: junior standing and JOR 220 with a grade of C or better, and major in journalism or public relations, or permission of instructor.

JOR 325 Sports Writing LEC (3 crs.) Examination and analysis of classic American sports writing. Course includes study and production of various types of sports reports and features including profiles and topical stories. (Lec. 2 Studio 1) Pre: JOR 220 or 320 or 321 or 341 or permission of department chair.

JOR 330 Television News LEC (3 crs.) Reporting, writing, anchoring and producing news for television. Group work leads to production of a half-hour studio newscast. Frequent out-of-class and off-campus assignments. (Lec. 2, Lab. 2) Pre: JOR 221 or 230 with a grade of C or better.

JOR 331 Electronic News Gathering LEC (3 crs.) Skill development in the visual technology of television news. Techniques of single-camera field production are stressed. Introduction to fundamentals of video tape editing; practice in ENG photography and editing. Frequent out-of-class and off-campus assignments. (Lec. 2, Lab. 2) Pre: JOR 330 with a grade of C or better.

JOR 340 Public Relations Strategies LEC (3 crs.) Cross-listed as (PRS), JOR 340. Principles and procedures in public relations: emphasis on role of the public relations practitioner as a specialist in communication; analysis of publications produced as a part of public relations. (Lec. 3/Online) Pre: PRS 100 and declared PR majors or PR minors.

JOR 341 Editing For Publication LEC (3 crs.) Cross-list as (JOR), PRS 341. An introduction to editing for the print media, including newspapers, magazines, and public relations. Focuses on taking work written by others and preparing it for publication. Includes consideration of legal and ethical issues. (Lec. 2, Lab. 2) Pre: junior standing and JOR 220 or WRT 331/PRS 331, and major in journalism or public relations, or permission of instructor.

JOR 410 Ethics in Journalism LEC (3 crs.) Critical analysis of current issues affecting journalists and society in general, based on readings, videotapes, case studies, and discussion. Emphasis on ethics and decision making. (Lec. 3) Pre: JOR 110 or 115 and senior standing or permission of instructor. Not for graduate credit.

JOR 411 Senior Portfolio SEM (1 cr.) Structured opportunity to select, review and reflect on examples of work for a portfolio. Formal presentations of portfolio to faculty required. (Portfolio) Pre: journalism major and senior standing and concurrent enrollment in JOR 410. Not for graduate credit.

JOR 415 Perspectives On Reporting SEM (3 crs.) Cross-listed as (JOR), WRT 415. Critical assessment of reporting through the reading and analysis of book-length works of journalism and magazine and newspaper series of articles. (Seminar) Pre: JOR 110 or 115 and junior standing. Not for graduate credit.

JOR 420 Working in the Newsroom LEC (3 crs.) Planning and producing complex news stories for print and multimedia. Emphasizes idea development, information gathering, interview techniques, print and visual reporting techniques. (Lec. 3, Studio 1) Pre: Junior standing and either JOR 320, 330, or 331. Not for graduate credit. (D1)

JOR 430 Advanced Television News LEC (3 crs.) Practical experience in longer, more specialized news formats. Students report, write, videotape in-depth television news pieces. (Lec. 3) Pre: JOR 330 with a grade of C or better.

JOR 440 Independent Study IND (1-3 crs.) Individual reading programs, research, or project in journalism or mass media. (Independent Study) Pre: junior standing and submission to chairperson of proposal signed by supervising faculty member. Not for graduate credit.

JOR 441 Public Relations Practices PRA (3 crs.) Cross-listed as (PRS), JOR 441. Practical application of traditional PR methods in solving problems in a variety of markets. Explores fundamental agency operations, client-agency relationships. Combines practical experience with individual projects, programs, and campaigns. (Practicum) Pre: PRS 340. Not for graduate credit. (D1)

JOR 442 Publication Design for Journalism and PR LEC (3 crs.) An introduction to designing and producing for the print media, including newspapers, magazines, and newsletters. Extensive use of computers and desktop-publishing technology. Includes consideration of legal and ethical issues. (Lec. 2, Lab. 2) Pre: Junior standing. JOR 341 with a grade of C or better recommended.

JOR 443 Strategic Media Communication LEC (3 crs.) Cross-listed as (PRS), WRT, COM 442, JOR 443. Introduces strategic media relation tactics when responding to the media, specifically crisis communication situations. Students gain practical experience in various writing and speaking opportunities to effectively work with the media. (Lec. 3) Pre: Junior standing; open only to majors in Communication Studies, Public Relations, Journalism, and Writing.

JOR 445 Special Topics in Journalism LEC (3 crs.) Subject, course content, and years offered will vary according to expertise and availability of instructors. (Lecture/Lab. or Seminar) Pre: permission of instructor. May be repeated for credit with different topic. Not for graduate credit.

JOR 477 (345) Journalism Internship PRA (3 or 6 crs.) Supervised experience in: (a) reporting and writing; (b) editing; (c) radio news; (d) television news; (e) public relations. Requires a minimum of 120 hours (3 credits) or 240 hours (6 credits). Weekly one-hour class meeting. Maximum of 6 credits allowed toward graduation. (Practicum) Pre: journalism majors and minors and public relations minors only. Prerequisite courses depend on internship. Permission of instructor and application required. Not for graduate credit.

JPN | Japanese

JPN 101 Beginning Japanese I LEC (3 crs.) Fundamentals of grammar and pronunciation, exercises in reading, writing, and conversation. (Lec. 3) Pre: no prior Japanese is required. Will not count toward the language requirement if the student has studied Japanese for more than one year within the last six years. (A3) (C2)

JPN 102 Beginning Japanese II LEC (3 crs.) Continuation of JPN 101. Students enrolling in this course should have taken JPN 101 or equivalent. (Lec. 3) (A3) (C2)

JPN 201 (103) Intermediate Japanese I LEC (3 crs.) Aims to improve listening and speaking skills and communication strategies and develop basic reading and writing skills through intensive practice (Lec. 3) Pre: JPN 102 (or equivalent) or permission of instructor. (A3) (C2)

JPN 202 (104) Intermediate Japanese II LEC (3 crs.) Continuation of JPN 201 (103). (Lec. 3) Pre: JPN 201 (103) or equivalent or permission of instructor. (A3) (C2)

JPN 301 (205) Pre-Advanced Japanese I LEC (3 crs.) Aims to increase syntactic complexity, accuracy, lexical variety, fluency and communicative adequacy in spoken and written Japanese. All four language learning skills will be developed through intensive practice. (Lec. 3) Pre: JPN 202 (104) or equivalent or permission of instructor.

JPN 302 (206) Pre-Advanced Japanese II LEC (3 crs.) Continuation of JPN 301 (205). (Lec. 3) Pre: JPN 301 (205) or equivalent or permission of instructor.

JPN 310 Japanese Language and Culture LEC (3 crs.) This course, taught in English, examines the close relationship between Japanese language and culture. (Lec. 3)

JPN 401 (305) Advanced Japanese I LEC (3 crs.) Aims to further develop Japanese language skills and to facilitate the ways students can achieve their own communicative goals and overcome their challenges autonomously. (Lec. 3) Pre: JPN 302 (206) or equivalent or permission of instructor.

JPN 402 (306) Advanced Japanese II LEC (3 crs.) Continuation of JPN 401 (305). (Lec. 3) Pre: JPN 401 (305) or equivalent or permission of instructor.

JPN 460 Japanese Special Studies LEC (3 crs.) Special topics in Japanese language and culture. May be repeated with different topic. (Lec. 3) Pre: One semester of Japanese at the Pre-Advanced level (JPN 301 (205), 302 (206)) or permission of section head.

JPN 497 Directed Study IND (1-3 crs.) Directed Study. For the advanced student. Individual research and reports on problems of special interest. (independent Study) Pre: acceptance of a project by a faculty member and approval of department head. May be repeated with a change of emphasis or topics for a maximum of 6 total credits. Not for graduate credit.

KIN | Kinesiology

KIN 120 Weight Training And Physical Conditioning STU (1 cr.) Principles of weight training and conditioning with emphasis on constructing individual and group exercise programs. (Studio 3) Open to kinesiology majors only.

KIN 121 Principles of Youth Fitness STU (1 cr.) Principles of exercise as it relates to children and adolescents. Emphasis on teaching principles of aerobic exercise, flexibility, and resistance training. (Studio 2) Open to kinesiology majors only.

KIN 122 Human Anatomy and Physiology LEC (4 crs.) Structure and function of organ systems of the human body with emphasis on applications to human health. (Lec. 3, Online 1) Not for major credit for BS in Biological Sciences.

KIN 123 Foundations of Health LEC (3 crs.) Development of attitudes and practices that lead to more healthful living. Personal and community health problems studied. (Lec. 3/Online) (A2) (B4)

KIN 123H Honors Section of KIN 123: Foundations of Health LEC (3 crs.) Honors Section of KIN 123: Foundations of Health. (Lec. 3/Online) Pre: 3.40 overall gpa. (A2) (B4)

KIN 125 Group Exercise Instruction and Leadership STU (2 crs.) This course will familiarize students with basic group exercise standards and guidelines, develop basic teaching skills, and develop skills in designing and teaching group exercise classes to apparently healthy adults. (Studio. 2)

KIN 210 Beginner Sailing LAB (2 crs.) Students will learn the fundamentals of sailing a small sailboat, including the theoretical aspects of sailing. Classes include both lectures and on the water instruction. (Lab 2)

KIN 243 Prevention And Care Of Athletic Injuries LEC (3 crs.) Conditioning, use of physiotherapy equipment, massaging, taping and bandaging technique. Latest American Red Cross procedures with the opportunity to receive standard certification. (Lec. 2, Lab. 2) Open to kinesiology majors only or with permission of instructor.

KIN 250 Intermediate Sailing LAB (2 crs.) Students will learn intermediate sailing techniques including sloop rigged dinghies and keel boats, spinnaker use, trapezing and introductory racing. (Lab. 2) Pre: KIN 210 or permission of instructor.

KIN 275 Introduction to Exercise Science LEC (3 crs.) Introduction to the field of exercise science. Principles of exercise, components of health-related physical fitness, weight management, and basic exercise prescription. (Lec. 3/Online)

KIN 278 Physical Activity, Cultural Diversity, and Society LEC (3 crs.) Introduction to the multiple ways in which issues of cultural diversity shape physical activity in American Society. (Lec.3) Pre: Open to kinesiology majors only or with permission of instructor.

KIN 300 Physiology of Exercise LEC (3 crs.) Cross-listed as (KIN), BIO 300. Applied human physiology, with applications to physical activity, exercise, and sport. Particular attention to acute and chronic adjustments of the circulatory, respiratory, metabolic, and muscular systems with exercise. (Lec. 3/Online) Pre: BIO 121 or BIO 220 and BIO 221 and BIO 222 and BIO 223 or permission of instructor. Open to Kinesiology and Biology majors only.

KIN 301 Physiology of Exercise Laboratory LAB (1 cr.) Cross-listed as (KIN), BIO 301. Student participation in laboratory sessions designed to understand the physiology of exercise relating to body composition, EKG, pulmonary, and metabolic functions. (Lab. 2) Pre: BIO 121 or BIO 220 and BIO 221 and BIO 222 and BIO 223 or permission of instructor. Open to Kinesiology and Biology majors only.

KIN 320 Fundamentals of Resistance Training LEC (3 crs.) Scientific and theoretical basis of strength training reinforced with hands-on laboratory experiences. Training techniques, safe and effective program design and program modification for individuals with special considerations are emphasized. (Lec. 3) Pre: KIN 300.

KIN 325 Exercise Testing and Prescription LEC (3 crs.) Physical fitness assessments with focus on appropriate test selection and performance. Emphasis on exercise prescription and the practical skills of test administration. Preparation for ACSM Certified Exercise Physiologist exam. (Lec. 3) Pre: KIN 275 and KIN 300, one of MTH 101, 103, 111, 131. Open to Kinesiology majors only, or permission of instructor..

KIN 369 Measurement and Evaluation in Kinesiology LEC (3 crs.) Students learn the statistical basis for descriptive analyses and hypothesis testing in kinesiology. Students also learn to select, administer, and create reliable and valid tests in exercise, sport, fitness, and health. (Lec. 3) Pre: Kinesiology major and one of MTH 101, 103, 111, 131, or permission of instructor.

KIN 370 Kinesiology LEC (3 crs.) The study of human movement based on anatomical, physiological, and mechanical principles. Emphasis on application of these principles to fundamental movement and physical education activity. (Lec. 3) Pre: Kinesiology major and BIO 121 or BIO 220 and 221, one of MTH 101, 103, 111, 131, or permission of instructor.

KIN 375G Exercise is Medicine LEC (3 crs.) Explores the biological and physiological mechanisms related to physical activity and exercise-induced enhancement of physical and mental health. (Lec. 3) (A1) (B4) (GC)

KIN 381 Exercise Behavior and Psychosocial Outcomes LEC (3 crs.) Review of theories of how psychological factors and interventions can affect exercise behavior and examine the psychosocial outcomes that are influenced by engaging in exercise both acutely and chronically. (Lec. 3) Pre: PSY 113. Open to Kinesiology majors only, or permission of instructor.

KIN 382 Psycho-Social Aspects of Physical Education and Sport LEC (3 crs.) The scientific study of the behavior of individuals' and groups within sport and physical activity. (Lec. 3) Pre: PSY 113 or permission of instructor.

KIN 390 Seminar in Kinesiology SEM (2 crs.) Seminar for students preparing for careers and internships in Kinesiology. Subject areas include career and internship opportunities, certification, and graduate school. A variety of practicing professionals are featured speakers. (Seminar) Pre: junior standing.

KIN 391 Directed Study IND (1-3 crs.) Development of an approved project supervised by a member of the department faculty. (Independent Study) Pre: junior standing and permission of chairperson and instructor.

KIN 407 Physical Activity as Therapy LEC (3 crs.) Cross-listed as (KIN), EDC 407. Introduction to a variety of sports/physical activities, teach students to analyze personal physical activity information collected with technological devices, learn specific exercise physiology and pedagogy applications and complete service learning experiences. (Lec., Lab.)

KIN 414 Advanced Strength and Conditioning LEC (3 crs.) Scientific and practical basis for developing, designing, evaluating, and implementing resistance training programs. Emphasis on the physiological basis of program design. Prepares students for National Strength and Conditioning Association certification. (Lec. 3) Pre: BIO 220 and 222, KIN 320, and KIN 370.

KIN 420 Fitness Programs for Individuals with Chronic Diseases LEC (3 crs.) Theory and application of physical fitness programs and testing of individuals with cardiovascular, musculoskeletal, and metabolic diseases. (Lec. 3) Pre: KIN 325, 300 and 301. Not for graduate credit. (D1)

KIN 425 Fitness and Wellness Program Development LEC (3 crs.) Development and administration of fitness and wellness programs. Includes program leadership and managerial skills for corporate, commercial, community, and clinical settings. (Lec. 3) Pre: KIN 275 and junior standing. Open to Kinesiology majors only, or permission of instructor. Not for graduate credit.

KIN 464G Physiology of Aging LEC (3 crs.) Addresses topics related to current research and ethical ramifications of physiology of aging through lecture, discussion, reading and writing assignments. (Lec. 3) Pre: BIO 220 and BIO 221; BIO 121 and BIO 242; or permission of instructor. Not for graduate credit. (A1) (B4) (GC)

KIN 475 Gender Issues in Sport and Physical Culture LEC (3 crs.) Use of critical social theories to examine the complexities of how gender manifests within and unavoidably structures, every person's experience in sport and physical culture. (Lec. 3) Pre: SOC 100 or GWS 150 or JOR 110 or KIN 278 or permission of instructor. (C3) (A3)

KIN 478 Sport, Cultural Politics, and Media LEC (3 crs.) Critical examination of social issues and cultural politics mediated through print, film, television, Internet and video games related to sports, fitness, and physical activity. (Lec. 3) Pre: SOC 100 or GWS 150 or JOR 110 or KIN 278 or permission of instructor. (C3) (A3)

KIN 484 Supervised Field Work PRA (12 crs.) Supervised internship in clinical, community, corporate, or commercial settings. (Practicum) Pre: completion of core exercise science courses; minimum cumulative 2.5 GPA. Not for graduate credit.

KIN 486 Field Experience Seminar SEM (3 crs.) Seminar for students completing field work in health, physical education, or recreation. Topics include identification of problems, resource materials, and discussions of future career concerns. (Seminar) Pre: concurrent enrollment in KIN 484. Not for graduate credit in physical education. Note: Student teaching includes practicum in both elementary and secondary schools under the supervision of the department. See EDC 485, 486, 487, 488, and 489.

KIN 501 Seminar in Kinesiology SEM (1 cr.) This course provides a forum for students, faculty and staff from the Department of Kinesiology to present and discuss research and current issues related to the field of Kinesiology. (Seminar) Pre: Graduate standing or permission of chairperson. Must be taken twice prior to graduation.

KIN 508 Physical Activity Promotion: Theory and Practice LEC (3 crs.) This course examines theory and methods to facilitate individual and group behavior change, focused on promoting physical activity. Concepts in behavioral sciences affecting health behavior, motivation, and decision-making are explored. (Lec. 3)

KIN 510 Current Issues in Physical Education, Health, and Recreation LEC (3 crs.) Designed to develop student awareness of contemporary situations that are of concern to the above professions. Extensive review of contemporary literature. Critical analysis of selected issues, their components and effects. (Lec. 3) Pre: permission of instructor.

KIN 515 Physiology of Physical Activity and Health LEC (3 crs.) The physiological basis of human movement, including contemporary topics such as the relationship between physical activity and health, obesity, exercise and aging, and youth fitness. (Lec. 3)

KIN 520 Curriculum Construction in Physical Education LEC (3 crs.) Analysis of criteria and procedures for curriculum construction in physical education. Standards for the evaluation and revision of elementary and secondary school physical education courses. (Lec. 3) Pre: permission of instructor.

KIN 524 Obesity: Causes, Consequences and Care LEC (3 crs.) Overview of the obesity epidemic and implications for morbidity and mortality. Consideration of energy balance issues and metabolism. Emphasis on the role of physical activity in preventing and treating obesity. (Lec. 3) Pre: graduate standing or permission of instructor.

KIN 530 Research Methods and Design in Kinesiology LEC (3 crs.) An introduction to the basic aspects of research, including problem selection, literature review, instrumentation, methodology, and the writing of research reports and articles. (Lec. 3) Pre: competence in basic statistics and permission of instructor.

KIN 531 Advanced Experimental Techniques in Exercise Science LEC (3 crs.) Instruction in using the computer for research purposes with an emphasis on data analysis (i.e., statistical techniques). (Lec. 3) Pre: KIN 530 or permission of instructor.

KIN 545 Advanced Motor Development LEC (3 crs.) Advanced study of the continuous process of motor development across the lifespan. Planning and directing movement experiences, factors mediating growth and development, and individual and gender differences are investigated.

KIN 555 Women in Sport: Issues and Controversies LEC (3 crs.) Critical analysis of women's sports using contemporary feminist perspectives. Emphasis on psychosocial and political-economic constructs that regulate women's emergence into sport. (Lec. 3)

KIN 559 Principles of Exercise Testing and Interpretation LEC (3 crs.) Theory and practical application of the graded exercise test including oxygen consumption measurements. Special emphasis on writing a safe exercise prescription based on the interpretation of the exercise test data. (Lec. 3) Pre: graduate standing or permission of instructor

KIN 560 Seminar in Health, Physical Education, and Recreation SEM (3 crs.) Selected topics within the three areas, depending on availability of specialized instruction including visiting professorship. (Seminar) Pre: permission of instructor.

KIN 562 Advanced Exercise Physiology LEC (3 crs.) Advanced study of the physiological factors limiting physical performance and work capacity with emphasis on the effects of physical conditioning on health and fitness. (Lec. 3) Pre: graduate standing or permission of instructor.

KIN 563 Epidemiology of Physical Activity LEC Presentation of exercise epidemiology and the effects of exercise on health. Current findings regarding the association between physical activity and chronic diseases and their risk factors. (Lec. 3) Pre: graduate standing or permission of instructor.

KIN 564 Physiology of Aging LEC (3 crs.) Library searches, reports, and discussion of topics of current research on the physiology of aging. Subject matter adapted to meet interests of students. (Lec. 3) Pre: Graduate standing or permission of instructor. Not open to students with credit in KIN 464.

KIN 565 Cardiovascular Disease: Prevention and Rehabilitation LEC (3 crs.) Focus on cardiac rehabilitation, underlying pathology and pathophysiology, diagnostic and prognostic testing, and principles of rehabilitation. Special emphasis on electrocardiographic analysis and exercise intervention. (Lec. 3) Pre: graduate standing or permission of instructor.

KIN 578 Cultural Studies of Sport and Physical Activity LEC (3 crs.) Survey course focusing on the social, cultural, political, and economic conditions that produce and influence sport and physical activity. Emphasis on critical analyses of the social and political dimensions of physical activity, fitness, sport, health and wellness. (Lec. 3) Pre: KIN 278, graduate standing, or permission of instructor.

KIN 580 Inclusive Practices in Adapted Physical Education LEC (3 crs.) Strategies for inclusion of children and youth with disabilities into general physical education, including legal, moral, and ethical considerations and responsibilities; theories of inclusive practices and application based on individual needs. (Lec. 3)

KIN 581 Psychological Aspects of a Healthy Lifestyle LEC (3 crs.) Cross-listed as (KIN), PSY 581. Considers the psychological processes and behaviors related to exercise participation and the adoption of a healthy lifestyle. Analysis of models and theories used in exercise psychology, associated research, and the implications for practitioners. (Lec. 3) Pre: graduate standing, PSY 113 and 232, or permission of instructor.

KIN 582 Applied Sport Psychology LEC (3 crs.) Focus on performance enhancement techniques (i.e., imagery, goal-setting, etc.) designed to improve individual and team performance. (Lec. 3) Pre: graduate standing, PSY 113 and 232 or permission of instructor.

KIN 585 Disability Sports LEC (3 crs.) Sports and recreational opportunities for individuals with disabilities; federal legislation effecting participation opportunities; spectrum of participation in community recreation to elite athletic opportunities within various disability sports organizations and events. (Lec. 3)

KIN 591 Special Problems IND (3 crs.) Written paper reporting an in-depth investigation of a pertinent problem in the field, including a review of relevant literature, analysis, and solution of the problem based on scientific methodology, with recommendations for improved practices. (Independent Study) Limited to and required of all graduate students in physical education who elect the nonthesis option.

KIN 592 Internship in Kinesiology PRA (3 crs.) Directed field experience under the supervision of a faculty member and a professional member of the cooperating institution. Application of knowledge, synthesis of practical experiences. Paper required. (Practicum) Pre: a minimum of 12 graduate credits in kinesiology and permission of major professor and chairperson.

KIN 595 Independent Study IND (1-3 crs.) Development of an approved project supervised by a member of the graduate faculty. (Independent Study) Pre: permission of chairperson and instructor. May not be substituted for 591 or 599.

KIN 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

KIN 691 Research in Kinesiology IND (1-3 crs.) Assigned research on an advanced level. Students are required to outline the problem, conduct the necessary literature survey and experimental work, and present their observations and conclusions in a report. (Independent Study). Pre: Enrollment in the Doctoral Program in Health Sciences. May be repeated for up to 6 credits.

KIN 699 Doctoral Dissertation Research IND (1-12 credits) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study). Pre: Enrollment in the Doctoral Program in Health Sciences. S/U credit.

LAN | Languages

LAN 191 Beginning Foreign Language I LEC (3 crs.) Fundamentals of grammar and pronunciation; exercises in reading, writing, and conversation in a foreign language not included in regular departmental offerings. (Lec. 3) Pre: no prior experience in a specific language is required. May be repeated for credit for different languages. Choice of specific language to be taught subject to availability and student demand. (A3) (C2)

LAN 192 Beginning Foreign Language II LEC (3 crs.) Continuation of LAN 191. Students enrolling in this course should have taken LAN 191 or equivalent in the same language. (Lec. 3) May be repeated for credit for different languages. Choice of specific language to be taught subject to availability and student demand.

LAN 193 Intermediate Foreign Language I LEC (3 crs.) Development of facility in speaking, listening comprehension, writing, and reading texts of moderate difficulty in a language not included in regular departmental offerings. Students enrolling in this course should have taken LAN 192 or equivalent. (Lec. 3) Choice of specific language to be taught subject to availability and student demand.

LAN 194 Intermediate Foreign Language II LEC (3 crs.) Continuation of LAN 193. Students enrolling in this course should have taken LAN 193 or equivalent. (Lec. 3) Choice of specific language to be taught subject to availability and student demand.

LAN 205 Advanced Foreign Language I LEC (3 crs.) Further development of all language skills with emphasis on writing and reading. Students enrolling in this course should have taken HBW 104 or JPN 104 or LAN 194 or equivalent in the same language. (Lec. 3)

LAN 206 Advanced Foreign Language II LEC (3 crs.) Continuation of LAN 205. Students enrolling in this course should have taken LAN 205 or equivalent in the same language. (Lec. 3)

LAN 220 Understanding Languages in Cultural Context LEC (3 crs.) Introduction to understanding the interaction of language and cultures from a linguistic perspective. Topics include cultural analysis, intercultural pragmatics, linguistics, sociolinguistics. (Lec. 3) (A2) (C3)

LAN 420 Capstone Seminar Across Languages and Cultures SEM (3 crs.) Capstone experience to apply accumulated skills and knowledge in study of language and culture to comparative textual and cultural analysis across languages. (Seminar) Pre: Junior standing, minimum 12 credits of coursework in a language other than English, or by permission of instructor. Not for graduate credit. (D1) (B4)

LAR | Landscape Architecture

LAR 101 Freshman Inquiry into Landscape Architecture LEC (1 cr.) Introduction for freshmen to Landscape Architecture: the profession, practices and principles.Interact weekly with faculty and staff. Explore hands-on studio and field studies (Lec. 1) S/U credit.

LAR 201 Survey of Landscape Architecture LEC (3 crs.) Introduction to landscape design theory and composition as an applied art form. (Lec. 3/Online) (A4)

LAR 202 Origins of Landscape Development LEC (3 crs.) Examines the impact of environment, social history, philosophy, art, and literature on architecture and landscape development from ancient to

modern times. Emphasis on European Renaissance through contemporary United States. (Lec. 3) (A4)

LAR 243 Landscape Architecture Graphics LEC (4 crs.) Introduction to landscape graphic communication techniques with emphasis on design and construction drawing and perspective illustration. (Lec. 2, Studio 4)

LAR 244 Basic Landscape Architectural Design STU (4 crs.) Introduction to the development of outdoor space with emphasis on the design process and the manipulation of spatial volumes. (Lec. 2, Studio 4) Pre: 243.

LAR 246 Digital Design Media for Landscape Architecture LEC (1 cr.) Introduction to digital media software with emphasis on principles and practices within the profession of landscape architecture. (Lec. 1, Studio 2) Pre: LAR 243.

LAR 300 Computers In Landscape Architecture LEC (4 crs.) Intensive course in computer usage for landscape architects. Focus on the application of landscape architecture computer-aided design software to project development. (Lec. 2, Studio 4) Pre: sophomore standing in landscape architecture. Intended for landscape architecture majors only.

LAR 301 Landscape Expression and Analysis LEC (4 crs.) Focuses on existing landscape methodologies to examine the earth's surface: using topographical surveying, 3-D mapping, soils analysis, graphic depiction, land interpretation and land development drainage and associated environmental impacts. (Lec. 3, Studio 2) Pre: LAR 244 and MTH 111. For LAR majors or with permission of instructor.

LAR 302 GIS Applications for Landscape Architecture LEC (3 crs.) GIS software, data and orthophotos will be explored and used for site analysis and the creation of plans suitable for standing alone or being incorporated into CAD design/planning applications. (Lec.2, Lab.2) Pre: junior or senior landscape architecture major or permission of instructor.

LAR 343 Landscape Architecture Studio I STU (4 crs.) Landscape concepts in graphic form. Emphasis on preparing landscape plans for small- to intermediate-scale properties. Students study in a professional studio environment. (Lec. 2, Studio 4) Pre: LAR 201, 202, and 244. Intended for landscape architecture majors only.

LAR 344 Landscape Architecture Studio Ii STU (4 crs.) Continuation of landscape concepts and graphics. Emphasis on drawing landscape plans for intermediate to larger scale properties. Advanced rendering. (Lec. 2, Studio 4) Pre: LAR 301, 343, and 345; credit or concurrent enrollment in 346. Intended for landscape architecture majors only.

LAR 345 Landscape Construction I LEC (4 crs.) A comprehensive survey of construction materials and their uses in landscape construction. (Lec. 2, Studio 4) Pre: LAR 244 and 300. Intended for landscape architecture majors only.

LAR 346 Landscape Construction II LEC (4 crs.) The study of soil adjustment; grading, drainage, cut and fill, reshaping of earth surfaces. (Lec. 2, Studio 4) Pre: 301 and 345. Intended for landscape architecture majors only.

LAR 350 Sustainable Communities for the 21st Century LEC (3 crs.) Conditions affecting cities and towns, and the challenges facing designers, planners and citizens engaged in envisioning and creating sustainable environments in a time of climate change. (Lec. 3) Pre: Sophomore standing or permission of instructor. (C1) (B2)

LAR 353 Landscape Plants I LEC (3 crs.) Cross-listed as (LAR), PLS 353. Identification and description under fall conditions; classification and adaptation of the important trees and shrubs including broadleaf evergreens and their value in ornamental plantings. (Lec. 1, Lab. 4) Pre: BIO 102 or PLS 150.

LAR 354 Landscape Plants II LEC (3 crs.) Cross-listed as (PLS), LAR 354. Identification and description under winter and spring conditions; classification and adaptation of the coniferous evergreens, vines, and groundcovers and their value in ornamental plantings. (Lec. 2, Lab. 2) Pre: LAR 353 or PLS 353.

LAR 387G Exploring Climate Change using Visual Design Tools LEC (3 crs.) Cross-listed as (LAR), ART 387G. This course uses landscape architecture/art as a conduit to investigate climate change. While exploring the confluence of ethics and design, students will increase cultural consciousness and move toward civic responsibility. (Lec. 3) Pre: 12 credits earned at 100 level or above, and one of LAR 201 or LAR 202 or ART 105 or ART 214, or permission of instructor. Basic knowledge of climate change is expected. (D1) (C1) (GC)

LAR 434 Introduction to Environmental Law LEC (3 crs.) Cross-listed as (CPL), LAR 434. Surveys issues arising out of laws designed to protect the environment and manage resources: right to a decent environment, government regulation versus private property rights, citizen participation in planning environmental controls. (Lec. 3) Pre: sophomore standing (45 credits completed) and above.

LAR 443 Planting Design LEC (4 crs.) The use of plant materials in landscape composition. Combines spatial definition of various land uses with plant selection. Preparation of plans, details, and specifications. (Lec. 2, Studio 4) Pre: LAR 344 and 354. Intended for landscape architecture majors only. Not for graduate credit.

LAR 444 Landscape Architecture Studio III: Sustainable Design STU (4 crs.) Sustainable design principles and practices. Theoretical and real-world problem solving for individual sites and local communities. Explore sustainability practices, green infrastructure, and public participation. (Lec. 2 Studio 4) Intended for LAR majors, MESM students, or with permission of instructor. Pre: LAR 344 and 346 or by permission of instructor.

LAR 445 Landscape Architecture Studio IV STU (4 crs.) Study of comprehensive landscape architectural projects. Coordination of research and preparation of alternative design solutions and work with public agencies and communities. (Lec. 2, Studio 4) Service learning. Intended for LAR majors, MESM students, or with permission of instructor. Pre: LAR 443 and 444 or by permission of instructor. (D1)

LAR 447 Professional Landscape Architectural Practice LEC (3 crs.) Professional practice, ethics, marketing design services, preparation of contract documents, and effective time management. (Lec. 3) Pre: senior standing in landscape architecture. Not for graduate credit.

LAR 450 Landscape Architecture Portfolio Development LEC (1 cr.) This senior level course will cover the strategy and skills necessary for constructing a professional portfolio and provide students with an opportunity to understand the full potential of the portfolio within the profession. (Lec. 1) Pre: LAR 443 and 444. Not for graduate credit.

LAR 472 The Design of Home-Scale Renewable Energy Systems LEC (4 crs.) Explores the design and implementation of renewable energy systems for household or small site use. Intellectual property, patents and business potentials are explored for two prototypes developed in class facilities. (Lec. 2, Studio 4) Pre: Junior standing and above. Not for graduate credit.

LAR 477 Landscape Architecture Internship PRA (1-6 crs.) Directed work experience program at landscape architecture offices, contracting firms and related industries. (Practicum) Pre: permission of instructor.

LAR 491 Special Projects and Independent Study IND (1-3 crs.) Special work to meet specialized needs in the landscape architecture profession. (Independent Study) Pre: permission of instructor. Not for graduate credit.

LAR 492 Special Projects and Independent Study IND (1-3 crs.) Special work to meet specialized needs in the landscape architecture profession. (Independent Study) Pre: permission of instructor. Not for graduate credit.

LAS | Latin American Studies

LAS 390 The Hispanic Caribbean: Study Abroad in the Dominican Republic LEC (3 crs.) Emphasis on the Dominican Republic, Cuba, and Puerto Rico. Topics will include colonization and slavery, race, gender, religion, European and U.S. interventionism, migration, and development. (Lec. 3) Pre: SPA 104; HIS 180 is suggested.

LAS 397 Directed Study For Senior Research Project IND (3 crs.) Research in a particular area of Latin American studies. Project must be approved by the LAS Committee. (Independent Study) Pre: approval of LAS Committee and instructor.

LAT | Latin

LAT 101 Beginning Latin I LEC (3 crs.) Latin grammar and syntax. Exercises in reading prose. (Lec. 3) Pre: no previous Latin is required. Will not count toward the language requirement if the student has studied Latin for more than one year within the last six years. (A3) (C2)

LAT 102 Beginning Latin II LEC (3 crs.) Continuation of LAT 101. Students enrolling in this course should have taken LAT 101 or equivalent. (Lec. 3) (A3) (C2)

LAT 301 Intermediate Latin LEC (3 crs.) Grammar review; readings such as Petronius' Satyricon. Students enrolling in this course should have taken LAT 102 or equivalent. (Lec. 3) (A3) (C2)

LAT 302 Intermediate-Advanced Latin LEC (3 crs.) Study of Latin texts from different time periods and different genres; syllabus changes on a four-year rotational basis. Students enrolling in this course should have taken LAT 301 or equivalent. (Lec. 3) May be repeated for a maximum of 12 credits with different topics. May be taken once for General Education credit. (A3) (C2)

LAT 497 Directed Study IND (1-6 crs.) Individual readings and research. (Independent Study) Pre: acceptance of a project by a faculty member; approval of section head. May be repeated for credit with different topic. (A3) (C2)

LAT 498 Directed Study IND (1-6 crs.) Individual readings and research. (Independent Study) Pre: acceptance of a project by a staff member; approval of section head. May be repeated for credit with different topic.

LAX | Latin American, Caribbean and Latinx

LET | Letters Latin American, Caribbean and Latinx Issues LEC (3 crs.) Interdisciplinary course on social issues in Latin America and the Caribbean, as well as Latinx and Caribbean-American communities in the U.S. (Lec. 3) (C2) (GC)

LET 151 Topics In Letters SEM (3 crs.) Study of the history of thought, of the search for values, of the attempt to define the human condition, as reflected in written texts, both past and present. (Seminar/Online) May be repeated for credit with different topic. May be taken once for General Education credit under pre 2016 General Education program only. Some topics may be offered online. Topics: Francophone Hip-Hop Culture; Q Contemporary France; The European Union (online); Native American History; Archaeology Frontiers; Franco-American Relations; Social, Ethical and Political Issues in Disability; Jewish American Literature and Culture from "The Great Tide" of Immigration (1881-1924) to the Present; Introduction to World Mythology

LHR | Labor Relations and Human Resources

LHR 432 Work, Employment, and Society LEC (3 crs.) Cross-listed as (SOC), LHR 432. Explores the workplace and employment relations from a sociological perspective. Topics include work systems, worker alienation and organization, occupational identity, and the impacts of immigration, diversity, and globalization on the workplace. (Lec. 3) Pre: SOC 100 or permission of instructor.

LHR 461 (BUS) Management Data Analysis and Communication LEC (3 crs.) Cross-listed as (MGT), LHR 461. Descriptive and predictive statistics for advanced Management students, with a focus on generating insights from data, effectively presenting results in a narrative, and taking evidence-based actions. Excel will be the primary software used. (Lec. 3) Pre: MGT (BUS) 342.

LHR 480 Seminar In Labor Studies SEM (3 crs.) Cross-listed as (ECN), LHR 480. Intensive studies examining various important topics in labor studies. Class discussion of assigned readings and student reports.(Lec. 3) Pre: permission of instructor. Not for graduate credit.

LHR 500 Labor Relations and Human Resources LEC (3 crs.) Cross-listed as (LHR 500), MBA 571. Introduction to labor relations and human resources, including employment practices in unionized and non-union organizations. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 500 Labor Relations and Human Resources LEC (3 crs.) Cross-listed as (LHR 500), MBA 571. Introduction to labor relations and human resources, including employment practices in unionized and non-union organizations. (Lec. 3/Online) Pre: graduate standing or permission of instructor.

LHR 503 Problems In Public Personnel Administration LEC (3 crs.) Cross-listed as (PSC), LHR 503. Development of personnel administration, including problems of recruitment, examination, promotion, and staffing within public service. Emphasis on evaluation of employee performance and collective bargaining in public service. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 520 Developments In Worker Representation LEC (3 crs.) Structure, functions, responsibilities, and programs of unions and union leadership. Emphasis on policies and decision making. Evaluation of labor and management performance. Consideration of administrative problems associated with growth of white collar unions. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 521 Global Politics of Work and Social Welfare LEC (3 crs.) Cross-listed as (LHR), PSC, ECN 521. International and comparative politics of work and social welfare. Transformation of work due to globalization and family shifts; worker rights, education/training, and social security across countries. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 526 Economics of Labor Markets LEC (3 crs.) Cross-listed as (LHR), ECN 526. The theory of labor market behavior, and application of theory for public policy analysis in areas such as discrimination, unemployment, and education. (Lec. 3) Pre: ECN 201 and 202 or 590 or equivalent.

LHR 531 Labor and Employment Law LEC (3 crs.) Survey and analysis of the laws governing labor relations, wages and hours, discrimination (race, religion, sex, national origin, age and disability), whistleblower rights, occupational safety, workers compensation, family/medical leave, and military leave/reemployment. (Lec. 3/Online) Pre: graduate standing or permission of Labor Research Center director.

LHR 532 Seminar in Labor and Employment Law LEC (3 crs.) Advanced seminar to review and evaluate current issues and changing trends in selected aspects of labor and employment law. May be repeated for credit with different topic, for maximum of 6 credits. (Seminar) Pre: graduate standing or permission of Labor Research Center director.

LHR 533 The Business of Employee Benefits LEC (3 crs.) This course will provide students with a foundational understanding of the employee benefits marketplace, with a strong focus on designing effective benefit packages and sharing the intent of the strategy with different business stakeholders. (Lec. 3) Pre: graduate standing or permission Labor Research Center director.

LHR 541 Labor Relations Law LEC (3 crs.) Legal framework for private and public sector collective bargaining. Regulation of activities with emphasis on individual rights, collective rights, and policy considerations of federal and state courts, the NLRB, and state labor boards in determining society's rights. Case studies. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 542 Labor Relations And Collective Bargaining LEC (3 crs.) Collective bargaining literature, theories, and practice. Emphasis on the institutional features of bargaining in both public and private sectors as well as techniques, and dynamics of the bargaining process. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 544 Historical Roots of Modern Labor Issues SEM (3 crs.) Cross-listed as (LHR), HIS 544. Historical roots of contemporary workplace issues, including unions, outsourcing, deindustrialization, service work, globalization, labor law, wages, and working conditions. (Seminar) Pre: graduate standing or permission of instructor.

LHR 545 Arbitration and Mediation of Labor and Employment Disputes LEC (3 crs.) Students prepare, present, and analyze labor and employment arbitration/mediations. The course also covers interest arbitration, and innovative methods for resolving disputes. Pre: graduate standing or permission of instructor.

LHR 546 Negotiation and Alternative Dispute Resolution LEC (3 crs.) Examination of the interpersonal dynamics of negotiations and conflict resolution processes, including interest-based or collaborative bargaining in a variety of contexts; e.g. labor relations, community, environmental, divorce, racial, commercial. (Lec. 3) Pre: graduate standing or permission of Labor Research Center Director.

LHR 551 Strategic Human Resource Management LEC (3 crs.) Cross-listed as (LHR 551), MBA 572. Human resource management addressed in context of changing product and labor markets, including relationship among human resource functions, policies; the economic, social, and political environment; and firms' strategic objectives. Major research paper required. (Lec. 3) Pre: LHR 500/MBA 571 and graduate standing in Labor Relations and Human Resources or permission of Labor Research Center director.

LHR 573 Staffing Organizations LEC (3 crs.) Cross-listed as (LHR), MBA 573. Introduction to the staffing process from scientific, legal, administrative, and strategic perspectives. Covers workforce planning, strategic staffing, job analysis, sourcing, recruitment, candidate assessment and making final hiring decisions. (Lec. 3) Pre: graduate standing or permission of instructor.

LHR 580 Professional Seminar in Labor Relations and Human Resources SEM (3 crs.) Advanced human resources and labor relations seminar of variable coverage and focus; adjusted yearly to consider most recent human resource and labor relations developments and provide opportunity for student professional development. Final culminating experience incorporated. (Seminar) Pre: final semester graduate standing in labor relations and human resources and permission of Labor Research Center director.

LHR 581 Internship: Labor Relations and Human Resources PRA (3-6 crs.) Variable length internship with a trade union, a public or private sector personnel or industrial relations department, or a governmental administrative or regulatory agency, under the supervision of both a URI Labor Research Center faculty member and a member of the affiliated organization. May be taken as one 6-credit unit or two 3-credit units. (Practicum) Pre: graduate standing in labor relations and human resources and permission of Labor Research Center director. S/U only.

LHR 590 Directed Readings and Research in Labor Relations and Human Resources IND (3 crs.) Readings and research under the direction of LRC-associated faculty to meet individual student requirements. (Independent Study) Pre: graduate standing in labor relations and human resources and permission of Labor Research Center director and instructor.

LHR 591 Directed Readings and Research in Labor Relations and Human Resources IND (3 crs.) Readings and research under the direction of LRC-associated faculty to meet individual student requirements. (Independent Study) Pre: graduate standing in labor relations and human resources and permission of Labor Research Center director and instructor.

LIB | Library

LIB 150 Search Strategies for the Information Age LEC (3 crs.) Introduction to the exploration and practice of information literacy and library research concepts and skills, with an emphasis on the communication of information in today's world. (Lec. 3) (B4) (B2)

LIB 250 Information Research Across Disciplines LEC (3 crs.) Exploration and practice in finding, evaluating, and using information in the humanities, social sciences, natural sciences, and formal sciences. Examine information production, resources, roles, and uses. (Lec. 3) (B4)

LIB 250H Honors Section of LIB 250: Information Research Across Disciplines LEC (3 crs.) Honors Section of LIB 250: Information Research Across Disciplines: Exploration and practice in finding, evaluating, and using information in the humanities, social sciences, natural sciences, and formal sciences. Examine information production, resources, roles, and uses. (Lec. 3) (B4) Pre. 3.40 overall gpa.

LIB 350G Current Issues of the Information Age LEC (3 crs.) Critical issues concerning the use of information are examined. Emphasis is placed on the interdisciplinary nature of information and using research techniques as a foundation for informed global citizenship. Pre: Sophomore standing or consent of instructor. (Lec. 3) (B4) (C1) (GC)

LIB 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

LIN | Linguistics

LIN 200 Language and Culture LEC (3 crs.) Cross-listed as (APG), LIN 200. Cross-cultural survey of the interaction of culture and language. Introduction to various fields of linguistic research emphasizing descriptive and semantic investigations. Linguistic studies used as illustrative material. (Lec. 3)

LIN 320 Sociolinguistics LEC (3 crs.) Cross-listed as (LIN), APG 320. Presentation of the major areas of micro- and macro-sociolinguistics: speech acts, registers, repertoires, language attitudes, social correlates of phonological and syntactic features and changes. (Lec. 3) Pre: APG/LIN 200 or 220.

LIN 408 The German Language: Past and Present LEC (3 crs.) Cross-listed as (GER), LIN 408. Introduction to the history and present state of the German languages. Study of standard and colloquial German, dialects, Swiss and Austrian variations, language of youth and professions. Analysis of various text types. Tendencies in present-day German. (Lec. 3) Pre: 305 or permission of instructor.

LIN 420 Second Language Acquisition and Assessment ONL (3 crs.) Cross-listed as (LIN), EDC 420. An evaluation of current trends and developments in the understanding of second language learning; analysis of second language acquisition research and its practical implications. (Online) Pre: Senior or graduate standing or permission of instructor.

LIN 431 Applied Linguistics in the Language Laboratory LEC (1 cr.) Principles of contrastive phonology and syntax and their application to the preparation, use, and evaluation of tape drills. Use of language laboratory equipment monitoring student exercises. Recommended for prospective teachers of language. (Lab. 2) Pre: 9 credits of language courses at the 300 level or above, or permission of section head.

LIN 497 Directed Study IND (3 crs.) Individual research and reports on problems of special interest. (Independent Study) Pre: LIN 220 and acceptance of project by faculty member and approval of section head.

LIN 498 Directed Study IND (3 crs.) Individual research and reports on problems of special interest. (Independent Study) Pre: LIN 220 and acceptance of project by faculty member and approval of section head.

LSC | Library and Information Studies

LSC 502 Lead, Manage & Connect Library and Information Services LEC (3 crs) Apply professional values, ethics, principles, theories, and problem-solving to present and future library and information services (LIS). Plan, lead, manage, and connect LIS with transformational leadership in diverse communities. (Lec. 3/Online)

LSC 503 Collection Management LEC (3 crs.) Introduction to the process of collection building and management of resources including various formats and subjects for libraries or information centers. Community assessment, formulation of policies, procedures, and evaluation methods. (Lec. 3/Online) Pre: Graduate standing

LSC 504 Searching for Answers: Meeting Users' Information Needs LEC (3 crs.) Practical experience in the use of basic electronic and print information sources with readings and discussion on the philosophy and administrative aspects of reference work. (Lec. 3/Online) Pre: Graduate standing.

LSC 505 Organization of Information LEC (3 crs.) Theory and practice of organizing information following national and international standards; focus on bibliographic information. Emphasizes the understanding and application of cataloging and classification principles, standards, tools, bibliographic utilities and networks. (Lec. 3/Online) Pre: Graduate standing.

LSC 506 Data Literacy and Metadata Standards ONL (3 crs.) This course provides theories and principles of data literacy including data analysis, data design, data structure, data evaluation, data related research, and national and international metadata standards. (Accelerated Online)

LSC 508 Introduction to Information Science and Technology LEC (3 crs.) Introduction to information science through the exploration of fundamental information science theories and information technologies. Theory and technology are discussed and applied to practical purposes in library and information services. (Lec. 3/Online) Pre: Graduate standing.

LSC 510 Books to Bytes LEC (3 crs.) The historic and contemporary art and craft of book production, with emphasis on e-publishing and digital book creation. (Lec. 3/Online) Pre: Graduate standing.

LSC 511 Critical Disability Approaches in LIS ONL (3 crs.) Introduction to critical disability studies, disability rights in the US, policy, culture, social justice, activism & intersectional approaches in the library, differently abled use, users & professionals in the library. (Online)

LSC 512 Immigrant & Migrant Information Contexts & Practices ONL (3 crs.) Studies immigrant and migrant information histories, uses, behaviors, encounters, and social justice approaches in information institutes in the US. Addresses linguistic, cultural, religious practices, race and literacy in information institutes. (Online)

LSC 513 Social Justice in Children's and Young Adult Literature ONL (3 crs.) Select, evaluate and analyze social justice and injustice in children's & young adult literature. Includes: power, racism, diversity, violence, publishing trends, authorship, illustrations, & ideology & library programming. (Online)

LSC 515 Information Ethics and Policy LEC (3 crs.) Ethical, legal, and policy approaches to key LIS issues (including privacy, intellectual property, and intellectual freedom) in a world of rapidly changing technology; professional decision-making. (Lec. 3/Online)

LSC 516 Information and Culture ONL (3 crs.) Studies cultural architectures of information, exploring how cultural forms of information are understood and exchanged locally, nationally, and globally. (Online)

LSC 517 Community Relations for Libraries LEC (3 crs.) Includes public relations, advocacy, determining community needs, identifying potential partners, building partnerships, developing a community relations plan, and envisioning the library's future. Incorporates programs and strategies of core professional organizations. (Lec. 3/Online) Pre: LSC 502 or permission of instructor.

LSC 518 Global Information Services LEC (3 crs.) Study, compare, and analyze information issues, practices, and organizations in a range of countries. Course may require travel to study information services. (Lec. 3) Pre: permission of instructor.

LSC 519 Advocacy for Libraries ONL (3 crs.) Focuses on advocacy for libraries and library communities, determining community needs, developing an advocacy plan, and creating an advocacy campaign. Incorporates programs and strategies of core professional organizations. (Accelerated Online Program) Pre: LSC 502.

LSC 520 School Library Media Services LEC (3 crs.) Prepare school librarians to meet RIPTS and AASL roles: teacher, information specialist, instructional partner, administrator and leader. Emphasize teaching AASL standards integrated with Common Core Standards. Includes 60-hour field experience. (Lec. 2, Prac. 1/Online) Pre: completion of 18 hours including core courses 502, 504, 505, and 508 or permission of instructor.

LSC 521 Public Library Service LEC (3 crs.) Planning, evaluation and programming in public libraries, with an emphasis on community analysis and responsive services for seniors, adults, young adults, and children. (Lec. 3/Online) Pre: LSC 502 or permission of instructor.

LSC 522 College and University Library Service LEC (3 crs.) Study of the functions, organization, management, and services of college and university libraries. (Lec. 3/Online) Pre: LSC 502 or permission of instructor.

LSC 523 Special Library Service LEC (3 crs.) Survey of major categories of special libraries in academia, corporations, foundations, government agencies, and the military, including archives, rare book collections, museums, religious and legal institutions, businesses, and healthcare organizations. (Lec. 3) Pre: LSC 502 or permission of instructor.

LSC 525 Multiculturalism in Libraries LEC (3 crs.) Determining information needs and planning library collections, services, and programs for diverse populations. Historical, philosophical, and comparative aspects of multiculturalism in libraries will also be considered. (Lec. 3/Online) Pre: LSC 504 or permission of instructor.

LSC 527 Planning and Developing Library Instruction LEC (3 crs) Introduction to educational theory and practices for planning and delivering library instruction. Learning outcomes, instructional strategies and assessment of learning emphasized. School media track requirement but applicatble to other libraries. (Lec 3, Online) Pre: LSC 504 or permission of instructor.

LSC 528 Digital Visual Information Literacy LEC (3 crs.) Provides an introduction to the theory, practice, and critical analysis of print and digital designs through digital and visual literacy studies. (Lec. 3/Online)

LSC 530 Children's Materials and Services LEC (3 crs.) An introduction to children's literature and digital materials. Learn about authors, genres, formats, selection tools, and evaluation criteria. Create and engage in programming and services that support children's multi-literacy development. (Lec. 3/Online)

LSC 531 Young Adult Materials and Services LEC (3 crs.) An introduction to Young Adult literature and digital materials. Learn about authors, genres, formats, selection tools, and evaluation criteria. Create and engage in programming and services that support teen's multi-literacy development. (Lec. 3/Online)

LSC 536 Media Smart Libraries ONL (3 crs.) Students explore current trends in digital, media, and other literacies to learn how libraries can provide learning opportunities to advance the knowledge and competencies of users of all ages. (Online)

LSC 537 Health Sciences Librarianship LEC (3 crs.) Serves as an introduction to the field. Covers the literature, vocabulary, computer applications, reference tools, information retrieval, and environments relating to health sciences libraries. (Lec. 3/Online) Pre: LSC 502 and 504 or permission of instructor.

LSC 538 Law Librarianship LEC (3 crs.) Introduction to legal bibliography and research and to a broad range of problems involved in the administration and operation of various kinds of law libraries. Pre: LSC 502 and 504 or permission of instructor.

LSC 539 Business Information LEC (3 crs.) An introduction to many aspects of business information services, as well as to business information in all formats. This course will emphasize services in business libraries and information centers, and the fields of corporate intelligence and knowledge management will also be considered and discussed. (Lec. 3/Online) Pre: LSC 504 or permission of instructor.

LSC 540 Humanities Information and Materials LEC (3 crs.) Information needs and services of all areas of the humanities. Unique aspects of library services and materials in all formats will be considered. Pre: LSC 504 or permission of instructor.

LSC 541 Social Science Information LEC (3 crs.) Information needs and services in all areas of the social sciences and the professions, including information in all formats. (Lec./Online) Pre: LSC 504 or permission of instructor.

LSC 542 Library Materials in Science and Technology LEC (3 crs.) Library resources in science and technology, including the major works, serial publications, and reference and bibliographical materials. (Lec. 3) Pre: LSC 503 and 504 or permission of instructor.

LSC 543 Government Publications LEC (3 crs.) Survey of the publishing activities and publications of national, state, and local governments with emphasis on the publications of the United States government. (Lec. 3) Pre: LSC 504 or permission of instructor.

LSC 544 Visual Information Science LEC (3 crs.) An introduction to the interdisciplinary study of visual information science related to visual information (data) collection, analysis, processing, transmission, utilization, and communication in modern and digital libraries and information centers. (Lec. 3/Online) Pre: LSC 508 or permission of instructor.

LSC 545 Indexing and Abstracting LEC (3 crs.) Create and evaluate indexes for effective retrieval from books, periodicals, and electronic resources. Principles of traditional, automatic, and natural language indexing applied to searches. Abstracting, thesaurus construction, and software evaluation. (Lec. 3) Pre: LSC 504 or permission of instructor.

LSC 547 Information Storage and Retrieval and Online Searching and Services LEC (3 crs.) Theory, methods, evaluation, and research of analyzing, storing, indexing languages, information storage media, information storage and retrieval systems, and information seeking and retrieving in libraries and information services. (Lec. 3/Online) Pre: LSC 504 or permission of instructor.

LSC 548 Information Architecture and Web Site Development LEC (3 crs.) Introduces principles of information architecture, library science and information science to plan, design, develop, and evaluate cohesive web sites and intranets that are attractive, navigable, manageable, and expandable. (Lec./Lab./Online) Pre: LSC 508 or permission of instructor.

LSC 550 Information Visualization LEC (3 crs.) Using current international and national standards and tools of information visualization, the course emphasizes the interdisciplinary nature of design, navigation, representation, and meaning construction of information. (Lec. 3/Online) Pre: LSC 505 or permission of instructor.

LSC 557 Assessment of Library & Information Services LEC (3 crs.) Exploration of assessment practices in library and information services including how problems are identified and creative solutions are evaluated in real-world settings. (Lec. 3, Online) Pre: LSC 502.

LSC 559 Visual Literacy and Global Media ONL (3 crs.) This interdisciplinary course provides theories, research, and applications to critically analyze visual messages through global media. Students learn how meaning is socially constructed in media. (Accelerated Online Program)

LSC 560 Human Information Behavior LEC (3 crs.) Designed to introduce students to human information behavior (IB), investigating characteristics of information users, IB theories and research methods, and IB in personal, social, and institutional contexts. (Lec. 3) Pre: LSC 504.

LSC 562 Digital Archives and Preservation LEC (3 crs.) Principles and techniques for administering digital manuscript and archival repositories, including acquisition policies, appraisal criteria, description and classification, and preservation practices. (Lec. 3/Online)

LSC 570 Leadership in Information Professions ONL (3 crs.) Introduction to the principles, practices, theories and ethics of leadership in the information professions. Focus on leading from any position within an organization or the larger LIS community. (Online) Pre: LSC 502

LSC 590 Introduction to Chinese Information Services SEM (3 crs.) The seminar will provide students and professionals with an opportunity to study the history of Chinese librarianship and libraries and information services from the ancient to the contemporary times. (Seminar)

LSC 593 Independent Work IND (1-6 crs.) Supervised reading or investigation in areas of special interest. Student must obtain written approval prior to registration for the semester for which the study is proposed. (Independent Study) Pre: 18 hours of library science with B average and permission of instructor; LSC 557 strongly recommended. LSC 593 and 595 may be repeated for a combined total of 6 credits.

LSC 595 Apply and Reflect: Professional Field Experience PRA (1-6 crs.) Directed field experience applying theory to practice in libraries, information centers, and related organizations. Jointly supervised by a member of the faculty and a professional in the cooperating institution. (Practicum/Online) LSC 593 and 595 may be repeated for a combined total of 6 credits. Pre: 18 hours of LSC with a B average and permission of instructor.

LSC 596 School Lib Media Intern & Sem. SEM (3 crs). Culminating course with directed internship (student teaching) in school library media. Candidates master professional teaching and ALA/AASL Standards including five roles: teacher, information specialist, instructional partner, administrator and leader. (Sem. 3/Online) Pre: LSC 520 with a B or better and 21 hours of library science with a B average or permission of the instructor. Course must be taken three times for a total of nine credits.

LSC 597 Current Trends LEC (3 crs.) Selected topics of current and special interest in library and information studies not covered in existing course offerings. May be repeated with different topics. (Lec. 3/Online)

LSC 598 Supervised Internship/Practicum: School Library Media PRA (6 crs.) Twelve-week directed field experience in two school library media programs. Candidates demonstrate mastery of Teaching and ALA/AASL standards including five roles: teacher, information specialist, instructional partner, administrator, and leader. (Practicum 6) Pre: LSC 520 with a B or better and 21 hours of library science with a B average or permission of the instructor. Concurrent with or credit in LSC 596.

LTI | Library Technology and Innovation

LTI 110 Introduction to Data Science LEC (3 crs.) Cross-listed as (LTI), DSP 110. Learn to formulate a data-oriented research question, conduct exploratory data analysis using the R programming language, and communicate the results using a well-organized and reproducible workflow.

LTI 350G Bias: Interrogating the Archive SEM (3 crs.) Students will explore bias (and its implications) in one large dataset maintained by the university. URI¿s university archives will be both subject and lab in this experiential Grand Challenge course. (Seminar, Lab.) Pre: Junior standing or permission of instructor. (D1) (B4) (GC)

MAC | Master of Science in Accounting

MAC 501 Current Accounting Theory LEC (3 crs.) Critical examination of accounting theory and practice to develop research techniques with emphasis on financial accounting. (Lec. 3) Pre: Graduate standing in accounting or permission of M.S. in Accounting Director.

MAC 502 Current Accounting Theory LEC (3 crs.) Critical examination of accounting theory and practice with respect to cost and managerial accounting. (Lec. 3) Pre: graduate standing in accounting or permission of M.S. in Accounting Director.

MAC 503 Taxation of Business Entities SEM (3 crs.) Examination of the tax law, underlying theory, tax compliance requirements and tax planning for: Corporations, flow-through entities and the transfer tax system. (Seminar) Pre: ACC (BUS) 403 or permission of graduate advisor.

MAC 504 Financial Statement Analysis and Reporting LEC (3 crs.) Development of accounting policy with respect to analysis of financial statements and the use of evaluation techniques, managerial planning and control. Emphasis on analytical evaluation of cases with major research project. (Lec. 3) Pre: graduate standing in accounting or permission of M.S. in accounting director.

MAC 505 Advanced Problems in Accounting LEC (3 crs.) Integrative and specialized accounting problems. (Lec. 3) Pre: graduate standing in accounting or permission of M.S. in accounting director.

MAC 506 Seminar in Tax Research, Policy, and Planning SEM (3 crs.) Examination of the methodology of tax research, the principles and procedures, involved in tax planning, and the procedures involved in dealing with the IRS. (Seminar) Pre: ACC (BUS) 403 or MAC 510 or equivalent

MAC 507 International Accounting LEC (3 crs.) Covers interpretation of international financial statements, focusing on foreign currency exchange, comparative accounting principles and disclosures, and audit reports. Uses actual financial statements in case analysis. (Lec. 3) Pre: ACC (BUS) 402 or permission of instructor.

MAC 508 Advanced Auditing LEC (3 crs.) Coverage of fundamental auditing concepts, application of auditing standards to real-world cases, risk-management approach to handling client acceptance and continuance issues. (Lec. 3) Pre: ACC (BUS) 404.

MAC 509 Taxation of Flow Through Entities LEC (3 crs.) Examines the federal income tax laws applicable to the flow through entities of partnerships and corporations. Pre: ACC (BUS) 403.

MAC 510 Federal Taxes and Business Decisions LEC (3 crs.) The course focuses on tax law and its effect on business decisions. Cases are employed and primary emphasis is on income tax planning, although estate and gift taxes are explored. (Lec. 3) Pre: MBA 503

MAC 511 Data Analytics for Accounting ONL (3 crs.) Introduces data analytics processes and various applications of data analytics to accounting. Emphasis on hands-on learning experiences with varied analytical tools using real-world data. (Online) Pre: Graduate standing in accounting or permission of the program director of M.S. in accounting.

MAC 515 Law and Accounting LEC (3 crs.) Introduction to C.P.A. law exam, question and answer techniques, coverage of most accounting-legal subjects currently included on the C.P.A. exam. (Lec. 3) Pre: MBA 530 or INE (BUS) 315 or MGT (BUS) 317 or permission of dean.

MAC 518 Directed Study in Accounting IND (1-3 crs.) Advanced work under the supervision of a faculty member and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MAC 519 Directed Study in Accounting IND (1-3 crs.) Advanced work under the supervision of a faculty member and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MAC 520 Internship in Accounting PRA (3 crs.) Participation in management and/or problem solving under the supervision and guidance of a sponsoring agency with evaluation by the College of Business. (Practicum) Pre: proposal acceptance by the College of Business, no previous internship credit, graduate standing. S/U credit.

MAF | Marine Affairs

MAF 100 Human Use and Management of the Marine Environment LEC (3 crs.) Examination of uses and management efforts in the coastal and ocean environment. Assessment of problems arising from those uses and attempts to conserve resources, protect the environment, and minimize use conflicts in the context of changing technological capabilities, knowledge, and values. (Lec. 3) (A2) (C1)

MAF 120 New England and the Sea LEC (3 crs.) An examination of the human and environmental impacts of the sea and its uses on the New England and Gulf of Maine region. Considers marine resource use and management from colonial to modern times. (Lec. 3)

MAF 213G Energy and Environment LEC (3 crs.) Cross-listed (EGR), MAF 213G. Technical, social, and environmental aspects of energy, including energy and the society, energy policy, global challenges of energy, energy systems (fossil fuels, renewables, storage), and environmental pollution of energy systems. (Lec. 3) Pre: MTH 111 or permission of instructor. (A1) (C2) (GC)

MAF 220 Introduction to Marine and Coastal Law LEC (3 crs.) Basic principles of marine and coastal law in the United States. An integration of coastal zone, outer continental shelf, fisheries, marine pollution, and admiralty laws. (Lec. 3) (A2) (C1)

MAF 300 Race, Gender, Colonialism and Science SEM (3 crs.) An introduction to science and technology studies with an emphasis on race, class, gender, and colonialism as they intersect with ecology. (Seminar) (C3) (A3)

MAF 310 Communication for Marine Affairs LEC (3 crs.) Provide marine affairs students with an introduction of how to communicate effectively with a variety of different stakeholders, in different contexts, and for different purposes. (Lec. 3) Pre: MAF 100.

MAF 312 International Politics of the Ocean LEC (3 crs.) Survey of ocean governance institutions and major international challenges related to ocean use. Special emphasis on the United Nations and contemporary ocean activities, interests, and problems. (Lec. 3) (C2) (D1)

MAF 320 Shipping and Ports LEC (3 crs.) Cross-listed as (MAF), EEC 320. An introduction to the economics of waterborne movement of cargo (shipping and port operations, markets and innovations in maritime transportation systems, and the interplay of the operators, shipping, and ports) (Lec. 3) Pre: MAF 100 or EEC 105 or permission of the instructor.

MAF 330 World Fishing LEC (3 crs.) The role of marine fisheries and aquaculture in world food production. Social, economic, legal, and scientific issues in fisheries management. (Lec. 3) Pre: MAF 100.

MAF 340 Environmental Sociology LEC (3 crs.) Cross-listed as (MAF) SOC 340. Introduction to environmental sociology, which studies the human-nature relationship and underlying causes of environmental

problems. Particular attention given to applications of theory to marine and coastal issues. (Lec. 3) Pre: SOC 100 or MAF 100.

MAF 350 Introduction to Global Issues In Sustainable Development LEC (3 crs.) Cross-listed as (MAF 350) and NRS 300. Role of the United States in development assistance to foreign nations. Topics include foreign aid, sustainable development, transfer of technology, and international career opportunities. (Lec. 3) (C2) (A2)

MAF 373 (370) Environmental Injustice LEC (3 crs.) Cross-listed as (MAF), HIS, GWS 373. Examines environmental issues through a social justice lens. Looking at historical and global contexts, topics may include public health issues, environmental social movements, and "natural" disasters. (Lec. 3) (C3)

MAF 410 Senior Seminar in Marine Affairs SEM (3 crs.) Advanced work in the management of the coastal and marine environment, with special emphasis on case studies and student projects. (Seminar) Pre: Seniors only. Required for seniors in marine affairs. Not for graduate credit in marine affairs.

MAF 412G Governing International Waters LEC (3 crs.) Examination of complex issues driving decisions about ocean governance, and the challenges and possibilities of international cooperation. (Lec. 3) Pre: Junior Standing. (D1) (C2) (GC)

MAF 413 Peoples of the Sea LEC (3 crs.) Cross-listed as (APG), MAF 413. Examination of human sociocultural adaptation to the seas. (Lec. 3) Pre: APG 203 or MAF 100 or graduate status. Open only to juniors, seniors, and graduate students.

MAF 415 Marine Pollution Policy LEC (3 crs.) Introduction to management techniques for marine pollutants (biodegradable materials, nutrients, petroleum, metals, synthetic organics, radioactive materials, plastics, heat, and dredge spoils) with emphasis on strategies to limit environmental impacts. (Lec. 3) Pre: junior standing or above. Not for graduate credit.

MAF 445 Environmental Thought and Behavior LEC (3 crs.) Introduction to environmental behavior, including factors such as values, knowledge, risk perceptions, and social pressure. Attention is given to the role of attitudes and values in coastal and marine management. (Lec. 3) Pre: MAF 100. Not for graduate credit.

MAF 450 (NRS 487) International Development in Practice PRA (1-6 crs.) Supervised work, research experience or study abroad related to international development. (Practicum) Pre: MAF 350 or NRS 300 and permission of instructor. Not for graduate credit. S/U only.

MAF 461 Coastal Zone Management LEC (3 crs.) Examination of activities and management efforts in the coastal zone of both developed and developing countries and their impacts on the environment. Resolution of use conflicts. (Lec. 3)

MAF 465 GIS Applications in Coastal and Marine Management LEC (3 crs.) The use of geographical information systems (GIS) technology in coastal and marine settings. Database acquisition and management are emphasized. Case application in coastal zone management, artificial habitat, and fisheries management. (Lec. 3) Pre: undergraduate standing or graduate students with permission of instructor.

MAF 471 Critical Island Studies LEC (3 crs.) Cross listed as (MAF), APG 471. A critical approach to island studies with a focus on Caribbean and Pacific small islands and the history of island studies. Topics include tourism, climate change, development, culture, and conservation. (Seminar)

MAF 472 Critical Studies of Tourism and Ecotourism SEM (3 crs.) Cross listed as (MAF), APG 472. Analysis of domestic and international case studies emphasizing concepts and critical thinking around issues pertaining to coastal tourism, recreation, ecotourism, the history of tourism, and consumption. (Seminar)

MAF 475 Human Responses to Coastal Hazards and Disasters LEC (3 crs.) Examines the impact of hazards and disasters on human population inhabiting the coastal zone. Sets human adaptations to coastal hazards and disasters in an historical context. Extracts lessons learned for comparative analysis. (Lec. 3)

MAF 482 Quantitative Methods in Marine Affairs LEC (3 crs.) Introduction to descriptive and inferential statistics in geography and marine affairs. Emphasis on the spatial application of statistical tests with particular utility to the geographer and marine affairs students. (Lec. 3) Pre: STA 308 or STA 409 or permission of instructor.

MAF 484 Environmental Analysis and Policy in Coastal Management LEC (3 crs.) Analysis of environmental policy strategies as applied in federal and state coastal management programs. Emphasis on coastal environmental assessment and program evaluation techniques, hazards management, regulatory frameworks, and environmental ethics. (Lec. 3)

MAF 490 Field Experience In Marine Affairs PRA (3-6 crs.) Supervised undergraduate internship within an approved work setting designed to provide students with on-the-job experience relevant to their academic training and career goals. Students are responsible for securing internship positions and learning contract. (Practicum) Pre: permission of instructor, senior standing recommended. Not for graduate credit.

MAF 491 Special Problems IND (3 crs.) Individual guidance in major readings and methods of research. (Independent Study) Pre: permission of chairperson.

MAF 492 Special Problems IND (3 crs.) Individual guidance in major readings and methods of research. (Independent Study) Pre: permission of chairperson.

MAF 494 Cases In Marine Policy SEM (3 crs.) A single, current problem drawn from areas such as coastal management, ports, or fisheries is examined through detailed analysis of alternatives and decision processes. (Seminar) Pre: permission of instructor or chairperson.

MAF 496 (NRS) International Development Seminar SEM (3 crs.) Seminar in sustainable international development for advanced-level students interested in international development. (Seminar) Pre: MAF 350/NRS 300 or permission of instructor. Not for graduate credit.

MAF 499 Directed Study IND (1-3 crs.) Individual research and reports on problems of special interest, including honors thesis research. (Independent Study) Pre: permission of instructor.

MAF 500 Race, Gender, Colonialism and Science SEM (3 crs.) Applies social science tools to the study of the practice of science (including ecology and marine science) as cultural phenomena. (Seminar) Pre: graduate standing.

MAF 502 Research Methods in Marine Affairs LEC (3 crs.) Emphasis on the application of alternative research methods utilized in a typical interdisciplinary study. Development of specific research projects. (Lec. 3) Pre: MAF 482 or permission of instructor.

MAF 511 Ocean Uses and Marine Sciences LEC (3 crs.) Introduction to selected ocean uses focusing on the interplay of public policy and marine science. Emphasis on policy implications of uses such as resource and energy extraction. (Lec. 3)

MAF 515 Marine Pollution Policy LEC (3 crs.) Introduction to management techniques for marine pollutants (biodegradable materials, nutrients, petroleum, metals, synthetic organics, radioactive materials, plastics, heat, and dredge spoils) with emphasis on strategies to limit environmental impacts. (Lec. 3) Pre: graduate standing only.

MAF 516 Seminar On The Urban Waterfront SEM (3 crs.) Cross-listed as (MAF), CPL 516. The urban environment and its evolution, structure, and function as it pertains to metropolitan waterfronts and small recreational harbors. Emphasis on the permitting process, public participation, marine recreation, and management issues. Field trip and student project required. (Seminar)

MAF 521 Coastal Zone Law LEC (3 crs.) Examination of the authority of different levels and agencies of government to make decisions affecting coastal regions. Survey of existing and proposed state and national legislation affecting coastal regions. (Lec. 3)

MAF 522 Seminar in Media and the Environment SEM (3 crs.) Cross-listed as (COM), MAF 522. Employs core concepts and theories of media studies in the analysis of environmental issues. Fulfills COM

520 requirement. (Seminar) Pre: Graduate standing or permission of instructor.

MAF 523 Fisheries Law and Management LEC (3 crs.) Examination of the relationship between law and fisheries policy on the international and national levels, law relating to fisheries, jurisdictional levels, function of law in implementing fisheries management policy. (Lec. 3)

MAF 526 Management of Marine Protected Areas LEC (3 crs.) Examination of ecological, political, legal and social factors in establishing and managing marine protected areas. Case studies of MPA efforts highlight interrelationships among interest groups, institutions, and legislation. (Lec. 3)

MAF 527 Marine Protected Areas: An Interdisciplinary Analysis LEC (3 crs.) Cross-listed as (MAF), NRS 527. Examination of the ecological, political, social, cultural, and economics factors influencing the use of MPAs (Lec. 3) Pre: permission of instructor.

MAF 530 Marine Environmental History SEM (3 crs.) Cross-listed with (MAF) HIS 530. Provides background on the history of human interactions with the marine environment with insight into historical methodologies. (Seminar) Pre: Graduate standing of permission of instructor.

MAF 531 Environmental Justice SEM (3 crs.) Exploration of how race, class, gender, nationality, and ethnicity shape environmental inequalities. Topics include occupational health hazards, environmental social movements, public health concerns, and contested use of natural resources. (Sem. 3) Pre: graduate standing or permission of instructor.

MAF 545 Environmental Thought and Behavior LEC (3 crs.) Introduction to environmental behavior, including factors such as values, knowledge, risk perceptions, and social pressure. Attention is given to the role of attitudes and values in coastal and marine management. (Lec. 3) Pre: Graduate standing or permission of instructor.

MAF 563 Maritime Transportation LEC Passenger and commodity transportation. Analysis of the relationship between transportation services and the spatial distribution of activities. Emphasis on multimodel transport and bulk commodities. (Lec. 3) Pre: Senior or graduate standing or permission of instructor.

MAF 564 Port Planning and Policy LEC (3 crs.) Examination of U.S. and international port issues. Special emphasis on port stakeholders, role of ports in society, and climate change challenges. Field trips and guest speakers. (Lec. 3)

MAF 565 Cruise Ship Operations, Marketing, and Ports SEM (3 crs.) Explores the many facets of the cruise ship industry from the points of view of social, management, and policy science. Designed to familiarize the student, utilizing an interdisciplinary approach, with the genesis, current status, and future roles of this dynamic industry. (Seminar) Pre: graduate standing, or seniors with permission of instructor.

MAF 577 International Ocean Law LEC (3 crs.) Cross-listed as (MAF), PSC 577. Principles of international law as they relate to ocean management problems. Jurisdiction in zones, such as territorial seas, exclusive economic zones, and the high seas will be examined, as well as the problems posed by zonal approaches to ocean-use management.

MAF 578 International Ocean Organizations LEC (3 crs.) International organizations involved in marine-related activities, including their planning, management, regulatory, and assistance functions. Attention to the impact of organizations on ocean management efforts in the developed and developing world, (Lec. 3) Pre: MAF 577 or permission of instructor.

MAF 582 Coastal Ecosystem Governance SEM (3 crs.) This course links human impacts on coastal environments with existing or proposed governance solutions. Management regimes for individual sectors, coastal regions, and land/estuarine ecosystems are introduced and compared. (Seminar)

MAF 589 Master's Project Research IND (3 crs.) Preparation of a major research paper for M.M.A. students under the guidance of a graduate faculty member. (Independent Study) Pre: graduate standing in the M.M.A. program. S/U credit.

MAF 591 Directed Study or Research IND (1-3 crs.) Areas of special research interest of graduate students. (Independent Study) Pre: permission of instructor.

MAF 592 Directed Study or Research IND (1-3 crs.) Areas of special research interest of graduate students. (Independent Study) Pre: permission of instructor.

MAF 595 Environment and Development Economics LEC (3 crs.) Cross-listed as (EEC), MAF, PSC, SOC 595. Application of economic principles and research methods to understand the economics of environmental and natural resource management and poverty alleviation. (Lec. 3) Pre: EEC 528 or permission of instructor.

MAF 598 Master's Major Project for MAMA Students PRO (3 crs.) Independent project to meet the culminating experience requirement for M.A.M.A. students under the guidance of a graduate faculty member. (Independent Study) Pre: graduate standing in the M.A.M.A. program; permission of instructor. S/U credit.

MAF 599 Master's Thesis Research IND Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

MAF 602 Federal Ocean Policy and Organization LEC (3 crs.) Ocean policy development and implementation by the executive and legislative branches of government. Allocation of powers and analysis of the decision-making process for the oceans. (Lec. 3)

MAF 650 Marine Affairs Doctoral Research Seminar SEM (1 cr.) This seminar gives MAF doctoral students opportunities to engage classmates and professors in conversations about the research process. Students will build their research community through leading and engaging in class discussions with fellow students and faculty. This course may be repeated for credit up to three times. (Seminar) Pre: Graduate standing and permission of instructor. S/U credit.

MAF 651 Marine Affairs Seminar SEM (3 crs.) Interdisciplinary seminar conducted by marine affairs program faculty supplemented by guest speakers form industry and government. Focuses on problems of marine resources development and management at the local, state, national and international policy levels. (Seminar)

MAF 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. Maximum of 6 credits of 699 may be taken prior to completing approved dissertation proposal. (Independent Study) S/U credit.

MBA | Master's in Business Administration

MBA 500 Statistical Methods for Management LEC (3 crs.) Introductory statistical methods applied to business problems. Topics include descriptive statistics, probability, distributions, inference, regression analysis, chi-square analysis, and introduction to time series. (Lec. 3) Graduate credit for students matriculated in the M.B.A. and M.S. in accounting programs only.

MBA 501 Computing for Management LEC (2-3 crs.) Computer concepts and programming using spreadsheet, database, presentation, communication, and other software packages. Emphasis on PC computing as an administrative and analytic tool for applications in management. (Lec. 2-3)

MBA 502 Organizational Behavior LEC (3 crs,) Examination of the theory, research, and practice of organizational behavior in work settings, focusing on individual, interpersonal, group, and organizational factors influence work-relevant attitudes and behaviors. (Lec. 3)

MBA 503 Financial Accounting LEC (3 crs.) Covers basic accounting principles, accounting systems design, and financial reporting issues. Focusing on financial statement analysis techniques necessary

to accurately assess a company's financial position and results of operations. (Lec. 3/Online) Pre: MBA 500. Cannot be taken for credit if student has already taken MBA 533.

MBA 504 Financial Management LEC (3 crs.) Functions and responsibilities of financial managers. Examination of: financial statement analysis, cost of capital, capital structure, valuation, markets, capital budgeting, working capital, mergers, bankruptcy, multinational finance. (Lec. 3) Pre: MBA 500, 503 or 533, and ECN 590. Cannot be taken for credit if student has already taken MBA 534.

MBA 505 Managerial Marketing LEC (3 crs.) Analysis of marketing problems and determination of marketing policies in product development, promotion, pricing, channel selection; legal aspects. (Lec. 3) Pre: MBA 500 or permission of instructor.

MBA 506 Mathematical Methods for Management LEC (3 crs.) Fundamental mathematical methods applied to the understanding and solution of managerial problems. Topics include the solution of systems of linear equations, differential calculus, and related areas. (Lec. 3) Graduate credit for students matriculated in the M.B.A. and M.S. in accounting programs only.

MBA 507 Critical Business Skills LEC (3 crs.) Learn best practices to think strategically about influence and persuasion; apply what you learned to improve writing, speaking, and interpersonal communication skills; and give and get feedback to strengthen your abilities. (Lec. 3) Not open to students who have taken MBA 501, MBA 516, or BUS 461.

MBA 510 Managerial Accounting LEC (3 crs.) Determination of accounting information for the purposes of decision making, control, and evaluation with emphasis on decision models using accounting information. (Lec. 3) Pre: MBA 500 and MBA 503 or MBA 533. Cannot be taken for credit if student has already taken MBA 537.

MBA 516 Professional Writing, Speaking and Presenting LEC (1 cr.) Development of professional writing, speaking, and presentation skills. (Lec. 1) Pre: Open to one year MBA students only.

MBA 517 Management Essentials LEC (3 crs.) Introduces students to core management topics, including organization and its external environment, organizational structure and culture, groups and teams, leadership, influence, decision-making, motivation, and individual differences. (Lec. 3) Pre: Open to one year MBA students only.

MBA 518 Financial Fundamentals for Innovation LEC (3 crs.) Introduces the basic principles of finance and the applications: time value of money, risk and return, valuation of financial assets, capital budgeting, and long-term capital structure. (Lec. 3) Pre: Open to one year MBA students only.

MBA 519 Marketing Decision-Making LEC (3 crs.) Introduction to marketing decision-making with a focus on innovative contexts. Analysis of marketing opportunities and the development of pricing, communication, product and branding strategies. (Lec. 3) Pre: Open to one year MBA students only.

MBA 520 Accounting for Strategic Management and Investors LEC (3 crs.) Provides an understanding of the accounting information system through tools needed to use of accounting information for accountability, decision making, and control in managerial and financial accounting. (Lec. 3) Pre: open to one-year M.B.A. students only.

MBA 521 Operations and Supply Chain for Innovation LEC (3 crs.) Analyzing the current business environment to determine current resources available, possible causes of failure, and obstacles of success for proposed solutions. (Lec. 3) Pre: Open to one year MBA students only.

MBA 522 Business Integration I LEC (3 crs.) Business Integration I covers fundamental statistics analysis commonly used in business and uses case studies and teamwork to help students integrate knowledge in various business functions. (Lec. 3) Pre: Open to one year MBA students only.

MBA 523 Analytical Tools for Business LEC (3 crs.) Covers key analytical skill topics like Microsoft Excel, Six Sigma techniques, economics and process analysis that help business to make decisions in challenging environments. (Lec. 3) Pre: Open to one year MBA students only.

MBA 524 Entrepreneurship & Innovation LEC (3 crs.) The strategy of entrepreneurship and innovative frameworks are studied such as venture capital financing, lean startup, prototypes, agile development, design thinking, and business model innovation. (Lec. 3) Pre: Open to one year MBA students only.

MBA 525 Business Innovation Process LEC (6 crs.) Project based learning on how business processes are analyzed, studied and improved upon. Utilizes continuous improvement methodology to deliver business innovation. (Lec. 6) Pre: Open to one year MBA students only.

MBA 526 Product and Service Management LEC (6 crs.) Project based learning to develop business ideas, market strategy, quality control, and life cycle of product and service development. Utilizing creative design processes to deliver product innovation. (Lec. 6) Pre: Open to one year MBA students only.

MBA 527 Technology and Business Law LEC (3 crs.) Explores impacts of technology on innovation, international legal environment, intellectual property (IP), and business strategies on technology and IP. (Lec. 3) Pre: Open to one year MBA students only.

MBA 528 Business Integration II LEC (3 crs.) Business integration copes with cross-organizational challenges that include process improvement and reengineering, technology and culture shift, new opportunity exploration, and sustainability. (Lec. 3) Pre: Open to one year MBA students only.

MBA 529 Career Planning LEC (1 cr.) Implement career planning by researching career options, setting individual goals, preparing cover letters and resumes, and practicing for interviews. (Lec. 1) Pre: Open to one year MBA students only.

MBA 530 Legal Environment of Business LEC Coverage includes both substantive and procedural rules of law in the civil and administrative law field with emphasis on business, regulation, societal, and ethical issues. (Lec. 3) Pre: graduate standing.

MBA 539 Hacking for Environment: Oceans LEC (3 crs.) Cross-listed as (OGC), MBA 539. Students will tackle complex problems critical to our oceans and the environment. They will learn to apply entrepreneurial methods and tools to solve real-world problems in teams of students and in collaboration with mentors/sponsors. Gain marketable skills through a flipped-classroom approach and learning Lean LaunchPad principles. (Lec. 1, Project 2)

MBA 540 Organizational Decision Making and Design LEC (3 crs.) Theory and skills development in strategic thinking and organizational design; use of critical analysis in the diagnosis of organizational and management problems. (Lec. 3) Pre: graduate standing.

MBA 550 Managing with Information Resources LEC (3 crs.) Concepts of information technologies and systems as they relate to the information-age organization. Major focus is on how the various information resources can be managed to facilitate organizational effectiveness. Topics include information and communication technologies, decision support and information systems, technology-enabled process re-engineering, and information architecture. (Lec. 3) Pre: permission of instructor. Cannot be taken for credit if student has already taken MBA 532.

MBA 555 Managerial Economics LEC (3 crs.) Microeconomic theories of demand, pricing, production, and cost management applied to the risk-management process of the firm. Extensive empirical model building and business analytics. (Lec. 3) Pre: MBA 504 or 534.

MBA 558 Fixed Income Security Analysis LEC (3 crs.) To provide a working knowledge of the fixed-income markets; analyze portfolio of fixed income securities, strategies and performance; study mortgage backed securities. (Lec. 3) Pre: MBA 504 or equivalent

MBA 560 Operations and Supply Chain Management LEC (3 crs.) The management of manufacturing and service operations.

Topics include flow processes, inventories, scheduling, capacity, and operations strategy. (Lec. 3) Pre: MBA 500. Cannot be taken for credit if student has already taken MBA 536.

MBA 562 Global Supply Chain Management LEC (3 crs.) Examines the factors that impact the design and management of Global Supply Chains through strategic relationships and tactical activities. (Lec. 3) Pre: MBA 560 or 536.

MBA 565 Strategic Management LEC (3 crs.) Integration of functional areas of business through case studies and simulation-based explorations of management problems, and the evaluation of alternative solutions. Discussion of the competitive, social and environmental challenges of domestic and multinational firms. (Lec. 3) Service learning. Pre: All MBA 500 first level courses or equivalent and a minimum of 21 MBA credits which must include MBA 502 or 532, 503 or 533, 504 or 534, and 505, or permission of instructor.

MBA 566 Security and Investment Analysis LEC (3 crs.) Analysis of the problems of investing funds and managing investments. Use of the latest investment theories and their implementation via quantitative techniques will be explored. (Lec. 3) Pre: MBA 504 or 534.

MBA 567 Advanced Portfolio Theory and Security Analysis SEM (3 crs.) An examination of advanced theories and practices in portfolio building and maintenance. Issues related to security price behavior are also examined. (Seminar) Pre: MBA 504 or 534 or equivalent.

MBA 568 Advanced Financial Theory SEM (3 crs.) Analysis of the theoretical framework for corporate decision making related to financial planning, capital budgeting decisions, dividend policy, and capital structure decisions. Emphasis on current research developments. (Seminar) Pre: MBA 504 or 534 or equivalent.

MBA 569 Advanced International Financial Management SEM (3 crs.) Analysis of issues relevant to the international financial manager. The financial operations of multinational enterprises are examined through both the theoretical and the case approach. (Seminar) Pre: MBA 504 or 534 or equivalent.

MBA 570 Hedge Fund Management and Investment Bank LEC (3 crs.) Introduce performance of hedge fund strategies, performance, fees, and organization structure. Discuss the practice and issues related to investment banking. (Lec. 3) Pre: MBA 504 or equivalent.

MBA 571 Labor Relations and Human Resources LEC (3 crs.) Cross-listed as (LHR 500), MBA 571. Introduction to labor relations and human resources, including employment practices in unionized and non-union organizations. (Lec. 3/Online) Pre: graduate standing or permission of instructor.

MBA 572 Strategic Human Resource Management LEC (3 crs.) Cross-listed as (LHR 551), MBA 572. Human resource management addressed in context of changing product and labor markets, including relationship among human resource functions, policies; the economic, social, and political environment; and firms' strategic objectives. Major research paper required. (Lec. 3) Pre: LHR 500/MBA 571 and graduate standing in Labor Relations and Human Resources or permission of Labor Research Center director.

MBA 573 Staffing Organizations LEC (3 crs.) Cross-listed as (LHR), MBA 573. Introduction to the staffing process from scientific, legal, administrative, and strategic perspectives. Covers workforce planning, strategic staffing, job analysis, sourcing, recruitment, candidate assessment and making final hiring decisions. (Lec. 3) Pre: graduate standing or permission of instructor.

MBA 574 Consulting and Management Practice PRA (3 crs.) Review of the theory and practice of effective consulting and development of consultation skills. (Practicum) Pre: MBA 502 or permission of instructor.

MBA 575 Seminar in Management SEM (3 crs.) Class discussion of typical cases, original research work in the field of management with discussion of data collected and analyzed by individual students. (Seminar) Pre: permission of dean.

MBA 576 Advanced Topics In Management SEM (3 crs.) Integrated approach to problems in major areas of business management with emphasis on administrative and executive viewpoint. (Seminar) Pre: permission of dean.

MBA 577 Management of Total Rewards LEC (3 crs.) Compensation systems. Theory and techniques used to determine job worth, to establish the pay mix, compensation philosophies and pay structures. Special issues related to the management of total reward programs. (Lec. 3) Pre: graduate standing or permission of instructor.

MBA 578 Human Resource Development LEC (3 crs.) Students will learn about theories of organizational and individual change in the context of three HRM functions: job analysis, performance management and training. This course will sharpen knowledge about how to evaluate and develop employee knowledge, skills, and abilities through training and performance management practices in order to align with organizational strategies and changes in the environment. (Lec. 3) Pre: graduate standing or permission of instructor.

MBA 579 International Business Management LEC (3 crs.) Examines the problems and characteristics of international management by focusing on the role of the multinational corporation in a cross-cultural setting. (Lec. 3) Pre: MBA 502 or 532 or permission of instructor.

MBA 580 Management Systems Analysis And Design LEC (3 crs.) An overview of Systems Analysis and Design, and its role in the development of information systems. Major focus is on the methodologies, techniques and tools used to create successful information systems. (Lec.3) Pre: MBA 550 or 535 or permission of instructor.

MBA 581 Database Management Systems LEC (3 crs.) Design and analysis of complex multi-user databases used in real time business transaction processing. The class will contain discussion and examination of databases for strategic and tactical purposes. (Lec.3)

MBA 582 Applied Time Series Methods and Business Forecasting LEC (3 crs.) Study of time series methods. Construction and use of various forecasting models and techniques. Applications to strategic decision actions. (Lec. 3) Pre: MBA 500 or permission of instructor.

MBA 583 Seminar in Operations and Supply Chain Management SEM (3 crs.) Preparation and presentation of papers on selected topics in operations management and supply chain issues. (Seminar) Pre: MBA 560 or 536 or permission of instructor.

MBA 584 Buyer Behavior LEC (3 crs.) Analysis of major factors influencing the behavior and demand of consumers. Emphasis on using these factors to identify and segment target markets and to assess the effects of these factors on markets. (Lec. 3/Online) Pre: MBA 505 or permission of instructor.

MBA 585 Marketing Research LEC (3 crs.) Marketing information needs and appropriate means of providing the requisite information are analyzed. Several major marketing decision areas and their research implications are examined in depth. (Lec. 3) Pre: MBA 500, 505, 506, ECN 590 or permission of instructor.

MBA 586 International Marketing Management LEC (3 crs.) Marketing policy making for the multinational firm; organizing for international marketing; its opportunities, pricing, channels, promotion, and research. (Lec. 3) Pre: MBA 505 or permission of instructor.

MBA 587 Product Management LEC (3 crs.) Development of product policies and strategies. Emphasis on organizing the marketing function to deal with various product-related activities including new product development, life cycle strategies, and product deletion. (Lec. 3) Pre: MBA 505 or permission of instructor.

MBA 588 Marketing Communications Management LEC (3 crs.) Provides an in-depth knowledge base for developing effective and efficient strategic marketing communications. Covers communication objectives, strategies, and tactics, and explores when to use them. Pre: MBA 505.

MBA 591 Directed Study in Business IND (1-3 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MBA 592 Directed Study in Business IND (1-3 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MBA 593 Internship in Business Administration IND (3-6 crs.) Participation in business administration under the field supervision of a sponsoring organization with evaluation by the College of Business. (Independent Study) Pre: proposal approved by the College of Business. S/U credit.

MBA 594 Internship in Business Administration IND (3-6 crs.) Participation in business administration under the field supervision of a sponsoring organization with evaluation by the College of Business. (Independent Study) Pre: Proposal approved by the College of Business. S/U credit.

MCE | Mechanical Engineering

MCE 201 Engineering Graphics LEC (3 crs.) Introduction to the principles of graphic representation in engineering design, with emphasis on computer-aided drafting, orthographic projection, isometric and auxiliary views, sections, dimensioning, and rapid prototyping. (Lec. 2, Lab. 3)

MCE 262 Statics LEC (3 crs.) Newton's laws of force systems in equilibrium and their effects on particles, systems of particles, and rigid bodies. Both scalar and vector methods of analysis are developed. (Lec. 3) Pre: MTH 141, or permission of instructor.

MCE 262H Honors Section of MCE 262: Statics LEC (3 crs.) Honors Section of MCE 262: Statics. Newton's laws of force systems in equilibrium and their effects on particles, systems of particles, and rigid bodies. Both scalar and vector methods of analysis are developed. (Lec. 3) Pre: MTH 141 and 3.40 overall GPA or better, or permission of instructor.

MCE 263 Dynamics LEC (3 crs.) Kinematic and kinetic study of motion of particles, systems of particles, and rigid bodies, acted upon by unbalanced force systems, using both scalar and vector methods; development of methods of analysis based on the direct application of Newton's laws, work-energy and impulse-momentum principles. (Lec. 3/Online) Pre: 262.

MCE 301 Application of Mechanics in Design LEC (3 crs.) Concepts of engineering design, material selection, failure theories, fracture and fatigue, and finite-element analysis. Application to the design of mechanical components such as shafts, bolts, welded joints, and springs. (Lec. 3/Online) Pre: CVE 220, credit or concurrent enrollment in ISE 240, and ((at least a 2.0 (C) average in PHY 203 (or 203H), MCE 262 (or 262H), CVE 220 and students must be admitted to the College of Engineering) or permission of instructor.

MCE 302 Design of Machinery LEC (3 crs.) Analysis and design of mechanisms and machine elements including linkages, gear trains, cam-follower systems, bearings, brakes and clutches, flexible mechanical elements, and intermittent and other devices. Graphical, analytical and computer-aided synthesis techniques. (Lec. 3) Pre: (MCE 201 or permission of instructor) and 263 and 301).

MCE 313 Introduction To Mechanical Engineering Experimentation LEC (3 crs.) Report writing, computer-assisted data acquisition and control, statistical and other measures of data uncertainty, propagation of uncertainty, curve fitting. Introduces basic instrumentation for measuring pressure, temperature, velocity and strain. (Lec. 2, Lab. 3) Pre: CVE 220 and concurrent registration in MCE 341 and MCE 354.

MCE 341 Fundamentals of Thermodynamics LEC (3 crs.) Basic principles and laws of thermodynamics and their relation to pure substances, ideal gases, and real gases. Use of thermodynamic property tables. Development of concepts of reversibility and availability. First and Second Law application to engineering systems; power and refrigeration cycles. (Lec. 3) Pre: MCE 263 and MTH 243.

MCE 348 Heat and Mass Transfer LEC (3 crs.) Transfer of heat by conduction, convection, and radiation in steady and unsteady states. Theory and application of dimensional analysis; heat and mass transfer in equipment such as heat exchangers and steam condensers. (Lec. 3) Pre: 341 and 354 and 372, or permission of instructor. Not for graduate credit.

MCE 354 Fluid Mechanics LEC (3 crs.) Physical properties of fluids, development of continuity, energy, and momentum concepts using vector methods; application to problems involving viscous and non-viscous fluids including boundary layer flows, flows in closed conduits and around immersed bodies. (Lec. 3) Pre: MCE 263 and MTH 243 or permission of instructor.

MCE 366 System Dynamics LEC (3 crs.) Systems analysis emphasizing control and vibration. Time and frequency domain techniques. Modeling of typical mechanical, hydraulic, pneumatic, and thermal systems. Transfer functions and block diagram methods. Elementary control laws. (Lec. 3) Pre: MCE 263 and MTH 244 and (students must be admitted to the College of Engineering or permission of instructor.

MCE 372 Engineering Analysis LEC (3 crs.) Application of advanced mathematical methods and computer software to solution of mechanical engineering problems with emphasis on the techniques of engineering analysis. (Lec. 3) Pre: EGR 106, MTH 243, MTH 244, or permission of instructor.

MCE 401 Mechanical Engineering Capstone Design I LEC (3 crs.) Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. First of a two-course sequence. (Lec. 2, Lab. 3) Pre: Completion of three of the following four courses: MCE 302, 348, 366 and ISE 240, and concurrent registration in CHE 333, or permission of instructor. Must be taken in the semester prior to MCE 402. Not for graduate credit.

MCE 401H Honors Sections of MCE 401: Mechanical Engineering Capstone Design I LEC (3 crs.) Honors Sections of MCE 401: Mechanical Engineering Capstone Design I. Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. First of a two-course sequence. (Lec. 2, Lab. 3) Pre: 3.40 overall GPA, MCE 302 and 366 and 348 and ISE 240 and credit for or concurrent registration in CHE 333, or permission of instructor. Must be taken in the semester prior to MCE 402. Not for graduate credit.

MCE 402 Mechanical Engineering Capstone Design II LEC (3 crs.) Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. Second of a two course sequence. (Lec. 2, Lab. 3) Pre: MCE 401. Must be taken in the semester following MCE 401. Not for graduate credit. (D1)

MCE 402H Honors Section of MCE 402: Mechanical Engineering Capstone Design II LEC (3 crs.) Honors Section of MCE 402: Mechanical Engineering Capstone Design II. Application of engineering skills using a team-based approach. Design process methodology and communication of solutions to real-world engineering problems. Second of a two course sequence. (Lec. 2, Lab. 3) Pre: 3.40 overall GPA and MCE 401 or 401H. Must be taken in the semester following MCE 401. Not for graduate credit. (D1)

MCE 411 Probability and Statistics for Engineers LEC (3 crs.) Cross-listed as (ISE 311), MCE 411. Introduction to probability and statistics in engineering applications including data analysis, probability theory, probability distributions, sampling distributions, statistical inference, hypotheses testing, confidence intervals, analysis of variance, and receiver operating characteristics. (Lec. 3) Pre: MTH 142 or permission of instructor.

MCE 414 Mechanical Engineering Experimentation LEC (3 crs.) Course aims to build on foundation from MCE 313 and to apply experimental tools to topics from the two main emphasis areas in the undergraduate curriculum, mechanical systems and thermal systems. (Lec. 2, Lab. 3) Pre: MCE 313 and 348, or permission of instructor. Not for graduate credit.

MCE 426 Advanced Mechanics of Materials LEC (3 crs.) Introduction to continuum mechanics: stress, strain and deformation, constitutive equations. Theories of failure. Shear center and unsymmetrical bending of beam. Curved beams. Energy method. Torsion. (Lec. 3) Pre: MCE 301 or permission of instructor.

MCE 431 Control Systems LEC (3 crs.) Cross-listed as (MCE 431), ELE 457. An introduction to feedback control systems. PID control, time/frequency response, stability and performance specifications, root locus, Bode plot, lead/lag compensator, state-space design, and applications to typical electro-mechanical systems. (Lec. 3) Pre: ((ELE 205 or ELE 208 or BME 207) and ELE 314) or MCE 366, or permission of instructor.

MCE 433 Mechatronics LEC (3 crs.) Design of microprocessor-controlled electromechanical systems. Topics covered include: real-time programming, motion control elements, interfacing of sensors and actuators, basic electronics, and microprocessor architecture. (Lec. 2, Lab. 2) Pre: MCE 366 and ELE 220 or permission of instructor.

MCE 434 Heating, Ventilation, and Air Conditioning LEC (3 crs.) Application of the principles of thermodynamics and heat transfer to environmental problems. Topics will include thermal control of living spaces, solar heating and cooling, heat pumps, minimum energy consumption. (Lec. 3) Pre: MCE 341 or permission of instructor.

MCE 437 Turbomachinery Design LEC (3 crs.) Application of the principles of thermodynamics and fluid mechanics to the design of rotating machinery such as turbines, compressors, centrifugal and axial flow pumps. (Lec. 3) Pre: MCE 341 and 354 or permission of instructor.

MCE 438 Internal Combustion Engines LEC (3 crs.) Principles, design, and operation of internal combustion engines, including cycles, combustion, fuels, detonation, carburetion, cooling, supercharging, ignition, friction, and lubrication. Gasoline and diesel, two- and four-stroke cycles, and performance of various engines including the Wankel rotary. (Lec. 3) Pre: MCE 341 or permission of instructor.

MCE 440 Mechanics of Composite Materials LEC (3 crs.) Introduction to the basic concepts of the mechanical behavior of composite materials. Analysis and performance of fiber-reinforced composites. Special design considerations and experimental characterization of composites. (Lec. 3) Pre: CVE 220 or permission of instructor.

MCE 449 Product Design for Manufacture LEC (3 crs.) Cross-listed as (ISE), MCE 449. Techniques for analyzing product structures for ease of assembly and manufacture. Manual, robot, and high-speed mechanized assembly systems considered for mechanical and electronic products. Covers choice of material and processes in early design. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit.

MCE 454 Tribology LEC (3 crs.) Introductory course on the basic principles of tribology (friction, wear, lubrication); fundamentals of surface contact; friction theories; wear mechanisms; temperature considerations in sliding contacts; lubrication regimes; materials selection; design of bearings; advanced applications; experimental analysis. (Lec) Pre: CVE 220 and MCE 354 or permission of instructor.

MCE 455 Advanced Fluid Mechanics LEC (3 crs.) Analysis and computation of steady flows involving practical geometries. Comparisons between the exact and numerical solutions. Laminar and turbulent flows including boundary layers, flow separation, and three-dimensionality. (Lec. 3) Pre: MCE 354 and MCE 372, or permission of instructor.

MCE 456 Foundations of Robotics LEC (3 crs.) Cross-listed as (ELE), MCE, OCE 456. The course provides the theoretical background to formulate and address problems in robotics. Its objective is to give a basic understanding of robot kinematics, sensing, actuation, localization, control, and planning. (Lec. 3) Pre: PHY 204 and permission of instructor

MCE 460 Product Design for the Environment LEC (3 crs.) Principles and practices of designing more environmentally beneficial products. Environmental effects. Life cycle analysis, recycling and remanufacturing. Design for disassembly and environment. Group projects on product and process design using LCA and DFE analysis tools. (Lec. 3) Pre: ISE 240, CHE 333 or 437.

MCE 464 Vibrations LEC (3 crs.) Elementary theory of mechanical vibrations, including the one-degree-of-freedom system, multimass systems, vibration isolation, torsional vibration, beam vibration, critical speeds, and vibration instruments. (Lec. 3) Pre: 366 or permission of instructor.

MCE 466 Introduction to Finite Element Method LEC (3 crs.) Application of the finite element method to problems in mechanical engineering including plane elasticity, heat transfer, and fluid mechanics. Basic concepts, matrix formulation, interpolation functions, basic element types, and implementation to problem solution. (Lec. 3/Online) Pre: MCE 301 and 372, or permission of instructor.

MCE 471 Nuclear Reactor Engineering LEC (3 crs.) Cross-listed as (MCE), CHE, NUE 471. Energy production from nuclear reactions, cross sections, number density, and binding energy. Fission process, neutron life cycle, criticality, neutron diffusion, reactor design, reactor kinetics and control, reactivity feedback, nuclear system design. (Lec. 3) Pre: MTH 244 or permission of instructor.

MCE 472 Power Plant System Design and Safety Analysis LEC (3 crs.) Cross-listed as (MCE), CHE, NUE 472. Energy production, power systems, energy conversion system design, safety engineering and design, phenomenological modeling and analysis, probabilistic risk assessment, risk-informed design, advanced power plant systems design. (Lec. 3) Pre: MCE 341 or CHE 313 or permission of instructor.

MCE 473 Nuclear Fuel Cycle and Performance LEC (3 crs.) Cross-listed as (CHE), MCE, NUE 473. Analysis and design of stages of the nuclear fuel cycle including mining, milling, conversion, enrichment, fuel fabrication, fuel burn-up, spent fuel interim storage, reprocessing, safety and aspects of high level waste. (Lec. 3/Online) Pre: MTH 244 or permission of instructor.

MCE 474 Nuclear Reactor Thermal-Hydraulics LEC (3 crs.) Cross-listed as (CHE), MCE, NUE 474. Nuclear heat generation, decay heat, heat transport, and conductive, convective, and phase change heat removal in nuclear reactor systems. (Lec. 3) Pre: MCE/CHE/NUE 471. Not for graduate credit.

MCE 476 Materials in Nuclear Applications LEC (3 crs.) Cross-listed as (MCE), CHE 476. Nuclear power systems, material microstructure, reactor core neutron-material interactions, radiation damage events, radiation damage effects, reactor materials selection. (Lec. 3) Pre: CHE 232 or 333, or permission of instructor.

MCE 485 Solar Thermal Engineering LEC (3 crs.) Course covers principles of solar radiation, natural and forced convection, radiation characteristics of materials, and applications to flat-plate and concentrating collectors, and tools designed for passive and active solar heating/cooling systems. (Lec. 3) Pre: MCE 348 or permission of instructor. Not for graduate credit.

MCE 491 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits. Not for graduate credit.

MCE 492 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor. May be repeated for a maximum of 12 credits. Not for graduate credit.

MCE 501 Graduate Seminar SEM (1 cr.) Seminars and discussions presented by faculty members of academia and industry. Attendance is required of all students in graduate residence. (Seminar) S/U credit.

MCE 502 Graduate Seminar SEM (1 cr.) Seminars and discussions presented by faculty members of academia and industry. Attendance is required of all students in graduate residence. (Seminar) S/U credit.

MCE 503 Linear Control Systems LEC (4 crs.) Cross-listed as (ELE), MCE 503. State-variable description of continuous-time and

discrete-time systems, matrices and linear spaces, controllability and observability, pole-placement methods, observer theory and state reconstruction, MATLAB exercises for simulation and design. (Lec. 4) Pre: ELE 314 or MCE 366 or equivalent and MTH 215 or equivalent.

MCE 504 Optimal Control Theory LEC (3 crs.) Cross-listed as (ELE), MCE 504.Quadratic performance indices and optimal linear control, frequency response properties of optimal feedback regulators, state estimation, separation theorem, optimal control of nonlinear systems, Pontryagin's minimum principle. (Lec. 3) Pre: ELE 503.

MCE 523 Advanced Kinematics I LEC (3 crs.) Analytical kinematic and dynamic analysis of planar mechanisms, graph theory, topological synthesis, topological analysis, Burmester theory, mechanism design software. (Lec. 3) Pre: MCE 302 or equivalent.

MCE 530 Real-Time Monitoring and Control LEC (3 crs.) Fundamentals of the development of real-time software for monitoring and control. Mechanical systems computer interfacing, timing, cooperative and preemptive scheduling, distributed control, RTOS, and embedded control. Laboratory exercises. (Lec. 3) Pre: graduate standing or permission of instructor.

MCE 534 Vibration-Based Structural Health Monitoring LEC (3 crs.) Linear and nonlinear vibration signal analysis for the health monitoring of machines and structures; linear/nonlinear signal processing; damage sensitive features extraction; pattern recognition; damage detection, diagnosis and prognosis. (Lec. 3) Pre: graduate standing, or MCE 366 and 372, or permission of instructor.

MCE 538 Mechanical Engineering Systems LEC (3 crs.) Modeling and simulation of typical mechanical, thermal, fluid and electromechanical elements found in mechanical engineering systems. Feedback control concepts. Control software structures, and software implementation of control systems. (Lec. 3) Pre: graduate standing or permission of instructor.

MCE 541 Advanced Thermodynamics I LEC (3 crs.) Advanced study of classical thermodynamics with emphasis on basic concepts, laws, and thermodynamic relationships. Selected topics of current interest including areas of irreversible thermodynamics, statistical mechanics, and the thermodynamics of solids. (Lec. 3) Pre: MCE 341 or permission of instructor.

MCE 545 Heat Transfer LEC (3 crs.) Conduction in two and three dimensions and conducting systems with radiation and fluid motion. Solutions obtained by mathematics, computer-numerical methods, and analog devices. (Lec. 3) Pre: MCE 348.

MCE 546 Convection Heat Transfer LEC (3 crs.) Relationship between heat transfer and fluid flow with emphasis on the solution of governing equations by exact methods, integral methods, and similarity techniques. (Lec. 3) Pre: MCE 348.

MCE 549 Advanced Product Design for Manufacture LEC (3 crs.) Cross-listed as (ISE), MCE 549. Techniques for analyzing product structures for ease of assembly and manufacture. Considers mechanical and electronic products and choice of materials and processes. A design project and term paper are required. (Lec. 3) Pre: ISE 240 or permission of instructor. Not for graduate credit for students with credit in ISE 449.

MCE 550 Continuum Mechanics LEC (3 crs.) Foundations for advanced studies in mechanical and thermal behavior of solids and fluids. Cartesian and general tensors, small and large deformation theory, Cauchy and Piola-Kirchhoff stress, conservation principles, constitutive laws with applications to materials of engineering interest. (Lec. 3) Pre: CVE 220, MCE 354, 372 or permission of instructor.

MCE 551 Fluid Mechanics I LEC (3 crs.) Basic treatment of real fluid flows using the continuum mechanics approach. Exact solutions of the governing equations. Laminar shear flows and boundary layer theory, turbulent transition. (Lec. 3) Pre: MCE 354 or equivalent.

MCE 552 Advanced Experimental Methods LEC (3 crs.) Theory and application of various experimental techniques used in fluid mechanics, solid mechanics, and tribology. Emphasis on mechanical and chemical methods of wear detection, and strain and optical techniques of stress evaluation. (Lec. 2, Lab. 3) Pre: MCE 354 and CVE 220 or permission of instructor.

MCE 553 Microfluidics LEC (3 crs.) Fundamentals and applications of microfluidic systems, including basic concepts, microflow fundamentals, microfabrication techniques, related topics such as acoustofluidics, optofluidics and organ-on-chips with their applications in chemical and biochemical analysis. (Lec. 3) Pre: MCE 354 or CHE 347 or permission of instructor.

MCE 561 Computational Methods in Solid Mechanics LEC (3 crs.) Finite and boundary element methods based on variational and weighted residual concepts implementation to statis and dynamic field problems in elasticity, plasticity, and heat conduction. (Lec. 3) Pre: MCE 372 and one graduate course in elasticity or heat conduction.

MCE 562 Computational Methods in Fluid Flow and Heat Transfer LEC (3 crs.) Computational techniques and applications for practical problems concerning multidimensional fluid flow, heat and mass transfer, and chemical reactions. (Lec. 3) Pre: undergraduate work in fluid mechanics and heat transfer or permission of instructor.

MCE 563 Advanced Dynamics LEC (3 crs.) Newtownian mechanics, motion in rotating coordinate systems, Lagrange's Mechanics, Hamilton's principle. Variational methods, nonconservative and nonholonomic systems; matrix-tensor specifications of rigid body motions, normal coordinates. Hamilton's equation of motion, canonical transformation, Hamilton-Jacobi theory. (Lec. 3) Pre: MCE 366 and 372 or equivalent.

MCE 564 Advanced Vibrations LEC (3 crs.) Theory of vibration of lumped-parameter multi-degree-of-freedom systems; distributed-parameter systems: exact and approximate solutions; nonlinear and random vibrations. Experimental methods and design procedures. (Lec. 3) Pre: MCE 366 or MCE 464 or equivalent.

MCE 565 Wave Motion and Vibration of Continuous Media LEC (3 crs.) Wave motion and vibrations of strings, rods, beams, plates, and membranes; dynamic elasticity theory; Rayleigh surface waves; solutions using separation of variables and integral transforms. (Lec. 3) Pre: MCE 372, 464, or equivalent.

MCE 566 The Mechanics of Robot Manipulators LEC (3 crs.) Detailed analysis of the kinematics, dynamics, and control of industrial-type robot manipulator systems. (Lec. 3) Pre: MCE 302, 366, or permission of instructor.

MCE 567 Experimental Nonlinear Dynamics LEC (3 crs.) Fundamentals of the experimental analysis of nonlinear dynamical systems; mathematical concepts and algorithmic tools to characterize, analyze, model, and predict dynamics of nonlinear systems. (Lec. 3) Pre: MCE 366 or 464 or equivalent.

MCE 568 Theory of Plates LEC (3 crs.) Cross-listed as (MCE), CVE 568. Development of basic plate equations. Classical solution examples of rectangular and circular plates. Additional topics selected from orthotropic plates, large deflections, finite element, and numerical solutions. (Lec. 3) Pre: CVE 220 and MTH 244.

MCE 571 Theory of Elasticity I LEC (3 crs.) Development of the basic field equations; general concepts of stress and strain; generalized Hooke's law; plane problems; stress functions; Saint Venant torsion and flexure; introduction to three-dimensional problems. (Lec. 3) Pre: CVE 220 or equivalent.

MCE 576 Fracture Mechanics LEC (3 crs.) Fundamentals of linear and nonlinear materials behavior, linear elastic fracture mechanics, stress analysis and energy viewpoints, two- and three-dimensional problems, elastic-plastic considerations, dynamic and time-dependent fracture, fatigue crack growth, micro-mechanics of fracture processes, experimental techniques, application to design. (Lec. 3) Pre: MCE 426 or permission of instructor.

MCE 577 Seminar In Sensors And Surface Technology SEM (1 cr.) Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U credit.

MCE 578 Seminar in Sensors and Surface Technology SEM (1 cr.) Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U credit.

MCE 580 Micro/Nanoscale Energy Transport LEC (3 crs.) Fundamentals and applications of energy transport at micro/nanoscale, including equilibrium statistics, Boltzmann transport equation, and nano/microscale heat conduction and radiation, with applications in contemporary technologies. (Lec. 3) Pre: MCE 348 or equivalent, or permission of instructor.

MCE 585 Solar Thermal Engineering LEC (3 crs.) Course covers principles of solar radiation, radiation characteristics of materials, and applications to flat-plate and concentrating collectors, and tools designed for passive and active solar heating/cooling systems. A research paper and presentation are required. (Lec. 3) Pre: Graduate standing or permission of instructor. This course is not open for the students who have prior credit in the 400-level version (MCE 485).

MCE 586 Adaptive Control for Robotic Systems LEC (3 crs.) Classical adaptive control theory, including Lyapunov stability, parameter identification, model reference adaptive control, adaptive pole placement, robust adaptive control, and their applications in robotic manipulators and autonomous mobile robots. (Lec. 3) Pre: MCE 566 or ELE 502, or permission of instructor.

MCE 591 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit individual requirements of the student. May be repeated for a maximum of 6 credits. Pre: permission of instructor.

MCE 592 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit individual requirements of the student. May be repeated for a maximum of 6 credits. Pre: permission of instructor.

MCE 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

MCE 653 Fluid Mechanics II LEC (3 crs.) Continuation of 551, including turbulent modeling, turbulent shear flows and boundary layers, incompressible irrotational flows, and selected topics such as an introduction to non-Newtonian fluid behavior, geophysical flows, or numerical methods. (Lec. 3) Pre: MCE 551.

MCE 663 Nonlinear Dynamics LEC (3 crs.) Nonlinear dynamics theory and its applications to mechanical, chemical, electromagnetic or biological oscillators; stability, phase analysis, limit cycles, bifurcations, perturbation methods, chaos, fractals, strange attractors and other advanced topics. (Lec. 3) Pre: MCE 563 or 564 or permission of instructor.

MCE 671 Theory of Elasticity II LEC (3 crs.) Continuation of 571; advanced topics selected from complex variable methods; anisotropic solutions; thermoelasticity; displacement potentials and stress functions for three-dimensional problems; micromechanics modeling; variational, approximate, and numerical methods. (Lec. 3) Pre: MCE 571 or equivalent.

MCE 678 Micromechanics LEC (3 crs.) Mechanics of material behavior from the micro structural viewpoint; physical mechanisms of deformation and fracture; continuum mechanics and thermodynamics; rheological classification of solids; thermodynamics and viscoelasticity; plasticity and viscoplasticity; damage mechanisms; applications to metals, ceramics and composites. (Lec. 3) Pre: MCE 571, CHE 333 or equivalent.

MCE 679 Theory of Plasticity LEC (3 crs.) Uniaxial behavior of plasticity; perfect plasticity, plastic potential; work-hardening materials, loading surface and loading rules, flow rules; tress-strain relationships; nonlinear kinematic hardening models; foundation of state-variable approaches, viscoplasticity; applications to engineering materials. (Lec. 3) Pre: MCE 571 or permission of instructor.

MCE 680 Advanced Topics in Solid Mechanics LEC (3 crs.) Advanced studies in the mechanics of solids with specific topics determined by current department interests. Designed for students with at least one year of previous graduate studies. (Lec. 3) Pre: permission of instructor. May not be repeated.

MCE 691 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits.

MCE 692 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. May be repeated for a maximum of 6 credits.

MCE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

MGT | Management

MGT 104GH (BUS) Honors Section: Tackling Grand Social and Ecological Challenges LEC (3 crs.) Honors Section. Introduces concepts, approaches, and skills (e.g. system thinking, social entrepreneurship, and negotiation) to tackle grand challenges. Students gain practice with projects defining intervention proposals to tackle a grand challenge locally. (Lec. 3) Pre: 3.40 or better overall GPA. (A2) (C1) (GC)

MGT 201 (BUS 340) Management Foundations: Building Better Businesses LEC (3 crs.) Management concepts, processes and practices with an emphasis on inclusion, agility and evidence based decision making: organizational behavior; individual differences and elements of diversity; interpersonal dynamics and communication; work design, motivation and outcomes; social justice and worker voice; structure (including business functions) and culture. (Lec. 3)

MGT 295 Management Introduction SEM (1 cr.) This introductory seminar provides students with the perspectives, problem-solving skills, and mentorship to develop their own program of study within the college of business. Required for General Management Majors. (Seminar)

MGT 317 (BUS) International Business Communications Exchange LEC (3 crs.) Cross-listed as (MGT (BUS) 317), COM 354. Examination of effective international business communication. Use of worldwide email network to exchange views on business topics with counterparts abroad. (Lec. 3/Online) Pre: permission of instructor.

MGT 341 (BUS) Organizational Behavior LEC (3 crs.) Introduction to organizational behavior; focus on individual, interpersonal, team and organization factor, and how these shape individuals behaviors at work. (Lec. 3/Online) Pre: permission of instructor.

MGT 341H (BUS) Honors Section of BUS 341: Organizational Behavior LEC (3 crs.) Honors Section of BUS 341:Organizational Behaviors. Introduction to organizational behavior; focus on individual, interpersonal, team and organization factor, and how these shape individuals behaviors at work. (Lec. 3/Online) Pre: Must have a 3.40 or better overall GPA or permission of instructor.

MGT 342 (BUS) Human Resources Management LEC (3 crs.) The role of management of human capital in the strategy of the organization. Introduction to employment practices in union and non-union organizations including: planning, staffing, training and development, performance management and compensation. (Lec. 3/Online)

MGT 343 (BUS) Skills Development In Organizational Behavior LEC (3 crs.) Developing the managerial skills and competencies of leadership, motivation, conflict resolution, and interpersonal relations through dynamic cases, experiential exercises, and personal development sessions. (Lec. 3)

MGT 344 (BUS) Labor Problems LEC (3 crs.) Historical development of labor unions, changing composition of the labor force. Factors

determining wage levels and employment in the firm and market. Analysis of mobility and occupational and regional wage differentials; the power of unions to raise wages; the role of investments in the human agent as a factor in economic growth. (Lec. 3) Pre: ECN 201 or EEC 105, or permission of instructor.

MGT 345 (BUS) Business in Society LEC (3 crs.) Examination of the contemporary social, political, cultural, legal and ethical forces that shape the business environment. Consideration of stakeholder relations and corporate social responsibility. (Lec. 3)

MGT 346 (BUS) Gender in Organizations LEC (3 crs.) Cross-listed as (MGT), GSW 346. This course examines intersection of work dynamics and gender that has become critical due to the rapidly changing landscape of business. Addresses the macro and micro effects of gender in the workplace, including the complex reasons for the lack of representation of women in senior leadership positions-within the United States and in the larger global context - "gendered" communication at work, and career and work-life effectiveness for both women and men. (Lec. 3) Pre: MGT (BUS) 341 recommended.

MGT 390 Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

MGT 441 (BUS) Leadership Skills Development LEC (3 crs.) Introduces the students to the tasks, strategies, and skills of effective leadership. Special emphasis will be on developing vision, dealing with change, ethics, values, and diversity. (Lec. 3) Pre: MGT (BUS) 341 or 341H or permission of instructor.

MGT 442 (BUS) Organization and Management Theory LEC (3 crs.) Analysis of complex organizational situations emphasizing managerial problems dealing with structure, coordination, control, and integration. Conceptual skills for organizational analysis, including model and systems approaches. (Lec. 3) Pre: MGT (BUS) 340 or permission of instructor.

MGT 443 (BUS) Organizational Design and Change LEC (3 crs.) Behavioral science applications to planning systematic organizational design, change and development using theory, concepts, technique, and cases for change agents and managers of change. (Lec. 3) Pre: MGT (BUS) 341 or 341H, or permission of instructor.

MGT 444 (BUS) Labor Relations LEC (3 crs.) Public interest in labor relations and problems involved in collective bargaining. Major adjustments of public and private management to changes in labor policy of federal and state governments, community, and labor unions. (Lec. 3/Online) Pre: MGT (BUS) 342. Not for graduate credit.

MGT 445 (BUS) Strategic Management LEC (3 crs.) Case studies, simulation or company analysis used to study strategic theory and practice and problems of functional integration in domestic and global firms. (Lec. 3/Online) Pre: ACC (BUS) 202 and FIN (BUS) 220 or 220H and MGT (BUS) 341 or 341H and SCA 255 (355) and MKT (BUS) 265 (365) or 265H (365H) and INE 315 or MGT 345, and senior standing in the College of Business, or permission of instructor. Not for graduate credit. (D1)

MGT 445H (BUS) Honors Section of BUS 445: Strategic Management. LEC (3 crs.) Honors Section of BUS 445: Strategic Management. Case studies, simulation or company analysis used to study strategic theory and practice and problems of functional integration in domestic and global firms. (Lec. 3/Online) Pre: Must have a 3.40 overall GPA and ACC (BUS) 202 and FIN (BUS) 220 or 220H and MGT (BUS) 341 or 341H and SCA 255 (355) and MKT (BUS) 265 (365) or 265H (365H) and INE 315 or MGT 345, and senior standing in the College of Business, or permission of instructor. Not for graduate credit. (D1)

MGT 446 (BUS) Special Topics in Management SEM (3 crs.) Advanced study in topics of special interest to Management. This course will be conducted as a seminar for juniors and seniors. (Seminar) May be repeated once with different topic. Pre: MGT (BUS) 342 and senior standing or permission of instructor.

MGT 446H Honors Section of MGT 446: Special Topics in Management SEM (3 crs.) Advanced study in topics of special interest to Management. This course will be conducted as a seminar for juniors and seniors. (Seminar) May be repeated once with different topic. Pre: 3.4 overall gpa and MGT (BUS) 342 and senior standing or permission of instructor. Not for graduate credit.

MGT 447 (BUS) Compensation Administration LEC (3 crs.) Concepts, models, theories, and legislation related to the employee compensation process. Discussion and skill acquisition in job analysis, job evaluation, wage surveys, and performance appraisal. (Lec. 3) Pre: MGT (BUS) 341 or 341H or permission of instructor. Not for graduate credit.

MGT 448 (BUS) International Dimensions of Business LEC (3 crs.) Introduction to complex, culturally diverse, digital business environments. Characteristics of successful 'transnational' corporations, along with international dimensions of business will be developed experientially. (Lec. 3) Not for M.B.A. credit.

MGT 450 (BUS) Small Business Management LEC (3 crs.) Application of theory and practice to the management and formation of the small business enterprise, use of current literature, cases and projects to enable students to understand and appreciate the operations of small businesses. (Lec. 3) Pre: senior standing in the College of Business Entrep/Innovation major or minor, enrollment in COE Entrep minor, or permission of instructor.

MGT 461 (BUS) Management Data Analysis and Communication LEC (3 crs.) Cross-listed as (MGT), LHR 461. Descriptive and predictive statistics for advanced Management students, with a focus on generating insights from data, effectively presenting results in a narrative, and taking evidence-based actions. Excel will be the primary software used. (Lec. 3) Pre: MGT (BUS) 342.

MGT 491 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

MGT 492 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

MGT 493 Internship in Management PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: admission into internship program, and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

MGT 605 (BUS) Organizational Behavior LEC (3 crs.) Incorporates the insights gleaned from the disciplines of psychology, sociology, anthropology, and the social sciences of politics, economics, and history in the study of the behavior of organizations and of their principal actors. (Lec. 3) Pre: MBA 502 or permission of instructor.

MGT 606 (BUS) Advanced Organizational Theory and Behavior LEC (3 crs.) Previous knowledge of classical and traditional management thought used to provide concepts, analytical approaches, and skills for understanding how behavioral sciences influence complex organizational systems. (Lec. 3) Pre: MGT (BUS) 605.

MGT 607 (BUS) Doctoral Research Seminar SEM (3 crs.) Provides a rigorous analysis of current research questions and research techniques used to address those questions in the management discipline. Recent developments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

MGT 612 (BUS) Knowledge Systems In Managerial Disciplines SEM (3 crs.) Examination of knowledge production and dissemination systems in management disciplines. Discussion of various paradigms

and philosophy of science perspectives. Metascientific and research program issues are examined. (Seminar) Pre: Ph.D. candidate.

MGT 691 Directed Study-Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MGT 692 Directed Study-Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MGT 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

MHM | Master of Science in Healthcare Management

MHM 501 Healthcare in America ONL (3 crs.) This course examines the structures, regulations, financing, economics, policies and incentives that shape the US healthcare sector. (Accelerated Online Program) Pre: Open to graduate students only.

MHM 502 Leadership in Healthcare Management ONL (3 crs.) The course introduces basic principles and theories of leadership, explores the concepts of emotional intelligence, communication, motivation, accountability, interprofessional team building and leadership development. (Accelerated Online Program) Pre: graduate students only

MHM 503 Financial Management of Healthcare Organizations ONL (3 crs.) The course introduces students to the basic principles of financial analysis and management reporting, revenue cycle management, resource allocation decisions, and budgeting for healthcare organizations. (Accelerate Online Program) Pre: Open to graduate students only.

MHM 504 Economics of Healthcare Management ONL (3 crs.) This course examines the production of health, healthcare, and healthcare markets. (Accelerated Online Program) Pre: open to graduate students only.

MHM 505 Healthcare Information Systems Management ONL (3 crs.) The course offers the fundamental knowledge and tools needed to manage information and information resources effectively within a wide variety of healthcare organizations. (Accelerated Online Program) Pre: Open to graduate students only.

MHM 506 Healthcare Operations & Process Improvement ONL (3 crs.) The course is devoted to the factors that impact the design, improvement and management of Healthcare Operations. This course covers knowledge needed for the Lean Six Sigma Yellow Belt certification. (Accelerated Online Program) Pre: Open to graduate students only.

MHM 507 Healthcare Quality Science ONL (3 crs.) This course provides a framework, strategies, and practical tactics to help all healthcare professionals to learn, teach, and lead quality and safety improvement effort. (Accelerated Online Program) Pre: Open to graduate students only.

MHM 508 Data Analytics for Healthcare Management ONL (3 crs.) This course will cover how to best analyze, categorize, and manage data that are encountered in healthcare industry; statistical analysis techniques; value-based purchasing analytics and risk adjustment. (Accelerated Online Program) Pre: open to graduate students only.

MHM 509 Law and Ethics for Healthcare Management ONL (3 crs.) The course introduces basic legal principles applicable to the healthcare arena and alerts students to the possible involvement of law in the healthcare professions. (Accelerated Online Program) Pre: Open to graduate students only.

MHM 510 Strategic Marketing for Healthcare Management ONL (3 crs.) Introduces marketing fundamentals and applications in healthcare organizations; addresses changing environment and consumer behavior decisions related to value creation, strategy, and innovation. (Accelerated Online Program) Pre: Open to graduate students only.

MHM 515 Practicum for Healthcare Management Professionals ONL (3 crs.) This course applies concepts learned from earlier courses to an experiential setting; organizational culture, leadership, financial health, information science, quality improvement. (Accelerated Online Program) Pre: open to graduate students only

MKT | Marketing

MKT 265 (BUS 365) Marketing Principles LEC (3 crs.) An introduction to marketing from a managerial viewpoint. Examines social, economic, technological, legal, ethical, and other environmental factors and their impact on product, price, promotion, and distribution decisions in a worldwide market. (Lec. 3) Pre: Open to students with 24 credits or permission of dean's office. Proficiency test available if course was taken at a non-AACSB program prior to transfer to the University.

MKT 366 (BUS) Consumer Behavior LEC (3 crs.) A review of the consumer decision-making process and factors that influence consumers, including ethical issues. Implications for cross-cultural marketing are examined. (Lec. 3)

MKT 367 (BUS) Marketing Research LEC (3 crs.) Describes the nature and scope of marketing research activities. Reviews research designs, sampling, measurement, analysis, and other issues with focus on providing marketing information to management. (Lec. 3) Pre: BAI (BUS) 210 or STA 308, BAI (BUS) 211 and MKT (BUS) 265 or 265H.

MKT 390 Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

MKT 465 (BUS) Marketing Communications LEC (3 crs.) The "communications mix" is explored in terms of a total promotional program. Characteristics of advertising media, sales promotion, public relations, and publicity are surveyed. (Lec. 3) Pre: MKT 265 (BUS 365) or 265H (365H), junior standing, or permission of instructor. Not for MBA graduate credit.

MKT 466 (BUS) Product Innovation and Strategy LEC (3 crs.) Development and management of new and existing products and services from a decision-making perspective. Emphasis on value creation through the development of innovative products and services. (Lec. 3) Pre: MKT 265 (BUS 365) or 265H (365H), junior standing, or permission of instructor. Not for MBA graduate credit.

MKT 467 (BUS) Customer Analytics LEC (3 crs.) Frameworks and quantitative approaches for implementing strategic customer relationship management, customer-based marketing metrics, essential database marketing tools, supplier/customer selection and targeting. (Lec. 3/Online) Pre: MKT 265 (BUS 365) or 265H (365H), junior standing, or permission of instructor.

MKT 468 (BUS) Global Marketing LEC (3 crs.) Focus on understanding how cultural, political, economic, legal and other macro factors affect market strategies. Application of these factors in dealing with planning and organizing for global marketing operations. (Lec. 3) Pre: MKT 265 (BUS 365) or 265H (365H), junior standing, or permission of instructor. Not for MBA graduate credit.

MKT 469 (BUS) Special Topics In Marketing LEC (3 crs.) Selected topics of current interest in marketing. (Lec. 3) Pre: MKT 265 (BUS 365) or 265H (365H) or permission of instructor. Not for M.B.A. graduate credit.

MKT 470 (BUS) Strategic Marketing Management SEM (3 crs.) Summary course focusing on the variety decisions involved in marketing including developing and managing branded goods and services. (Seminar) Pre: MKT 265 (BUS 365), and MKT (BUS) 366 and 367, and either MKT (BUS) 465 or 467 or 468. Not for graduate credit.

MKT 475 (BUS) Social Media for Marketing: Analytics and Strategy LEC (3 crs.) Analyze a brand's social media positioning, apply analytical skills to social network data for marketing research, and develop strategies for social media marketing that help meet broad marketing objectives. (Lec. 3/Online) Pre: MKT 265 (BUS 365) or 265H (365H), or permission of instructor.

MKT 491 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

MKT 492 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

MKT 493 Internship in Marketing PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: admission into internship program, and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

MKT 610 (BUS) Seminar In Marketing SEM (3 crs.) Preparation and presentation of papers on selected topics in marketing. (Seminar) Pre: MBA 505 or permission of instructor. May be repeated.

MKT 611 (BUS) Doctoral Research Seminar SEM (3 crs.) Provides a rigorous analysis of current research questions and research techniques used to address those questions in the marketing discipline. Recent developments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

MKT 691 Directed Study-Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MKT 692 Directed Study-Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

MKT 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

MLS | Medical Laboratory Science

MLS 102 Introduction to Clinical Laboratory Science LEC (1 cr.) An introduction to the health care and medical laboratory fields including specialty areas of medical laboratory science, professional organizations, credentialing, and the health care team approach. (Lec. 1)

MLS 360 Fundamentals of the Medical Laboratory LEC (3 crs.) Introduction to the basic concepts and methodologies of medical laboratory science, including clinical aspects of its specialty areas: chemistry, hematology, immunology, immunohematology and microbiology. (Lec. 3) Pre: Credit or concurrent enrollment in CMB 201 or CMB 211.

MLS 405 Molecular Pathology PRA (2 crs.) An introduction to pathology. The correlation among pathological processes and clinical symptoms and the course of disease is studied. (Practicum)

MLS 406 Clinical Immunology PRA (2 crs.) Formation, structure, and action of antigens and antibodies. Methods of immunization. The laboratory emphasizes serological procedures in the diagnosis of disease. (Practicum)

MLS 409 Clinical Microbiology I PRA (4 crs.) The relationship of bacteria and bacterial diseases of humans, with emphasis on the application of procedures to medical diagnosis. Fungi, viruses, the rickettsias, and human parasites are also studied. (Practicum)

MLS 410 Clinical Microbiology II PRA (4 crs.) Continuation of MLS 409. (Practicum)

MLS 411 Clinical Chemistry I PRA (4 crs.) The chemistry of body constituents and their relationship to diagnosis of human disease. Principles and methods of analysis are emphasized. (Practicum)

MLS 412 Clinical Chemistry II PRA (4 crs.) Continuation of MLS 411. (Practicum)

MLS 413 Immunohematology I PRA (2 crs.) Instruction in drawing and processing blood and in ascertaining compatibility. Donor-recipient blood and tissue reactions are studied in detail. (Practicum)

MLS 414 Immunohematology II PRA (2 crs.) Continuation of MLS 413. (Practicum)

MLS 415 Hematology I PRA (3 crs.) Morphology of the blood and blood-forming organs and the study of abnormalities associated with disease. The dynamics and diagnostic tests of hemostasis are also discussed. (Practicum)

MLS 416 Hematology II PRA (3 crs.) Continuation of MLS 415. (Practicum)

MLS 451 Professional Topics in Clinical Laboratory Science PRA (2 crs.) Professional topics in the medical laboratory sciences, including research methods, education, management, occupational health, public health, regulatory affairs, professionalism and ethics. (Practicum)

MLS 483 Introductory Diagnostic Microbiology LEC (3 crs.) Cross-listed as (CMB), MLS 483. Diagnosis of infectious diseases by use of microbiology, immunology, and hematologic and clinical chemical methods; organisms covered include viruses, bacteria, fungi, and parasites. (Lec. 3) Pre: CMB 201 or 211. Open only to medical laboratory science, microbiology, and cell and molecular biology majors or permission of instructor. (D1)

MLS 501 Advanced Clinical Microbiology I LEC (3 crs.) Cross-listed as (CMB), MLS 501. Current methodology employed in the processing of clinical microbiology specimens, isolation and identification of pathogenic microorganisms, and determination of antimicrobial susceptibility. (Lec. 3) Pre: MLS 409 or CMB 432 or equivalent.

MLS 502 Advanced Clinical Chemistry I LEC (3 crs.) The pathophysiologic mechanisms as they correlate to clinical chemistry data. Topics include mechanisms of pathology and analytical techniques. (Lec. 3) Pre: MLS 411 or equivalent.

MLS 510 Clinical Laboratory Management LEC (3 crs.) Supervisory management principles applicable to the clinical laboratory. Includes the processes of supervision, decision making, job performance and evaluation, communications, organizational behavior, and labor relations in the modern laboratory. (Lec. 3) Pre: MLS 400-level medical laboratory science internship or equivalent.

MLS 512 Special Problems in Clinical Laboratory Science IND (3 crs.) Assigned research on an advanced level. Students required to outline problem, conduct the necessary research or experimental work, and present observations and conclusions in a written and oral report. (Independent Study) Pre: MLS 400-level medical laboratory science internship or equivalent.

MLS 513 Advanced Clinical Immunology LEC (3 crs.) Cross-listed as (MLS), CMB 513. Theory, application, and techniques used in clinical immunology: immunochemistry, serology, immunohematology, immunopathology. (Lec. 3) Pre: MLS 406 or CMB 533 or equivalent.

MLS 520 Advanced Hematology LEC (3 crs.) Special problems, advanced techniques, and methodology in hematology; laboratory approach emphasized. (Lec. 3) Pre: MLS 415 or equivalent.

MLS 530 Recent Advances in Blood Banking and Transfusion Medicine LEC (3 crs.) Immunohematology, blood banking, and transfusion medicine with emphasis on recent advances. Techniques used for tissue typing and organ transplantation. (Lec. 3) Pre: MLS 413 or equivalent.

MLS 541 Advanced Clinical Microbiology II LEC (3 crs.) Current research and clinical methodology in clinical mycology, parasitology, mycobacteriology, epidemiology, and infectious disease serology. (Lec. 3) Pre: MLS 409 or CMB 432 or equivalent.

MLS 543 Advanced Clinical Chemistry II LEC (3 crs.) A comprehensive study of pathophysiologic mechanisms as they relate to clinical chemistry. Topics include immunochemistry, automation, enzymology, pharmacology, and endocrinology. (Lec. 3) Pre: MLS 411 or equivalent.

MLS 551 Topics in Biochemistry for the Clinical Scientist LEC (3 crs.) Cross-listed as (CMB), MLS 551. Description of the major components of biochemistry as it relates to the medical sciences. Major concepts include molecular genetics, regulatory biochemistry, and medically related applied biochemistry. (Lec. 3) Offered every third year.

MLS 561 Introduction To Cytotechnology PRA (3 crs.) A review of cell and tissue structure, principles of microscopy, and cytological staining methods; overview of organization and management of cytology labs. (Practicum)

MLS 562 Special Topics In Cytotechnology PRA (3 crs.) Special projects in cytology, cytopathology, or cytotechnology. Students will investigate or review a topic and present a written and oral report. (Practicum)

MLS 563 Cytopathology PRA (3 crs.) Cytopathology and clinical aspects of cervical dysplasia, carcinoma in situ, and invasive squamous cell carcinoma. Endometrial and endocervical carcinoma and other genital tract cancers will be considered. (Practicum)

MLS 564 Medical Cytology PRA (3 crs.) Benign and malignant cytology of the gastrointestinal, respiratory, and urinary tracts; study of exfoliative cells in urine, serious effusions, cerebrospinal fluid, and breast secretions. (Practicum)

MLS 565 Cytology Practicum I PRA (6 crs.) Microscopic evaluation and screening of benign cytological smears from cervical dysplasia, carcinoma in situ, and invasive malignant tumors of the female genital tract. (Practicum)

MLS 566 Cytology Practicum II PRA (6 crs.) Microscopic evaluation and screening of cytological smears from the gastrointestinal, urinary, respiratory, and central nervous systems and from other body fluids. (Practicum)

MLS 571 Biotechnology Product Evaluation and Development LEC (3 crs.) Cross-listed as (MLS 571), BPS 536. The process through which candidate products produced using recombinant DNA technology are evaluated for safety and efficacy, including conductance of clinical trials, economic issues, and regulatory affairs. (Lec. 3/Online) Pre: graduate standing and permission of chairperson.

MLS 590 Special Problems in Clinical Chemistry IND (1-6 crs.) Intensive tutorial work, research, and readings in clinical chemistry. (Independent Study) Pre: graduate standing and permission of chairperson.

MLS 591 Special Problems in Clinical Microbiology IND (1-6 crs.) Cross-listed as (MLS), CMB 591. Intensive tutorial work, research, and readings in clinical microbiology. (Independent Study) Pre: graduate standing and permission of chairperson.

MLS 593 Special Problems in Immunohematology IND (1-6 crs.) Intensive tutorial work, research, and readings in immunohematology. (Independent Study) Pre: graduate standing and permission of chairperson.

MLS 594 Special Problems in Biotechnology IND (1-3 crs.) Intensive tutorial work, research, and readings in biotechnology. (Independent Study) Pre: graduate standing and permission of chairperson.

MSL | Military Science and Leadership

MSL 101 Introduction to Leadership I LEC (1 cr.) Introduction to leadership dimensions while presenting a big picture understanding of a leadership development program. Students may participate in events including rappelling and land navigation. No military obligation is associated with this course. Open to all levels. (Lec. 1)

MSL 102 Introduction to Leadership II LEC (1 cr.) Overview of leadership fundamentals such as problem-solving, public speaking, providing feedback, and using effective writing skills. Topics include skills such as first aid, marksmanship, survival and orienteering. No military obligation is associated with this course. Open to all levels.

MSL 105 Introduction to Military Physical Fitness PRA (1 cr.) Army Physical Readiness Training Program. (Practicum) No prior military experience is required. Pre: MSL 101,102, 201, 202 and permission of chairperson. S/U

MSL 201 Leadership and Military History LEC (3 crs.) Study of innovative leadership styles and Army tactics by examining key battles throughout history. Case studies provide context for learning ethical decision making and Warrior Ethos as they apply in the contemporary operating environment. Open to all levels. (Lec. 3)

MSL 202 Leadership and Team Building LEC (3 crs.) Examines the challenges of leading teams in the complex contemporary operating environment (COE). Highlights dimensions of terrain analysis, patrolling, and operation orders in the context of military operations. Open to all levels. (Lec. 3)

MSL 300 Leadership Training Internship PRA (6 crs.) Four-week paid summer internship held at Fort Knox, KY. Upon completion, the student will receive 6 credits and meet the requirements of the 100- and 200-level studies and qualify for continued studies in leadership development. (Practicum) Pre: permission of department.

MSL 301 Advanced Leadership Management LEC (3 crs.) Integrates the principles and practices of leadership and personal development to prepare students for the U.S. Army's Leadership Development and Assessment program. (Lec. 3) Pre: permission of department.

MSL 302 Advanced Leadership Management II LEC (3 crs.) Builds on the foundation of MSL 301. Focuses on developing students' situational leadership abilities to enable them to succeed in demanding, realistic, and stressful practical exercises requiring mental and physical agility. (Lec. 3) Pre: permission of department.

MSL 401 Adaptive Leadership LEC (3 crs.) Students experience opportunities in planning and leading student operations to develop as adaptive leaders. Classroom and situational leadership experiences designed to prepare for first workplace experience. (Lec. 3) Pre: MSL 301 and 302 or permission of department. Not for graduate credit.

MSL 402 Adaptive Leadership in a Complex World LEC (3 crs.) Explores the dynamics of leading in complex situations. Study differences in cultural customs and courtesies, law of land warfare, and rules of engagement in the face of international terrorism. (Lec. 3) Pre: MSL 301 and 302 and 401 or permission of department. Not for graduate credit.

MSL 403 Army Topics - Military History IND (3 crs.) Development of an approved project under faculty supervision. (Independent Study/ Online) Pre: permission of chairperson. Not for graduate credit.

MTH | Mathematics

MTH 099 Basic Algebra LEC (3 crs.) Review of basic algebra: operations of real numbers and algebraic expressions, linear equations and systems of linear equations, linear inequalities and systems of linear inequalities, introduction to polynomials and polynomials operations. (Lec. 3) Credits may not be used toward the minimum credits required for graduation or for General Education. S/U only.

MTH 101 Intermediate Algebra LEC (3 crs.) Introduction to algebraic manipulation, solving equations and Inequalities in one variable.

Plotting points and graphing elementary functions. Interpreting and expressing mathematics. Intended for STEM majors who are not prepared to take MTH 111. (Lec. 3/Online) Pre: Credit for MTH099. Not for credit for mathematics majors, not for general education credit, and not open to students with a C- or better in MTH131 or MTH141.

MTH 103 Applied Precalculus LEC (3 crs.) Linear, quadratic, power, exponential, logarithmic and periodic functions - their graphs and properties. Emphasis on interpretation and real-life applications, examples and modeling. Not for major credit in mathematics. Not intended for students planning to take MTH 111 or MTH 141. (Lec. 3/Online) (A1) (B3)

MTH 104 Puzzles + Games = Analytical Thinking LEC (4 crs.) Cross-listed as (CSC), MTH 104. Introduces mathematical problem solving and computational thinking through puzzles and games. Students work in small groups on activities to enhance their analytic abilities. Topics include numbers, probability, logic, algorithms, and graphs. (Lec. 4) Pre: High school mathematics. No programming required. (B3)

MTH 105 Elementary Mathematical Codebreaking LEC (3 crs.) Use of technology to break codes, including those enciphered by substitution, polyalphabetic, polygraphic, and transposition ciphers. Mathematical topics include modular arithmetic, linear systems, probability. (Lec. 3/Online) Only high school mathematics required. (A1) (B3)

MTH 106 Mathematics of Social Choice and Finance LEC (3 crs.) Voting methods, apportionment problems, and mathematics of everyday finance. Emphasis on development of reasoning ability as well as manipulative techniques. (Lec.3/Online) Not open to students with credit in MTH 108 or MTH 109 and not for major credit in mathematics. (A1) (B3)

MTH 107 Introduction to Finite Mathematics LEC (3 crs.) Concepts and processes of modern mathematics concerned with sets, the theory of probability, and statistics. Role of these concepts in today's social and physical sciences. (Lec. 3/Online) Pre: passing a placement test. Not open to mathematics majors. (A1) (B3)

MTH 108 Topics in Mathematics LEC (3 crs.) Introduces students to the spirit of mathematics and its applications. Emphasis is on development of reasoning ability as well as manipulative techniques. (Lec. 3/Online) Pre: Not open to students with credit in MTH 106 or MTH 109 and not for major credit in mathematics. (A1) (B3)

MTH 108H Honors Section of MTH 108: Topics in Mathematics LEC (3 crs.) Honors Section of MTH 108: Topics in Mathematics. (Lec. 3/Online) (MQ) Pre: Must have a 3.40 overall GPA. Not open to students with credit in MTH 106 or MTH 109 and not for major credit in mathematics. (A1) (B3)

MTH 109 Politics and Mathematics LEC (3 crs.) Elementary mathematical treatments of voting systems and voting paradoxes; models of escalation, conflict, and deterrence, measures of political power, etc. (Lec. 3/Online) Not open for students with credit in MTH 105, MTH 106, MTH 108, or MTH 108H and not for major credit in mathematics. (B3) (A2)

MTH 110 Mathematical Foundations for Business Analysis LEC (3 crs.) Equations of first and second degree. Inequalities. Exponential and logarithmic functions. Emphasis on business applications. Introduction to linear algebra and matrices. Introduction to spreadsheets. Designed for students who want to strengthen their background in math before BAI (BUS) 111. (Lec. 3). Not for credit for mathematics majors and not for general education credit

MTH 111 Precalculus LEC (3 crs.) Equations of first and second degree, systems of equations. Inequalities. Functions and graphs. Exponential, logarithmic, and trigonometric functions. Applications. Introduction to analytic geometry. Complex numbers. Designed for students who need to strengthen their background in mathematics below calculus. (Lec. 3/Online) Pre: passing a placement test or C- or better in MTH 101. Not for credit for mathematics majors. (A1) (B3)

MTH 131 Applied Calculus I LEC (3 crs.) Basic topics in calculus for students who do not need all the topics in 141. Limits, derivatives, and integrals of algebraic, logarithmic, exponential, and trigonometric functions. Applications including graphing, maxima and minima problems, etc. (Lec. 3/Online) Pre: passing a placement test or C- or better in MTH 103 or 111. Not for major credit in mathematics. Not open to students with credit or concurrent enrollment in 141. (A1) (B3)

MTH 132 Applied Calculus II LEC (3 crs.) Continuation of MTH 131. Topics related to trigonometric functions, integration by parts and partial fractions, partial derivatives, infinite series. Applications to problems such as optimization, probability theory, simple differential equations. (Lec. 3) Pre: MTH 131 or 141 or permission of chairperson. Not for major credit in mathematics. Not open to students with credit or concurrent enrollment in 142.

MTH 141 Calculus I LEC (4 crs.) Topics in functions and their graphs, limits, the derivative, applications to finding rates of change and extrema and to graphing, the integral, and applications. (Lec. 4/Online) Pre: passing a placement test or C- or better in MTH 111. Not open to students with credit in MTH 131 or concurrent enrollment in MTH 131. (A1) (B3)

MTH 142 Calculus II LEC (4 crs.) Continues the study of calculus for the elementary algebraic and transcendental functions of one variable. Topics include the techniques of integration, improper integrals, application in physics, and calculus using polar coordinates. (Lec. 4/Online) Pre: C- or better in MTH 141 or permission of chairperson. Not open to students with credit or concurrent enrollment in 132. (B3) (A1)

MTH 142H Honors Section: MTH 142: Intermediate Calculus with Analytic Geometry LEC (4 crs.) Honors Section: MTH 142: Intermediate Calculus with Analytic Geometry. (Lec. 3, Rec. 1/Onine) Pre: Overall GPA 3.40 and MTH 141, or permission of instructor. Not open to students with credit or concurrent enrollment in MTH 132. (B3) (A1)

MTH 180 Mathematical Tools for Computing LEC (3 crs.) Introduction to mathematical tools and to formal methods of reasoning for computing. Topics include propositional logic, proofs, elementary number theory, counting, graphs, and linear algebra. Emphasis on applications to computing. (Lec. 3/Online) (A1) (B3)

MTH 208 Numeracy for Teachers LEC (4 crs.) Conceptual understanding supporting mathematical ideas presented in current, standards-based elementary mathematics education. An in-depth look at problem solving, number systems, functions, relations, and geometry. This course is appropriate for elementary teachers and teachers in non-STEM fields. (Lec. 3, Rec. 1) (A1) (B3)

MTH 209 Numeracy for Teachers II LEC (4 crs.) This course is a continuation of MTH 208, including conceptual understanding supporting mathematical ideas presented in current, standards-based elementary mathematics education. An in-depth look at functions, relations, fractions, decimals, percentages, probability and statistics, sets, logic, and additional work in geometry. (Lec. 3, Rec. 2) Pre: C- or better in MTH 208.

MTH 215 Introduction to Linear Algebra LEC (3 crs.) Detailed study of finite dimensional vector spaces, linear transformations, matrices, determinants and systems of linear equations. (Lec. 3/Online) Pre: C- or better in MTH 131, 141, 180, or equivalent.

MTH 243 Calculus for Functions of Several Variables LEC (3 crs.) Topics include coordinates for space, vector geometry, partial derivatives, directional derivatives, extrema, Lagrange multipliers, and multiple integrals. (Lec. 3/Online) Pre: C- or better in MTH 142. (A1) (B3)

MTH 244 Differential Equations LEC (3 crs.) Classification and solution of differential equations involving one independent variable. Applications to the physical sciences. Basics for further study in applied mathematics and for advanced work in physics and engineering. (Lec. 3/Online) Pre: MTH 142.

MTH 307 Introduction to Mathematical Rigor LEC (3 crs.) Introduction to the language of rigorous mathematics: logic, set theory, functions and relations, cardinality, induction, methods of proof. Emphasis on precise written and oral presentation of mathematical arguments.

(Lec. 3) Pre: MTH 142.

MTH 316 Algebra LEC (3 crs.) Theory and structure of groups. Topics from ring theory, principal ideal domains, unique factorization domains, polynomial rings, field extensions, and Galois theory. (Lec. 3) Pre: MTH 215 and 307.

MTH 322 Concepts of Geometry LEC (3 crs.) Survey of geometrical systems including non-Euclidean, affine, and projective spaces and finite geometries. A modern view of Euclidean geometry using both synthetic and analytic methods. (Lec. 3) Pre: MTH 215 or permission of instructor.

MTH 362 Advanced Engineering Mathematics LEC (3 crs.) Algebra of complex numbers, matrices, determinants, quadratic forms. Linear differential equations with constant coefficients. (Lec. 3) Pre: MTH 142. Not for major credit in mathematics.

MTH 381 History of Mathematics LEC (3 crs.) General survey course in development and philosophy of mathematics. Provides a cultural background and foundation for advanced study in various branches of the subject. (Lec. 3) Pre: MTH 142 or equivalent.

MTH 382 Number Theory LEC (3 crs.) Some of the arithmetic properties of the integers including number theoretic functions, congruences, diophantine equations, quadratic residues, and classically important problems. (Lec. 3) Pre: MTH 141 or permission of instructor.

MTH 391 Special Problems IND (1-3 crs.) Advanced work under the supervision of a faculty member and arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

MTH 393 Undergraduate Seminar SEM (1 cr.) Preparation and presentation of selected topics in oral and written form. (Seminar) Pre: permission of chairperson.

MTH 418 Matrix Analysis LEC (3 crs.) Canonical forms, functions of matrices, characteristic roots, applications to problems in physics and engineering. (Lec. 3) Pre: MTH 215 or 362 or permission of instructor.

MTH 420 Re-examining Mathematical Foundations for Teachers LEC (3 crs.) Connects ideas covered in upper level math courses to topics taught in secondary school. Designed for teachers. (Lec. 3) Pre: MTH 316 or permission.

MTH 435 Mathematical Analysis and Topology I LEC (4 crs.) The first of two courses providing rigorous introduction to mathematical analysis (theory of calculus) and metric space topology as a basis for advanced work in mathematics. (Lec. 4) Pre: MTH 215 and 243 and 307 or permission of instructor.

MTH 436 Mathematical Analysis and Topology II LEC (4 crs.) The second of two courses providing rigorous introduction to mathematical analysis (theory of calculus) and metric space topology as a basis for advanced work in mathematics. (Lec. 4) Pre: MTH 435 or permission of instructor.

MTH 437 Advanced Calculus and Application I LEC (3 crs.) Sequences, limits, continuity, differentiability, Riemann integrals, functions of several variables, multiple integrals, space curves, line integrals, surface integrals, Green's theorem, Stokes' theorem, series, improper integrals, uniform convergence, Fourier series, Laplace transforms. Applications to physics and engineering emphasized. (Lec. 3) Pre: MTH 243, credit or concurrent enrollment in MTH 215 or 362.

MTH 438 Advanced Calculus and Application II LEC (3 crs.) Sequences, limits, continuity, differentiability, Riemann integrals, functions of several variables, multiple integrals, space curves, line integrals, surface integrals, Green's theorem, Stokes' theorem, series, improper integrals, uniform convergence, Fourier series, Laplace transforms. Applications to physics and engineering emphasized. (Lec. 3) Pre: MTH 437.

MTH 441 Introduction to Partial Differential Equations LEC (3 crs.) One-dimensional wave equation. Linear second order partial differential equations in two variables. Separation of variables and Fourier series. Nonhomogeneous boundary value problems. Green's functions. (Lec. 3) Pre: MTH243 and (MTH244 or MTH362)

MTH 442 Introduction to Difference Equations LEC (3 crs.) Introduction to linear and nonlinear difference equations; basic theory, z-transforms, stability analysis, and applications. (Lec. 3) Pre: MTH 243. Offered spring semesters.

MTH 447 Discrete Mathematical Structures LEC (3 crs.) Cross-listed as (MTH), CSC 447. Concepts and techniques in discrete mathematics. Finite and infinite sets, graphs, techniques of counting, Boolean algebra and applied logic, recursion equations. (Lec. 3) Pre: junior standing or better in physical or mathematical sciences, or in engineering, or permission of instructor.

MTH 451 Introduction to Probability and Statistics LEC (3 crs.) Theoretical basis and fundamental tools of probability and statistics. Probability spaces, properties of probability, distributions, expectations, some common distributions and elementary limit theorems. (Lec. 3/Online) Pre: MTH 243 or equivalent.

MTH 452 Mathematical Statistics LEC (3 crs.) Continuation of MTH 451 in the direction of statistics. Basic principles of statistical testing and estimation, linear regression and correlation. (Lec. 3) Pre: MTH 451. Offered spring semesters.

MTH 453 Basic Random Processes LEC (3 crs.) Conditional probability and expectation. Martingales. Topics include Markov chains, Poisson processes, and Brownian motion. Stochastic modeling and applications. If time permits: stochastic calculus, Markov chain Monte Carlo. (Lec. 3) Pre: MTH 451 or equivalent.

MTH 455 Introduction to Chaotic Dynamical Systems LEC (3 crs.) Introduction to nonlinear dynamical systems on the real line and/or the plane. (Lec. 3) Pre: MTH 243 or permission of instructor.

MTH 462 Functions of a Complex Variable LEC (3 crs.) First course in the theory of functions of a single complex variable, including analytic functions, power series, residues and poles, complex integration, conformal mapping and applications. (Lec. 3) Pre: MTH 243 or equivalent. Offered alternate fall semesters.

MTH 471 Introduction to Numerical Analysis LEC (3 crs.) Computer arithmetic, interpolation, numerical approximation of derivatives, integral numerical ODE, and other topics. (Lec. 3) Pre: MTH 243 or permission of instructor.

MTH 472 Numerical Linear Algebra LEC (3 crs.) Systems of linear equations, least squares, approximation, eigenvalue problems. (Lec. 3) Pre: MTH 243 and 215, or permission of instructor. Offered in fall semesters of even-numbered years.

MTH 481 Introduction to Optimization LEC (3 crs.) Introductory concepts for optimization problems. Basic search methods for unconstrained optimization, Newton's method and conjugate gradient methods. Linear programming, Simplex method. Nonlinear optimization with equality constraints and inequality constraints. (Lec. 3) Pre: MTH 215 and MTH 243.

MTH 490 Intermediate Topics in Mathematics LEC (1-4 crs.) Topics in advanced mathematics to introduce the student to concepts beyond the standard undergradaute syllabus. (Lec. 1-4) Pre: permission of chairperson. Not for graduate credit.

MTH 492 Special Problems IND (1-3 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

MTH 513 Linear Algebra LEC (4 crs.) Linear spaces and transformations, eigenvalues and eigenvectors, invariant subspaces, inner products, orthogonal projections, norms, minimizations, spectral theorem, the Cayley-Hamilton, Jordan canonical form, and singular value decomposition. (Lec. 4)

MTH 515 Algebra I LEC (3 crs.) Groups, rings, modules, commutative algebra. (Lec. 3) Pre: MTH 316. In alternate years.

MTH 516 Algebra II LEC (3 crs.) Groups, rings, modules, commutative algebra. (Lec. 3) Pre: MTH 515. In alternate years.

MTH 518 Matrix Analysis and Applications LEC (3 crs.) Topics in matrix analysis with applications - similarity and eigenvalues; Hermitian and normal matrices; canonical forms; norms; least square, eigenvalue localizations; singular value decomposition; definite matrices. (Lec. 3) Pre: MTH 142 and MTH 215 or permission of instructor.

MTH 525 Topology LEC (3 crs.) Topological spaces, separation properties, connectedness, compactness, uniformities. Function spaces, spaces of continuous functions, and complete spaces. (Lec. 3) Pre: MTH 435 or equivalent. In alternate years.

MTH 535 Measure Theory and Integration LEC (3 crs.) Elements of topology and linear analysis. Lebesgue measure and integration in R, in Rn, and in abstract spaces. Convergence theorems. Bounded variation, absolute continuity, and differentiation. Lebesgue-Stieltjes integral. Fubini and Tonelli theorems. The classical Banach spaces. (Lec. 3) Pre: MTH 435.

MTH 536 Measure Theory and Integration LEC (3 crs.) Elements of topology and linear analysis. Lebesgue measure and integration in R, in Rn, and in abstract spaces. Convergence theorems. Bounded variation, absolute continuity, and differentiation. Lebesgue-Stieltjes integral. Fubini and Tonelli theorems. The classical Banach spaces. (Lec. 3) Pre: MTH 535.

MTH 542 Global Character of Difference Equations I LEC (3 crs.) Global character, periodic behavior, and asymptotic nature of solutions of difference equations and systems of difference equations with applications. Recent topics on rational equations and rational systems in higher dimensions. (Lec. 3) Pre: MTH 435 and 436.

MTH 543 Global Character of Difference Equations II LEC (3 crs.) Global character, periodic behavior, and asymptotic nature of solutions of difference equations and systems of difference equations with applications. Recent topics on rational equations and rational systems in higher dimensions. (Lec. 3) Pre: MTH 435 and 436.

MTH 545 Ordinary Differential Equations I LEC (3 crs.) Existence and uniqueness theorems. Continuous dependence on parameters and initial conditions. Singularities of the first and second kinds, self-adjoint eigenvalue problems on a finite interval. Oscillation and comparison theorems. Introduction to delay and difference equations. Elements of stability theory of Lyapunov's second method. (Lec. 3) Pre: MTH 435. In alternate years.

MTH 546 Ordinary Differential Equations II LEC (3 crs.) Existence and uniqueness theorems. Continuous dependence on parameters and initial conditions. Singularities of the first and second kinds, self-adjoint eigenvalue problems on a finite interval. Oscillation and comparison theorems. Introduction to delay and difference equations. Elements of stability theory of Lyapunov's second method. (Lec. 3) Pre: MTH 545. In alternate years.

MTH 547 Combinatorics LEC (3 crs.) Cross-listed as (MTH), CSC 547. Enumeration: generation functions, recurrence relations, classical counting numbers, inclusion-exclusion, finite set systems and designs. Polya theory, coding theory, and Ramsey theory. Finite fields and algebraic methods. (Lec. 3) Pre: MTH 316. Offered alternate fall semesters.

MTH 548 Graph Theory LEC (3 crs.) Cross-listed as (MTH), CSC 548. Basic concepts and techniques of graph theory as well as some of their applications. Topics include: connectivity, matchings, colorings, extremal problems, Ramsey theory, planar graphs, algebraic techniques. (Lec. 3) Pre: MTH 316.

MTH 550 Probability and Stochastic Processes LEC (3 crs.) Review of probability theory. Generating functions, renewal theory, Markov chains and processes, Brownian motions, stationary processes. (Lec. 3) Pre: MTH 435 or 437; and MTH 451. In alternate years.

MTH 552 Mathematical Statistics LEC (3 crs.) Theory of estimation and hypothesis testing. Large sample methods. Regression and analysis of variance. (Lec. 3) Pre: MTH 550.

MTH 555 Dynamical Systems LEC (3 crs.) The objective of this course is to develop the theory of Topological Dynamical Systems, that is the study of iterated continuous mappings from a topological space to itself. (Lec. 3) Pre: MTH 435 or permission of instructor.

MTH 562 Complex Function Theory LEC (3 crs.) Rigorous development of theory of functions. Topology of plane, complex integration, singularities, conformal mapping. (Lec. 3) Pre: (MTH 435 and 436); or (MTH 437 and 438). In alternate years.

MTH 571 Numerical Analysis LEC (3 crs.) Computer arithmetic, interpolation, numerical approximation of derivatives and integrals, numerical ODE, and other topics. (Lec. 3) Pre: MTH 243.

MTH 572 Numerical Partial Differential Equations LEC (3 crs.) Further numerical methods of solution of simultaneous equations, partial differential equations, integral equations. Error analysis. (Lec. 3)

MTH 581 Optimization Methods LEC (3 crs.) Linear and nonlinear optimization emphasizing problem formulation, methodologies, and underlying mathematical structures. Topics covered: linear programming, simplex method, duality, sensitivity; constrained and unconstrained optimization; line search and Newton methods. (Lec. 3) Pre: MTH 215 and MTH 243 or permission of instructor.

MTH 590 Advanced Topics in Mathematics LEC (1-4 crs.) Topics in advanced mathematics to introduce the student to concepts beyond the standard curriculum. (Lec.) Pre: Permission of Chairperson.

MTH 591 Special Problems IND (1-3 crs.) Advanced work under the supervision of a member of the department arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

MTH 592 Special Problems IND (1-3 crs.) Advanced work under the supervision of a member of the department arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

MTH 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

MTH 629 Functional Analysis I LEC (3 crs.) Banach and Hilbert spaces, basic theory. Bounded linear operators, spectral theory. Applications to analysis. Application to a special topic such as differential operators, semigroups and abstract differential equations, theory of distributions, or ergodic theory. (Lec. 3) Pre: MTH 436 or permission of instructor.

MTH 630 Functional Analysis II LEC (3 crs.) Banach and Hilbert spaces, basic theory. Bounded linear operators, spectral theory. Applications to analysis. Application to a special topic such as differential operators, semigroups and abstract differential equations, theory of distributions, or ergodic theory. (Lec. 3) Pre: MTH 629 or permission of instructor.

MTH 656 Probability on Discrete Structures LEC (3 crs.) Rigorous development of the fundamental concepts and techniques for analyzing random discrete structures. Topics to include: random graphs and networks, measure concentration, phase transitions, random walks, and pseudorandomness. (Lec. 3) Pre: MTH 550 or permission of the instructor.

MTH 691 Special Topics I IND (3 crs.) Advanced topics of current research in mathematics will be presented with a view to expose the students to the frontiers of the subject. (Independent Study) Pre: permission of chairperson.

MTH 692 Special Topics II IND (3 crs.) Advanced topics of current research in mathematics will be presented with a view to expose the students to the frontiers of the subject. (Independent Study) Pre: permission of chairperson.

MTH 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

MUS | Music

MUS 101 Introduction to Music LEC (3 crs.) Fosters a better understanding and appreciation of the world's great music. Consideration of musical styles, techniques, and forms from the listener's standpoint. (Lec. 3/Online) (A4) (B1)

MUS 105 History of Rock and Roll LEC (3 crs.) The History of Rock and roll is a survey of British and American Rock music beginning with jazz and blues through the development of rock from its roots to the present day. (Lec. 3) (A4) (C3)

MUS 106 History of Jazz LEC (3 crs.) The nature and origin of jazz and its development as an American folk idiom: European and African heritages, blues, ragtime, dixieland, boogie-woogie, swing, bop, cool, funky, gospel, jazz-rock, free-form, and progressive. (Lec. 3/Online) (A4) (C3)

MUS 107 Basics in Acoustic and Classical Guitar LAB (1 cr.) Designed for beginners of the guitar or players who would like to fill in the gaps in their overall knowledge of acoustic finger-style and classical guitar. (Lab. 1)

MUS 108 Basics of Piano LAB (1 cr.) Instruction on development of basic keyboard skills and musicianship for non-music majors. Study, perform piano repertoire as well as playing scales and chords, simple improvisations, sight-reading, and fundamental music theory. (1 cr.)

MUS 109 Basics of Singing LAB (1 cr.) Basic singing technique, tone production, interpretation and introduction to song literature for those not enrolled in MUS 110 - 510 Applied Music. (Lab. 2) Pre: must not be registered for MUS 110, 210, 310, 410 or 510.

MUS 110A Applied Music - Voice STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110B Applied Music - Piano STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110C Applied Music - Organ STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110D Applied Music - Harpsichord STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110E Applied Music - Violin STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110F Applied Music - Viola STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110G Applied Music - Violoncello STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110H Applied Music - Contra Bass STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110I Applied Music - Flute STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110J Applied Music - Oboe STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110K Applied Music - Clarinet STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110L Applied Music - Bassoon STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110M Applied Music - Saxophone STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110N Applied Music - Trumpet STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110O Applied Music - French Horn STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110P Applied Music - Trombone STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110Q Applied Music - Euphonium/baritone STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110R Applied Music - Tuba STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110S Applied Music - Percussion STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110T Applied Music - Guitar STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110U Applied Music - Harp STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly

half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110V Applied Music - Composition STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 110W Applied Music - Jazz STU (1-2 crs.) Private instruction in performance for general students. One credit equals a weekly half-hour lesson; two credits equal weekly hour lesson. Not for music majors or minors. Audition and jury required. (Studio) Pre: audition and permission of chairperson. May be repeated for credit.

MUS 111 Basic Musicianship LEC (3 crs.) Use of folk, classical, and popular music to learn essentials of music reading and music theory. (Lec. 3/Online) (A4)

MUS 115 Musicianship Lab I LAB (1 cr.) Development of basic musicianship through sight singing, moving and improvising for recognition and recall of rhythms, intervals, scales, melodies, and harmonies in pentatonic and diatonic scales. (Lab 1) Pre: MUS 119 or permission of instructor. For music majors and minors. Recommended concurrent enrollment in MUS 116.

MUS 116 (120) Music Theory I LEC (3 crs.) Development of basic theoretical concepts in music including analysis of scales and modes, intervals, rhythms, melodies, triads, and basic seventh chords. (Lec. 3) Pre: For music majors and minors. Recommended concurrent enrollment in MUS 115.

MUS 117 (122) Musicianship Lab II LEC (1 cr.) Continued development of basic musicianship through sight singing, moving and improvising for recognition and recall of rhythms, melodies, and harmonies in all diatonic keys. (Lab. 1) Pre: MUS 115 with grade of C or higher or permission of instructor. Recommended concurrent enrollment in MUS 118.

MUS 118 (121) Music Theory II LEC (3 crs.) Continued development of theoretical concepts including analysis of rhythmic, melodic, and harmonic elements in all diatonic keys, and organizational patterns of music. Aural, verbal, and visual analysis and part writing. (Lec. 3) Pre: MUS 116 with grade of C or higher or permission of instructor. Recommended concurrent enrollment in MUS 117.

MUS 119 Introduction to the Music Profession LEC (1 cr.) Overview of the music profession. Development of an individualized plan for music study including articulation of learning and career goals. Introduction to skill areas. (Lec. 1) For music majors. May be substituted for URI 101.

MUS 136 Music Therapy Overview LEC (2 crs.) Explores music foundations as applied to theories and processes of music therapy, including history of profession and populations served. Case studies and related literature are examined with some hands-on experiences. (Lec. 2) Pre: Music major or minor.

MUS 137 Music Therapy Pre-clinical Observation PRA (1 cr.) Insight into the field of music therapy through direct observation of music therapy sessions at a clinic. (Practicum) Pre: MUS 115, MUS 116, music therapy major.

MUS 169 Percussion Methods LAB (1 cr.) Basic principles in performance and pedagogy of percussion instruments. (Lab. 1) Pre: Open to music education majors or permission of instructor.

MUS 170 Guitar Methods LAB (1 cr.) Basic principles in performance and pedagogy of the guitar. (Lab. 1) Pre: Open to music education majors or permission of instructor.

MUS 171 Class Piano I LAB (1 cr.) Development of basic techniques and musicianship for effective use of the piano. This course will emphasize proficiency 1. (Lab. 2) Pre: credit or concurrent enrollment in 120 or permission of instructor.

MUS 172 Class Piano II LAB (1 cr.) Further development of basic techniques and musicianship for effective use of the piano. Skills in transposition, sight-reading accompaniments, and melody harmonization with improvised accompaniment. This course will emphasize proficiencies 2 and 3. (Lab. 2) Pre: MUS 171 or permission of instructor.

MUS 173 Voice Methods LAB (1 cr.) Basic principles, physiology, and pedagogy of singing from childhood to adulthood. (Lab. 1) Pre: Open to all B.M. sub-plans or permission of instructor.

MUS 175 String Methods LAB (1 cr.) Basic principles in performance and pedagogy of string instruments. (Lab. 1) Pre: Open to music education majors or permission of instructor.

MUS 177 Woodwind Methods LAB (1 cr.) Basic principles in performance and pedagogy of woodwind instruments. (Lab. 1) Pre: Open to music education majors or permission of instructor.

MUS 179 Brass Methods LAB (1 cr.) Basic principles in performance and pedagogy of brass instruments. (Lab. 1) Pre: Open to music education majors or permission of instructor.

MUS 180 Guitar Methods II LAB (1 cr.) Continued development of guitar skills, with an emphasis on music therapy clinical setting use and practical methods. (Lab. 1) Pre: MUS 115, MUS 116, MUS 170, music therapy major.

MUS 183 Voice Methods II LAB (1 cr.) Development of vocal skills and techniques needed for success in music therapy practice. (Lab. 1) Pre: MUS 173, music therapy major

MUS 184 Lyric Diction I: Italian and English LEC (2 crs.) Study and application of pronunciation rules for English and Italian lyrics for applied studies in voice and future career performances. Includes concepts and semiology of the International Phonetic Alphabet. (Lec. 1, Lab. 1) Pre: Concurrent enrollment in MUS 210A and accepted as a music major in Music Department or permission of instructor.

MUS 208 History of Hip-Hop in Black American Culture LEC (3 crs.) Cross-listed as (MUS), AAF 208. Explores hip-hop culture, surveying its historical development, political significance, social influence, and technological innovations. (Lec. 3) (A4) (C1)

MUS 210A Applied Music - Voice STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210B Applied Music - Piano STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210C Applied Music - Organ STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210D Applied Music - Harpsichord STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210E Applied Music - Violin STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210F Applied Music - Viola STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210G Applied Music - Violoncello STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210H Applied Music - Contra Bass STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210I Applied Music - Flute STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210J Applied Music - Oboe STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210K Applied Music - Clarinet STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210L Applied Music - Bassoon STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210M Applied Music - Saxophone STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210N Applied Music - Trumpet STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210O Applied Music - French Horn STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210P Applied Music - Trombone STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210Q Applied Music - Euphonium/baritone STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210R Applied Music - Tuba STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210S Applied Music - Percussion STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210T Applied Music - Guitar STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210U Applied Music - Harp STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210V Applied Music - Composition STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 210W Applied Music - Jazz STU (1-2 crs.) Private instruction in performance for music majors and minors. Juries required. One credit equals weekly half-hour lesson; two credits equal weekly hour lesson with music convocation performance. (Studio) Pre: Pre: audition and permission of chairperson. May be repeated for credit.

MUS 215 (226) Musicianship Lab III LEC (1 crs.) Advanced musicianship and aural skills through sight singing, improvising, and transcribing rhythms, melodies and harmonies in Western modes and scales including modulations. (Lab 1) Pre: MUS 117 with grade of C or higher or permission of instructor. Recommended concurrent enrollment in MUS 216.

MUS 216 (225) Music Theory III LEC (3 crs.) Advanced study and analysis of theoretical concepts in music including classical harmony, part-writing, chord progressions, dominant and supertonic seventh chords, and modulation to closely related keys. (Lec. 3) Pre: MUS 118 with grade of C or higher or permission of instructor. Recommended concurrent enrollment in MUS 215.

MUS 217 (228) Musicianship Lab IV LAB (1 cr.) Advanced musicianship and aural skills of music through sight singing, improvising, and transcribing rhythms, melodies, and harmonies including atonal and other music systems. (Lab 1) Pre: MUS 215 with a grade of C or higher or permission of instructor. Recommended concurrent enrollment in MUS 218.

MUS 218 (227) Music Theory IV LEC (3 crs.) Advanced harmonic work extending to 20th and 21st century practice utilizing computational methods, score analysis of twelve-tone music, set theory, interval class vectors, combinatoriality, and composition. (Lec. 3) Pre: MUS 216 or equivalent (A4) (B3)

MUS 220 Music as Global Culture LEC (3 crs.) This course introduces the methods of ethnomusicology and the idea of music as a cultural practice through the deep study of cases from around the globe. (Lec. 3) (A3) (C2)

MUS 222 History of Classical Music, 900-1900 LEC (3 crs.) Continuation of MUS 221: Medieval, Renaissance, Baroque, Classical and Romantic eras. (Lec. 3) Pre: MUS 216 and MUS 220 or permission of instructor.

MUS 232 Music Therapy in Adult and Late Life LEC (2 crs.) Focus on enhancing wellness and quality of life in adults, as well as some of the issues and challenges of later life, including dementia and conditions requiring rehabilitation. (Lec. 2) Pre: MUS 115, MUS 116, music therapy major.

MUS 233 Assessment and Treatment Planning LEC (1 cr.) Overview of music therapy process from referral and first session to evaluation and termination, presenting a data-based model for treatment planning and implementation. (Lec. 1) Pre: MUS 115, MUS 116, music therapy major.

MUS 235 Introduction to Music Teaching LEC (2 crs.) Overview of music teaching in schools and studios. History, philosophy, curriculum, learning theory, and current topics in music teaching as they relate to the broader field of education. Includes experiences where students engage in observation and practice beginning music teaching skills. (Lec. 3) Pre: MUS 110 or MUS 119 or permission of instructor.

MUS 236 Music Therapy Practicum I PRA (1 cr.) Clinical application of skills learned in the classroom after observations of sessions with an assigned music therapist in a clinic. (Practicum) Pre: MUS 137, music therapy major.

MUS 237 Music Therapy Practicum II PRA (1 cr.) Clinical application of skills learned in the classroom after observations of sessions with an assigned music therapist in a clinic. Focus on clinical writing skills. (Practicum) Pre: MUS 236, music therapy major.

MUS 239 Music, Gesture and Sound SEM (1 cr.) Study of connection between music and physical movement. Focus on awareness, acquisition of body movements and gestures related to responding to music and eliciting music sounds from individuals and/or groups. (Seminar) Pre: Music major or minor.

MUS 243 Seminar in Therapeutic Relationships I SEM (1 cr.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. (Seminar) Pre: MUS 137, music therapy major.

MUS 244 Seminar in Therapeutic Relationships II SEM (1 cr.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. Focus on the role of music in building rapport. (Seminar) Pre: MUS 243, music therapy major.

MUS 256 Somatic Education for Musicians LEC (2 crs.) Study of the human body as a musical instrument for healthy, efficient, and expressive performance through singing and playing instruments. Students acquire knowledge and skills in refining and correcting their body map and learn to apply techniques in music teaching and performing settings. Designed for students majoring or minoring in music. (Lec. 2) Pre: Acceptance into music department or instructor permission. Concurrent enrollment in Applied Music 110, 210, 310 or 410.

MUS 261 Introduction to Music Production LEC (3 crs.) An introduction to digital audio, the recording process, music production, and MIDI technology required for the Recording Technology option in Jazz, the Recording Technology option in Music Composition, as well as for the Music minor in Recording Technology. (Lec. 3) Pre: MUS 118, MUS 172 or equivalent, or permission of instructor.

MUS 271 Class Piano III LAB (1 cr.) Further development of basic keyboard performance skills in sight-reading and harmonization. This course will emphasize proficiencies 4 and 5. (Lab. 2) Pre: MUS 172 or equivalent. Open to music majors only.

MUS 272 Class Piano IV LAB (1 cr.) Continuation of MUS 271. Further development of keyboard performance skills in sight-reading and harmonization. This course will emphasize proficiencies 6 and 7. (Lab. 2) Pre: MUS 271 or equivalent. Open to music majors only.

MUS 283 Lyric Diction II: German and French LEC (2 crs.) Study and application of pronunciation rules for German and French lyrics for voice studies and future career performances. Advanced study of concepts and semiology of the International Phonetic Alphabet. (Lec. 1, Lab. 1) Pre: MUS 184 and concurrent enrollment in MUS 210A and must be music major or permission of instructor.

MUS 290 University Pep Band REH (0-1 cr.) Rehearsal and performance of a wide variety of rock, jazz, rhythm and blues, marches, popular and other contemporary music for home and away URI basketball games. (Rehearsal 2) may be repeated for credit. Pre: audition and permission of instructor.

MUS 291 University Marching Band STU (0-2 crs.) Rehearsal and performance of music, drill, and shows for URI football games. (Rehearsal 8) May be repeated for credit. S/U only for 0 credit.

MUS 292 Concert Band STU (0-1 cr.) Study and performance of concert band music. Open to all students. (Rehearsal 3) May be repeated for a total of 3 credits to count for general education. S/U only for 0 credit. (A4)

MUS 293 University Chorus STU (0-1 crs.) Study and performance of choral music. (Studio 3) May be repeated for credit. May be repeated for a total of 3 credits for General Education. S/U only for 0 credit. (A4)

MUS 300 Music Convocation LAB (0-1 cr.) Study of repertory and techniques of concert presentation through attendance of student recitals and presentations by faculty and visiting artists. (Lab.) Attendance at 75 percent of events required. May be repeated.

MUS 301 Music as a Form of Social Protest LEC (3 crs.) This course surveys the music of those musicians who have been influential in focusing public attention on particular social causes. Students experience music through literature (books, journals, etc.), recordings and video. (Lec. 3) (A4) (C1)

MUS 310A Applied Music - Voice STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310B Applied Music - Piano STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310C Applied Music - Organ STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310D Applied Music - Harpsichord STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310E Applied Music - Violin STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310F Applied Music - Viola STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310G Applied Music - Violoncello STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310H Applied Music - Contra Bass STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310I Applied Music - Flute STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time,

higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310J Applied Music - Oboe STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310K Applied Music - Clarinet STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310L Applied Music - Bassoon STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310M Applied Music - Saxophone STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310N Applied Music - Trumpet STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310O Applied Music - French Horn STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310P Applied Music - Trombone STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310Q Applied Music - Euphonium/baritone STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310R Applied Music - Tuba STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310S Applied Music - Percussion STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310T Applied Music - Guitar STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310U Applied Music - Harp STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310V Applied Music - Composition STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 310W Applied Music - Jazz STU (2-4 crs.) Private instruction in performance at junior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and junior recital or music convocation performance. (Studio) Pre: MUS 210 or equivalent. May be repeated for credit.

MUS 311 Choral Conducting Laboratory LAB (1 cr.) A laboratory in conducting and rehearsing techniques in the choral setting. Repertoire, score study, and baton techniques included, as well as voice as a secondary instrument practice. (Lab. 2) Pre: MUS 239; MUS 173 or concurrent enrollment; MUS 117 and 118; or permission of instructor. May be repeated for credit.

MUS 312 Instrumental Conducting Laboratory LAB (1 cr.) A laboratory in conducting and rehearsing techniques in instrumental settings. Repertoire, score study, and baton techniques included, as well as secondary instrument practice. (Lab. 1) Pre: MUS 239, 117, 118, and 169 or 175 or 177 or 179; or permission of instructor. May be repeated for credit.

MUS 322 Genre and Identity in 20th and 21st Century Music LEC (3 crs.) Continuation of MUS 222: classical and popular music of the 20th and 21st century. Focus on construction of genre and identity. (Lec.3) Pre: MUS 118 (121) or equivalent competency and 220 or consent of instructor. (A3) (C3)

MUS 331 Music Therapy for Children and Adolescents LEC (2 crs.) Issues in education of children and adolescents: legal aspects; models of musical development; assessment protocols; teaching and management strategies; research findings; needs of children with educational, behavioral, and physical challenges. (Lec. 2) Pre: MUS 115, MUS 116, music therapy major.

MUS 332 Psychiatric Music Therapy LEC (2 crs.) This course engages students in group therapy experience, applying music to psychotherapeutic process with a variety of approaches to psychotherapy; developing individual philosophies of music therapy in adult psychiatric settings. (Lec. 2) Pre: PSY 254, music therapy major.

MUS 334 World Percussion Traditions LAB (2 crs.) Focus on non-Art Music traditions prominently featuring the use of percussion with the goal of exposing students to practical methods of music organization and performance for application in clinical settings. (Lab. 2) Pre: MUS 111 or demonstrated ability to read music.

MUS 335 Music Therapy Foundations LEC (2 crs.) This course covers fundamental information and clinical foundations relative to the profession of music therapy. It also addresses contemporary issues in the field, including ethics, cultural diversity, and assessment/research. (Lec. 2) Pre: MUS 227, MUS 228, music therapy major.

MUS 336 Music Therapy Practicum III PRA (1 cr.) Clinical application of skills learned in the classroom after observations of sessions with an assigned music therapist in a clinic. Students will plan and implement interventions under supervision. (Practicum) Pre: MUS 237, music therapy major.

MUS 337 Music Therapy Practicum IV PRA (1 cr.) Clinical application of skills learned in the classroom after observations of sessions with

an assigned music therapist in a clinic. Focus on building rapport and addressing social and emotional goals. (Practicum) Pre: MUS 336, PSY 254, music therapy major.

MUS 338 (238) General Music Methods and Materials LEC (3 crs.) Teaching methods, instructional materials, and evaluation procedures for general music, grades K-12. Learner characteristics and development of children and adolescents. (Lec. 3) Pre: MUS 235 with C or higher and EDC 250. Open to students accepted into the School of Education or permission of Director of Music Education.

MUS 339 Choral Methods and Materials LEC (3 crs.) Organization and administration of choral music programs in elementary and secondary schools, focusing on materials, procedures, policies, and teaching methods. (Lec. 3) Pre: EDC 250 or the equivalent; MUS 272 or successful completion of all piano proficiencies.

MUS 340 Instrumental Methods and Materials LEC (3 crs.) Organization and administration of the instrumental music program in elementary and secondary schools, focusing on materials, procedures, policies, and teaching methods. (Lec. 3) Pre: EDC 250.

MUS 343 Seminar in Therapeutic Relationships III SEM (1 cr.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. Focus on the role of music in development. (Seminar) Pre: MUS 244, music therapy major.

MUS 344 Seminar in Therapeutic Relationships IV SEM (1 cr.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. Focus on clinical musicianship and the role of music and emotion. (Seminar) Pre: MUS 343, music therapy major.

MUS 350 Junior Recital STU (0-1 cr.) Performance of a public program at least 20 minutes in duration after faculty examination. (Studio) Pre: concurrent enrollment in MUS 310.

MUS 367 Integrative Career Studies for Musicians LEC (3 crs.) Integrative exploration and further development of skills needed for effective self-promotion and career building as a musician, including self-reflection based on realism and mastery. (Lec. 3) Pre: Open to students with junior standing in a BA or BM program in music. (D1)

MUS 369G Technologies and Music LEC (3 crs.) Cross-listed as (ELE), MUS, COM 369G. Introduction to 12-tone music; orchestra instruments; mathematics and physics of musical acoustics; physiology of auditory system; audio engineering; microphones, amplifiers and speakers; software for synthesis; ethics in music industry. (Lec. 3) Pre: Junior standing or permission of instructor. (A1) (GC)

MUS 371 Piano Accompanying LEC (1 cr.) Development of sight-reading skills. Preparation and performance of accompaniments. (Lec. 1) Pre: permission of piano faculty. May be repeated.

MUS 376 Field Experiences in Elementary Music Education PRA (1 cr.) Supervised field experience for observing music teaching and learning in elementary general music settings, applying music teaching methodologies, and developing management techniques. Focus on diverse learners, physical exceptionalities and language. (Practicum) Pre: MUS 235 & 238. Open to students accepted into the School of Education or permission of Director of Music Education.

MUS 391 Jazz Studio Laboratory LAB (1 cr.) Studies in jazz performance practices, pedagogy, and literature. Historical perspectives, stylistic concepts and repertoire from 1917 to the present developed in the ensemble setting. (Lab. 3) Pre: concurrent enrollment in MUS 310 or 410.

MUS 394 Symphonic Wind Ensemble PRA (0-1 crs.) (Rehearsal 3) Pre: audition and permission of instructor. May be repeated for credit. S/U only for 0 credit.

MUS 395 Concert Choir PRA (0-1 cr.) Study and performance of advanced choral music. (Rehearsal 3) Pre: audition and permission of instructor. May be repeated for credit. S/U only for 0 credit.

MUS 396 Jazz Studio Ensemble LAB (0-1 cr.) Performance and study of jazz and studio music as related to professional experience. (Rehearsal 3) Pre: audition and permission of instructor. S/U only for 0 credit.

MUS 397 University Symphony Orchestra LEC (0-1 cr.) Study and performance of standard and modern repertoire for the orchestra. (Rehearsal 3) Pre: audition and permission of instructor. May be repeated for credit. S/U only for 0 credit.

MUS 398B Chamber Music Ensembles-Brass LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398G Chamber Music Ensembles-Guitar LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398J Chamber Music Ensembles-Jazz LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398K Chamber Music Ensembles-Keyboard LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398M Chamber Music Ensembles-Mixed Instrumentation LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398O Chamber Music Ensembles LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398P Chamber Music Ensembles-Percussion LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398S Chamber Music Ensembles-Strings LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398V Chamber Music Ensembles LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398W Chamber Music Ensembles-Woodwinds LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 398Z Chamber Music Ensembles LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Study and perform repertoire in the following areas, or combinations of these areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 407 The Symphony LEC (3 crs.) Study of the development of orchestration and of formal procedures such as the sonata, rondo, and variations. Includes works by composers such as Haydn, Beethoven, Brahms, and Tchaikovsky. (Lec. 3) Pre: MUS 222. Offered every seventh semester.

MUS 408 The Opera LEC (3 crs.) History of opera from its beginnings in Italy in the 17th century to the present, including works by composers such as Monteverdi, Purcell, Mozart, Wagner, Verdi, and Puccini. Pre: credit or concurrent enrollment in MUS 222 or the ability to read music. Offered every seventh semester.

MUS 410A Applied Music - Voice STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410B Applied Music - Piano STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410C Applied Music - Organ STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410D Applied Music - Harpsichord STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410E Applied Music - Violin STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410F Applied Music - Viola STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410G Applied Music - Violoncello STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410H Applied Music - Contra Bass STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410I Applied Music - Flute STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410J Applied Music - Oboe STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410K Applied Music - Clarinet STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410L Applied Music - Bassoon STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410M Applied Music - Saxophone STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410N Applied Music - Trumpet STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410O Applied Music - French Horn STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410P Applied Music - Trombone STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or

music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410Q Applied Music - Euphonium/baritone STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410R Applied Music - Tuba STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410S Applied Music - Percussion STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410T Applied Music - Guitar STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410U Applied Music - Harp STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410V Applied Music - Composition STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 410W Applied Music - Jazz STU (2-4 crs.) Private instruction in performance at the senior level. Two, three, or four credits equal an hour lesson per week. More credit requires additional preparation time, higher levels of performance, and senior recital or music convocation performance. (Studio) Pre: MUS 310 or equivalent. May be repeated for credit. Not for graduate credit, except MUS 410V (Composition).

MUS 411 Advanced Performance Studies STU (1 cr.) The study of advanced competencies and skills in applied area over multiple semesters. Topics include historical performance practices, additional repertoire, unique pedagogical issues, and advanced performance techniques. (Studio) Pre: Enrollment in MUS410 for performance subplans. By permission of instructor for BOM Music Education students. Not for graduate credit.

MUS 416 Form and Analysis LEC (3 crs.) Critical study of the structure of tonal music. Works of various composers are analyzed with reference to motive and phrase as generative elements in design. (Lec. 3) Pre: MUS 227 or equivalent. In alternate years.

MUS 417 Orchestration LEC (3 crs.) Range, timbre, transpositions and other characteristics of instruments, singly and in combination. Exercises with attention to part writing, harmony and form. Setting of a small piece of music for orchestra or band required. (Lec. 3) Pre: credit or concurrent enrollment in MUS 227 or equivalent. In alternate years.

MUS 420 Eighteenth-Century Counterpoint LEC (3 crs.) Tonal polyphony in the style of J.S. Bach. Includes creative exercises in writing counterpoint in Baroque style and the study of representative compositions such as the inventions and fugues of Bach. (Lec. 3/Online) Pre: MUS 227 and 228. In alternate years.

MUS 421 Aesthetics of Electro-Acoustic Music Composition LEC (3 crs.) Study and application of electronic music composition, and exploration of aesthetic goals since 1945 through analysis of compositional and technological procedures, culminating in a major composition electro-acoustic project. (Lec. 2, Lab. 2) Pre: MUS 235 or equivalent. In alternate years.

MUS 423 Jazz Research LEC (3 crs.) A survey of the academic study of jazz, drawing on musicology, ethnomusicology, music theory, gender studies, and critical race studies; explores themes including historiography, genre, gender, race, and commerce. (Lec. 3) Pre: MUS 106 or equivalent knowledge or permission of instructor. (A3) (C3)

MUS 424 Jazz Theory and Improvisation LEC (3 crs.) An intensive study and practice of the formal elements of jazz improvisation. (Lec. 1, Lab. 4) Pre: MUS 391.

MUS 430 The Renaissance Era LEC (3 crs.) Music at European courts and cathedrals (1400-1600), including vocal masses, motets, madrigals, and chansons, and instrumental canzonas, ricercars, toccatas, and variations of Dufay, Josquin, Palestrina, Gabrieli, et al. (Lec. 3) Pre: MUS 221 or the ability to read music. Offered every seventh semester.

MUS 431 The Baroque Era LEC (3 crs.) Music of 1600-1750, from the rise in Italy of opera, oratorio, idiomatic instrumental music, the sonata, and the concerto, through the works of German masters Bach and Handel. (Lec. 3) Pre: MUS 222 or the ability to read music. Offered every seventh semester.

MUS 432 The Classic Era LEC (3 crs.) Music of 1750-1825, beginning with the founders of the Classical style, including D. Scarlatti, Gluck, and the sons of Bach, and culminating in the works of Haydn, Mozart, and Beethoven. (Lec. 3) Pre: MUS 222. Offered every seventh semester.

MUS 433 The Romantic Era LEC (3 crs.) Music of 1825-1900, with emphasis on topics central to the era, including program music, nationalism, piano virtuosity, opera, lieder, the cyclic symphony, and turn-of-the century Viennese post-Romanticism. (Lec. 3) Pre: MUS 222 or the ability to read music. Offered every seventh semester.

MUS 434 The Modern Era LEC (3 crs.) Music of the modern era, with emphasis on changing aesthetics as revealed through the analysis of selected compositions. (Lec. 3) Pre: MUS 227 or the ability to read music. Offered every seventh semester.

MUS 435 Clinical Musicianship LEC (2 crs.) This experiential class requires students to demonstrate American Music Therapy Association Professional Competencies in Music. (Lec. 2) Pre: Concurrent enrollment in MUS 436, and music therapy. Not for graduate credit.

MUS 436 Music Therapy Practicum V PRA (1 cr.) Application of skills learned in the classroom at an outside medical facility or agency. Clinical experience in designing and implementing treatment plans in the medical setting. (Practicum) Pre: MUS 337, music therapy major. Not for graduate credit.

MUS 437 Music Therapy Practicum VI PRA (1 cr.) Application of skills learned in the classroom at an outside facility or agency. Focus on use of literature review to design and implement a therapy treatment plan. (Practicum) Pre: MUS 436, music therapy major. Not for graduate credit.

MUS 438 Music, Mind and Body LEC (3 crs.) Exploration of the psychological and biological underpinnings of music from the standpoint of integrative medicine and health through psychoneuroimmunology and integrative medicine. (Lec. 3) Pre: music therapy major. Not for graduate credit.

MUS 439 Medical Music Therapy LEC (2 crs.) This course offers a sampling of medical conditions in infants, children and adolescents, and adults, providing guidelines for music therapy practice in various medical settings. (Lec. 2) Pre: music therapy major. Not for graduate credit.

MUS 441 Exceptional Learners in Music LAB (3 crs.) Prepares music teachers to understand inclusion in education, provide adaptive music teaching strategies, lesson planning, and management techniques, and identify and create materials, instruction and assessment accommodations for diverse learners in music. (Lab. 3) Pre: MUS 235.

MUS 442 Directed Study in Applied Music Pedagogy IND (2 crs.) Research in materials and approaches for studio teaching. Pre: 4 credits in MUS 210. In alternate years.

MUS 443 Seminar in Therapeutic Relationships V SEM (1 cr.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. Focus on creating original songs and clinical improvisation. (Seminar) Pre: MUS 344, music therapy major. Not for graduate credit.

MUS 444 Seminar in Therapeutic Relationships VI SEM (1 cr.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. Focus on using literature to adapt and create evidence-based interventions. (Seminar) Pre: MUS 443, music therapy major. Not for graduate credit.

MUS 445 Vocal Pedagogy LEC (3 crs.) In-depth study of how singing tone is produced, accompanied by practical applications in supervised studio teaching experiences. Additional topics to include voice issues in the 21st century singing community. (Lec. 3) Pre: MUS 173, 235, 442 and concurrent enrollment in MUS 410 and permission of instructor.

MUS 450 Senior Recital STU (0-1 cr.) Performance of a public program at least 20 minutes in duration after faculty examination. Pre: concurrent enrollment in MUS 410. Not for graduate credit.

MUS 470 Special Topics in Music LEC (3 crs.) Selected advanced studies in music topics not emphasized in other courses. (Lec. 3) May be repeated for a maximum of 12 credits with permission of the director and change of topic.

MUS 476 (341) Field Experiences in Secondary Music Education PRA (1 cr.) Supervised field experience and seminar for students to observe music teaching and learning in secondary music education settings. Apply music teaching and rehearsal methodologies, and refine management techniques. (Pract. 3) Pre: MUS 235, 339 & 340. Open only to students accepted into the School of Education or permission of Director of Music Education. Not for graduate credit.

MUS 477 Music Internship PRA (1-3 crs.) Supervised professional experience with approved music agency, business or organization. Activities and expectations determined in consultation with faculty supervisor and off-campus liaison, approved by the chairperson. (Practicum) May be repeated once for a maximum of 6 credits. Pre: For undergraduate music students in the B.A., B.M., or Music minor programs. Junior standing and permission of Chairperson. First priority given to Music majors. S/U only.

MUS 480 Graduation Portfolio PRA (0-2 crs.)Seminar covering topics and the development of a graduation portfolio appropriate to the student's degree program. The portfolio shows accomplishments from throughout the degree program and achievement of competencies indicating potential success as a graduate. (Portfolio) Pre: MUS 280 or permission of chairperson and senior standing in music. For music education majors, concurrent enrollment in EDC 484 required. To be taken during the last semester of coursework in the major. May be repeated. Not for graduate credit.

MUS 485 Opera Workshop LEC (0-1 cr.) Coordination of music and drama. Singing, performing, and acting techniques on stage. Possible experience in conducting, coaching, directing, and stage management. Development of professional standards and attitudes. Preparation and presentation of scenes from various operas. Primarily for students in voice. (Rehearsal 2) Pre: audition and/or permission of instructor. May be repeated for credit.

MUS 486 Music Therapy Research LEC (3 crs.) Overview of research methods that inform clinicians about the effectiveness of interventions and the influence of music on the people they serve. Instruction on the most common research designs. (Lec. 3) Pre: music therapy major. Not for graduate credit.

MUS 490 Independent Study IND (1-3 crs.) Preparation of a project under the guidance of a member of the appropriate faculty. (Independent Study) Pre: acceptance by faculty member who will be the project advisor and approval of chairperson. May be repeated for credit.

MUS 491 Clinical Internship PRA (3 crs.) Together with MUS 493, this course will fulfill the internship requirements of AMTA and CBMT. Enrollment dependent on completion of course work and approval of placement. Must be repeated once. (Practicum) Pre: MUS 437, music therapy major. Not for graduate credit.

MUS 493 Internship Seminar ONL (3 crs.) Development and application of musical repertoire/techniques within a small group setting with structured feedback. Focus on using literature to adapt and create evidence-based interventions. (Online) Pre: MUS 444, concurrent enrollment in MUS 491. Not for graduate credit.

MUS 505 Teaching Music in Higher Education LEC (3 crs.) Designed to prepare and support graduate students teaching music at the college level. Includes advanced studies in educational theories, methods, classroom management, and assessment as applied to music teaching and learning. (Lec. 3) Pre: graduate standing.

MUS 506 Music Administration and Supervision LEC (3 crs.) Instruction for music administrators and supervisors in schools and other music programs. Content includes facilities management, budgets, scheduling, curriculum design, music teacher evaluation, program review, community relations, and community evolution. (Lec. 3) Pre: graduate standing,

MUS 510A Applied Music - Voice STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510B Applied Music - Piano STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510C Applied Music - Organ STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510D Applied Music - Harpsichord STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510E Applied Music - Violin STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510F Applied Music - Viola STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510G Applied Music - Violoncello STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510H Applied Music - Contra Bass STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510I Applied Music - Flute STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510J Applied Music - Oboe STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510K Applied Music - Clarinet STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510L Applied Music - Bassoon STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510M Applied Music - Saxophone STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510N Applied Music - Trumpet STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510O Applied Music - French Horn STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510P Applied Music - Trombone STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510Q Applied Music - Euphonium/baritone STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510R Applied Music - Tuba STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510S Applied Music - Percussion STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510T Applied Music - Guitar STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510U Applied Music - Harp STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510V Applied Music - Composition STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510W Applied Music - Jazz STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. May be repeated.

MUS 510Y Applied Music - Choral Conducting STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. There is no fee for choral or instrumental conducting. May be repeated.

MUS 510Z Applied Music - Instrumental Conducting STU (2, 3, 4, or 6 crs.) Private instruction. One 60-minute lesson each week. Levels, master classes, and recital performance as prescribed in the applied music syllabi. (Studio 60 minutes) Pre: audition demonstrating proficiency appropriate to the selected M.M. degree. There is no fee for choral or instrumental conducting. May be repeated.

MUS 516 Seminar in Advanced Music Theory SEM (3 crs.) Exploration of advanced topics in Music Theory ranging from music analysis, study of scores and/or improvisational techniques, advanced instrumental techniques, study of styles from any period, area, or style (Pre-Renaissance to the Twenty-First century), non-Western Music analysis, or the study of specific pieces, forms, genres, techniques, or composers. (Seminar) Pre: MUS 416, or permission of instructor.

MUS 520 Advanced Musicology Seminar SEM (3 crs.) Offers deep inquiry into areas of musicology, developing skills in historical and cultural research and deepening knowledge of musical practices. Focuses on current practices in musicology. (Seminar) Pre: graduate standing or permission of instructor.

MUS 540 Foundations of Music Education LEC (3 crs.) Examination of the broad influences upon music education. Historical, philosophical, sociological, psychological, and curricular foundations. (Lec. 3) Pre: graduate standing in music. Offered every third semester.

MUS 541 Exceptional Learners in Music LAB (3 crs.) Prepares music teachers to understand inclusion in education, provide adaptive music teaching strategies, lesson planning, and management techniques, and identify and create materials, instruction and assessment accommodations for diverse learners in music. (Lab. 3) Pre: graduate standing

MUS 545 Musical Learning, Evaluation, and Assessment LEC (3 crs.) A study of cognitive, psychomotor, and affective learning in music. The ways in which musical learning may be evaluated and assessed. The needs of special populations will be included. (Lec. 3) Pre: graduate standing in music. Offered every third semester.

MUS 547 Literature Review in Music LEC (2 crs.) Knowledge of purpose, strategies, tools and techniques for reviewing literature in music. Results in a complex literature review for publication or for arguing and defining a music problem requiring further original research. (Lec. 2) Pre: Graduate standing or permission of instructor.

MUS 548 Research in Music LEC (3 crs.) Study of research techniques as applied to the art of music. Major project procedures and data collection and examination in the following research categories: historical, philosophical, and empirical. (Lec. 3) Pre: graduate standing in music. Offered every third semester.

MUS 550 Graduate Performance Recital STU (0-1 cr.) Performance of advanced repertoire of various styles in a public program at least

55 minutes in duration for the M.M. in performance and 45 minutes in duration for the M.M. in music education after faculty acceptance. (Studio) Pre: concurrent enrollment in MUS 510 and 6 or more credits in MUS 510 for the M.M. in performance or 4 or more credits in 510 for the M.M. in music education.

MUS 552 Graduate Composition Recital STU (0-1 cr.) A juried recital of at least 40 minutes of original compositions prepared by the composer. (Studio) Pre: concurrent enrollment in MUS 510V and 3 or more credits in MUS 510V.

MUS 567 Seminar in Performance and Pedagogy LEC (2 crs.) Study of performance literature, practice, and pedagogy. Research projects and supervised teaching experience appropriate to the major performance area. (Lec. 2) Pre: concurrent enrollment in MUS 550. In alternate years.

MUS 570 Graduate Project IND (1-6 crs.) Major paper in musicology, music theory, significant composition, arrangement/orchestration, or for music education an in-depth investigation resulting in a major paper or curriculum project. Non Thesis option only. (Independent Study) Pre: MUS 547 or 548 and permission of chairperson. S/U ony.

MUS 571 Special Topics in Music LEC (1-3 crs.) Exploration of advanced topics not covered by the standard graduate curriculum but of interest to faculty and students in a particular semester. Possible topics include performance, music history, music theory, composition, and music education. (Lec. 1-3) May be repeated for credit with a different topic.

MUS 579 Experiential Learning in Music PRA (2 crs.) Developing competence through an individual and/or collaborative experiential activity involving music research, performance, service, and/or teaching in university and community settings. May include professional music studio or computer lab work. Student will work with his or her major professor or with the director of graduate studies. (Practicum) Pre: graduate standing and previous or concurrent enrollment in MUS 580.

MUS 580 Master Of Music Portfolio I SEM (0 crs.) Planning individual activities and experiences demonstrating competence in music at the graduate level. Should be taken in the first semester of matriculation. Student will work with his or her major professor or with the director of graduate studies. (3 common Seminars) Pre: graduate standing in music. Not required for students whose bachelor's degree is from URI. S/U only.

MUS 581 Master Of Music Portfolio Ii SEM (1 cr.) Individual accomplishment of activities and experiences demonstrating competence at the graduate level of music. Achievement of professional behaviors indicating significant growth in areas of specialization. Oral presentation required. Should be taken in final semester of study. Student will work with his or her major professor or with the director of graduate studies. (3 common Seminars) Pre: graduate standing in music. S/U only.

MUS 583 Vocal Diction LEC (3 crs.) Phonetics (International Phonetic Alphabet). Enunciation in the foreign languages most encountered in vocal literature (French, Italian, and German). English diction in singing. (Lec. 3) In alternate years.

MUS 590 Piano Accompanying STU (1 cr.) Development of sight-reading skills. Preparation and performance of accompaniments of major works. (Studio 1) Pre: permission of piano faculty. May be repeated for a maximum of 3 credits.

MUS 591 Independent Study IND (1-3 crs.) Preparation of an advanced project under the guidance of a member of the appropriate faculty. May be repeated for credit. Pre: acceptance by faculty member who will be the project advisor and approval of chairperson.

MUS 593 University Chorus STU (0-1 cr.) Study and performance of choral music. (Studio 3) Pre: audition at graduate level of performance. May be repeated.

MUS 594 Symphonic Wind Ensemble STU (0-1 cr.) (Rehearsal 3) Pre: audition at graduate level of performance.

MUS 595 Concert Choir STU (0-1 cr.) (Rehearsal 3) Pre: audition at graduate level of performance.

MUS 596 Jazz And Studio Ensemble STU (0-1 cr.) Study and performance of jazz and studio music, with leadership roles in improvisation and performance. (Rehearsal 3) Pre: audition at graduate level of performance.

MUS 597 University Symphony STU (0-1 cr.) (Rehearsal 3) Pre: audition at graduate level of performance. May be repeated.

MUS 598B Chamber Music Ensemble-brass STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598G Chamber Music Ensemble-guitar STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598J Chamber Music Ensemble-jazz STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598K Chamber Music Ensemble-keyboard LEC (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598M Chamber Music Ensemble-Mixed Instrumentation STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598P Chamber Music Ensemble-percussion STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598S Chamber Music Ensemble-strings STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598V Chamber Music Ensemble-vocal STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598W Chamber Music Ensemble-woodwinds STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. May be repeated for credit. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 598Z Chamber Music Ensemble STU (0-1 cr.) Chamber music ensembles are small performance ensembles normally restricted to one performer per part. Chamber music ensembles study and perform repertoire in the following areas, or combinations of areas: keyboard, string, woodwind, brass, percussion, vocal, guitar, jazz, etc. (Rehearsal 2) Pre: audition and/or permission of chamber music coach.

MUS 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: MUS 548. May be repeated. S/U credit.

NES | New England Studies

NES 400 Special Topics In New England Studies SEM (1-3 crs.) Specialized topics in the study of New England offered by specialists in the field. (Seminar)

NEU | Neuroscience

NEU 101 Foundations of Neuroscience LEC (3 crs.) Provides the basic concepts and language for the field of Neuroscience. It teaches molecular, cellular, behavioral, and computational mechanisms of the brain. (Lec. 3) Pre: credit for or concurrent enrollment in BIO 101.

NEU 110 Neurosciences Seminar LEC (1 cr.) Interpreting, thinking critically, and presenting neuroscience research from peer-reviewed academic journal articles. (Lec. 1)

NEU 210 Neuroethics and Diversity LEC (3 crs.) Introduction to concepts and ethics and diversity considered essential foundation knowledge for neuroscience research as well as other health related sciences. (Lec. 3)

NEU 230 Neuroscience Professional Development LEC (1 cr.) Introduction to careers in neuroscience and related graduate/professional degree programs. Students will create educational and career plans; write resumes and personal statements; and develop communication skills. (Lec. 1)

NEU 262 Neuroscience Research Methods LEC (4 crs.) Acquire knowledge and tools to solve problems in neurobiology. Topics covered include approaches in neuroscience, behavioral studies, tissue/cell preparation, histology/microscopy, electrode stimulation and molecular characterization. (Lec. 3, Lab. 1) Pre: NEU 101 and BIO 101 and 103.

NEU 301 Cellular and Molecular Neurosciences LEC (3 crs.) Examine essentials of cellular and molecular neurosciences: neuron growth and differentiation, neuromodulation, behavior of neural circuits, cell signaling, neurophysiology, regulation and homeostasis.(Lec. 3) Pre: NEU 101 and BIO 101 and 102.

NEU 310 Developmental Neurobiology LEC (3 crs.) Cellular and molecular mechanisms of developmental neurobiology using examples from invertebrate and vertebrate model organisms, and humans. Topics may include neuronal differentiation, cell-type specification, neuronal migration, cell death, neuronal morphogenesis, and synapse formation.. (Lec. 3) Pre: NEU 101.

NEU 320 Clinical Neuroscience LEC (3 crs.) Foundational principles of neural science followed by current research findings concerning neuroplasticity, brain imaging and brain stimulation techniques, and the physiological bases of psychological disorders and neurodegenerative disease. (Lec. 3) Pre: NEU 101 and PSY 113

NEU 410 Experiential Neuroscience LAB (1-6 crs.) Internship course using practical work experience with guided teaching to help students develop personal, professional, and academi competencies. (Lab. 1-6) Pre: NEU 262 and junior standing, or permission of the instructor.

NEU 460 Neuroscience Journal Club SEM (1 cr.) Seminar focusing on recently published peer-reviewed neuroscience literature and on current techniques and critical assessment of scientific data. (Seminar) Pre: NEU 101, NEU 301 and NEU 320.

NEU 502 Introduction to Neurobiology LEC (4 crs.) Cross-listed as (BIO), NEU 502. Fundamental processes in neurobiology with emphasis on cellular and membrane mechanisms of nerve functioning. (Lec 3). Pre: BIO 201 and MTH 141, or permission of instructor.

NEU 503 Introduction to the Neurosciences LEC (3 crs.) This survey course will introduce basic neuroscience areas, including gross and microscopic anatomy, neural development, membrane physiology, sensory and motor systems, language, cognition, neuropharmacology, neuroengineering, and psychological disorders. (Lec. 3) Pre: Graduate standing or permission of the instructor.

NEU 504 Neuroethics SEM (1 cr.) Neuroethics is the study of ethical issues regarding research in neuroscience. Students will learn the implications of neuroscience research for human self-understanding, ethics and policy. (Seminar 1) Pre: graduate standing or permission of the instructor.

NEU 511 Human Neuroscience and Neurology LEC (5 crs.) Cross-listed as (PHT) NEU 511. Anatomy, functional anatomy, dysfunction and evaluation of the human nervous system as a basis for understanding its morphology, function, and therapeutic intervention. (Lec. 4, Lab. 2) Pre: DPT student in good standing, PHT 552 or permission of the chairperson, or matriculated in the INP.

NEU 581 Neurosciences Colloquium SEM (1 cr.) Program of invited speakers, who will present original research topics in neurosciences field. Credit available to graduate students in the Interdisciplinary Neurosciences Program (INP) and graduate students and upper level undergraduates from other programs. (Seminar)

NEU 582 Neurosciences Colloquium SEM (1 cr.) Program of invited speakers, who will present original research topics in neurosciences field. Credit available to graduate students in the Interdisciplinary Neurosciences Program (INP) and graduate students and upper level undergraduates from other programs. (Seminar)

NEU 583 Acquired Cognitive Communication Disorders LEC (3 crs.) Cross-listed as (CMD) NEU 583. Study of acquired cognitive problems resulting from neurological disorders and diseases; differential diagnoses; assessment of the domains of cognition; and therapeutic strategies for cognitive rehabilitation. (Lec. 3) Pre: graduate standing.

NEU 587 Seminar In Neurobiology SEM (1 cr.) Cross-listed as (BIO), NEU 587. Survey of current literature in the neurosciences. Topics include molecular and behavioral electrophysiology, ion channels, nerve net modeling, ultrastructure of excitable cells, receptor and pharmacological neurobiology of invertebrates and vertebrates. (Seminar) Pre: graduate standing or one advanced neuroscience course.

NEU 591 Special Projects in Neurosciences IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

NEU 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: Graduate standing in the Interdisciplinary Neuroscience Program. S/U credit.

NEU 601 Physiological Psychology LEC (3 crs.) Cross-listed as (PSY), NEU 601. An advanced consideration of physiological research on neural, endocrine, and response systems as they relate to attention, motivation, emotion, memory, and psychological disorders. (Lec. 2, Lab. 2) Pre: Counts as a course for graduate study in Psychology and includes an historical perspective with an emphasis on clinical neuroscience. Graduate

standing in the PSY or INP programs or permission of the instructor. It is highly recommended that students have taken a graduate level course in methodology/statistics and psychopathology.

NEU 699 Neuroscience Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: graduate standing in the Ph.D. program. S/U credit.

NFS | Nutrition and Food Sciences

NFS 110 Introduction To Nutrition And Dietetics LEC (1 cr.) Description of the educational and experiential requirements of a registered dietitian and a nutritionist. Career opportunities discussed. Designed for students entering the nutrition and dietetics major. (Lec. 1)

NFS 207 General Nutrition LEC (3 crs.) Fundamental concepts of the science of nutrition with application to the individual, community, and world. (Lec. 3/Online) Not open to students with credit in NFS 210. (B3) (A1)

NFS 210 Applied General Nutrition LEC (4 crs.) Fundamental concepts of the science of nutrition with application to the individual, community, and world. Weekly laboratory experience collecting and interpreting dietary intake, anthropometric measures, and clinical values. (Lec. 3, Lab. 2) Not open to students with credit in NFS 207. (B3) (A1)

NFS 212G Public Health Nutrition LEC (3 crs.) This course will provide an introduction to the concepts of public health emphasizing the distinction between population-based and individual-based approaches to prevention using nutrition and diet related conditions as examples. (Lec. 3) Pre: NFS 207 or NFS 210. (C3) (A2) (GC)

NFS 245 Food Safety and Microbiology LEC (3 crs.) Cross-listed as (NFS), CMB 245. This course covers the scientific principles that underpin food safety, including biological and chemical contamination, and addresses the safety of the food supply, regulatory agencies and current food safety issues. (Lec. 3)

NFS 276G Food, Nutrition, and People LEC (3 crs.) Practical applications of nutrition policy. Current issues in the socioeconomic, cultural, and psychological influences on food and nutrition behavior. (Lec. 3) Pre: NFS 210 or 207. (A2) (GC)

NFS 336 Scientific Principles of Food I LEC (4 cr.) Chemical, physical, sensory, and nutritional properties of food related to processes used in food preparation. Emphasis on water, carbohydrates, lipids, and the sensory evaluation of food. (Lab. 2, Online) Pre: NFS 210 and CHM 124.

NFS 337 Scientific Principles of Food II LEC (4 crs.) Chemical, physical, sensory, and nutritional properties of food related to processes used in food preparation. Emphasis on proteins, scientific principles of baked goods, and research applications. (Lab. 2, Online) Pre: NFS 336.

NFS 360 Nutrition in Exercise and Sport LEC (3 crs.) Relationships among diet, physical activity, health, and performance. Metabolism and requirements of nutrients in physically active individuals. Applications to energy balance, body composition, various population groups, fitness levels, and conditions. (Lec. 3) Pre: NFS 207 or 210, and KIN 275 or BIO 222.

NFS 375 Food-Service Management I LEC (3 crs.) Administrative responsibilities in planning, organizing, staffing, leading, and evaluating food-service systems. Emphasis on menu planning, purchasing, and food cost control. (Lec. 3) Pre: NFS 212 or 276.

NFS 376 Food-service Management II LEC (4 crs.) Administrative responsibilities in planning, organizing, staffing, leading, and evaluating food-service systems. Emphasis on food production and labor cost control. Experience in a food-service facility. (Lec. 3, Lab. 2) Pre: NFS 375.

NFS 394 Nutrition in the Life Cycle I LEC (3 crs.) Current issues in maternal, child, and adolescent nutrition with emphasis on nutrient requirements and food habit development; delivery of cost-effective nutrition services and the application of the principles of menu planning. (Lec. 3, Online) Pre: NFS 212 or 276. Service learning.

NFS 395 Nutrition in the Life Cycle II LEC (3 crs.) Current issues in nutrition for the adult and older adult with emphasis on nutrient requirements related to physiological changes; screening initiatives; program development to reduce risk of nutrition-related diseases. (Lec. 3, Online) Pre: NFS 394. Service learning.

NFS 404 Food Systems, Sustainability and Health LEC (3 crs.) Cross-listed as (AVS), NFS, SAF 404. Scientific analysis of animal and human health and nutrition in various food systems. Interdisciplinary discussion on food systems and sustainability. (Lec. 3) Pre: Senior in good standing or permission of instructor. Not for graduate credit. (D1) (B4)

NFS 410 Professional Issues In Nutrition And Dietetics LEC (1 cr.) Professional issues in the field of nutrition and dietetics. Topics include career choices; evaluation of journal articles; and registration, licensing, and certification. (Lec. 1) Pre: NFS 395 and senior standing. Not for graduate credit.

NFS 431 Chemistry of Food and Nutraceuticals LEC (3 crs.) Chemical and functional properties of major food components, changes in nutritional properties during processing and storage, and nutraceuticals and functional foods. (Lec. 3) Pre: CHM 124 and 227 or permission of instructor.

NFS 440 Macronutrient Metabolism LEC (3 crs.) Chemistry and metabolism of carbohydrate, protein, and fat. Advanced study of the impact of macronutrients on human metabolism, health, and disease. (Lec. 3) Pre: NFS 210, BIO 222, CMB 210 or CMB 311, or permission of instructor.

NFS 441 Micronutrient Nutrition LEC (3 crs.) Biochemical and physiological foundation of vitamins and minerals in human metabolism. Advanced study of micronutrients that includes absorption; bioavailability; homeostasis; mechanisms in health and disease; deficiency and toxicity states. (Lec. 3) Pre: NFS 210, BIO 222, CMB 210, or permission of instructor.

NFS 443 Nutrition Assessment LEC (4 crs.) Evaluation of nutritional status by dietary assessment, anthropometric measures, and nutrition-related health indicators. Practice in body composition assessment, interpreting dietary and laboratory data, and nutrition counseling. (Lec. 3, Lab. 2) Pre: NFS 210 and 395, or permission of instructor.

NFS 444 Nutrition and Disease LEC (3 crs.) Effects of disease on metabolism and nutritional requirements; implications for dietary change, and factors affecting acceptance of such change. (Lec. 3). Pre: NFS 441, 443 or enrollment in Pharm.D. program

NFS 451 Field Experience in Nutrition and Food Science PRA (1-3 crs.) Individual supervised field experience and seminar in community, educational, government, health-oriented, and commercial activities and services related to food science and nutrition. (Practicum) Pre: NFS 394, 395 or permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit in food science and nutrition.

NFS 458 Nutrition Education LEC (3 crs.) Principles and practices of teaching individuals and groups to translate nutrition knowledge into action. Emphasis on research in and evaluation of nutrition education. (Lec. 3, Online) Pre: NFS 395, 440, or permission of instructor. (B2) (D1)

NFS 491 Special Projects IND (1-3 crs.) Advanced work under supervision of a staff member. Arranged to suit individual requirements of student. (Independent Study) Pre: senior standing and permission of instructor. May be repeated for up to 6 credits. Not for graduate credit.

NFS 495 Applied Nutrition Practicum PRA (1-3 crs.) Mentor students enrolled in NFS 207 or 210 to gain experience and practice basic nutrition assessment skills including dietary analysis, anthropometric measures, and clinical laboratory values. May be repeated for up to 6 credits. (Practicum) Pre: NFS 207 or 210. Not for graduate credit.

NFS 504 Food Systems, Sustainability, and Health LEC (3 crs.) Cross-listed as (NFS), AVS 504. Scientific analysis of animal and human health and nutrition in various food systems. Interdisciplinary discussion on food systems and sustainability. (Lec. 3) Pre: graduate student in good standing or permission of instructor.

NFS 505 Methods In Nutrition Research LEC (3 crs.) Theory and laboratory experience in research methodology related to nutrition. Critical review of articles, completion of laboratory projects, and preparation of a research proposal. (Lec. 2, Lab. 2) Pre: NFS 444 and STA 308 or permission of instructor.

NFS 506 Nutrition in the Community LEC (3 crs.) Exploration of the role of the nutrition professional in community needs assessment, intervention development and evaluation, and in forming domestic nutrition policy. (Lec. 3) Pre: Graduate standing or permission of instructor.

NFS 507 Applied Nutrition I LEC (1 cr.) Selected topics in applied nutrition with an emphasis on medical nutrition therapy. (Lec. 1) Pre: NFS 444 or permission of instructor.

NFS 508 Applied Nutrition II LEC (1 cr.) Selected topics in applied nutrition with an emphasis on community nutrition and food service management. (Lec. 1) Pre: NFS 506 or permission of instructor.

NFS 511 Seminar in Nutrition and Food Science I SEM (1 cr.) Reports and discussions of current topics in food science and nutrition, as well as oral reports of theses and dissertation research topics in progress. (Seminar) Pre: graduate standing or permission of chairperson.

NFS 512 Seminar in Nutrition and Food Science II SEM (1 cr.) Critical review of oral presentations given in NFS 511. Provides student with experience in communicative skills necessary to evaluate and critique scientific presentations. Attendance is required of all graduate students in residence when not enrolled in NFS 511. (Seminar) Pre: graduate standing. S/U credit.

NFS 524 Global Nutrition LEC (3 crs.) Global distribution, etiology, and consequences of nutrition problems, ranging from undernutrition and food insecurity to overweight and chronic diseases. Includes exploring underlying social and behavioral factors and possible intervention programs. (Lec. 3) Pre: Graduate standing or permission of instructor.

NFS 550 Epidemiology of Nutrition and Chronic Disease LEC (3 crs.) This course explores population research in the area of diet and chronic disease. Students will learn basic epidemiologic methods, analysis, and interpretation. (Lec. 3) Pre: Graduate standing and permission of the instructor. Students may take only NFS 550 or NFS 650 for program credit.

NFS 553 Nutrient Metabolism I LEC (3 crs.) Biochemistry, physiology and metabolism of three macronutrients (carbohydrates, proteins, and water) in human health and disease. Relationships of these macronutrients to human energetics and energy balance under various health conditions. (Lec. 3) Pre: Graduate standing in NFS or permission of instructor

NFS 554 Nutrient Metabolism II LEC (3 crs.) Chemistry and metabolism of lipids and micronutrents in human health and disease. Additionally, drug treatments and inborn errors of metabolism in relation to lipids and micronutrients will be covered. (Lec. 3) Pre: Graduate standing in NFS or permission of instructor.

NFS 560 Introduction to Clinical Practice ONL (3 crs.) Overview of clinical topics including medical terminology, nutrition care process, counseling and hydration status. Introduces topics covered more extensively in medical nutrition therapy courses. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 561 Advanced Medical Nutrition Therapy in Dietetics 1 ONL (4 crs.) Development of skills necessary to implement nutrition care for patients with GI disorders, cardiovascular disease, diabetes, and allergies. Application of the nutrition care process to clinical settings is emphasized. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 562 Advanced Medical Nutrition Therapy in Dietetics 2 ONL (4 crs.) Development of skills necessary to implement nutrition care for patients with renal disease, HIV, and cancer. Application of the nutrition care process to clinical settings is emphasized. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 563 Advanced Medical Nutrition Therapy in Dietetics 3 ONL (4 crs.) Development of skills necessary to implement nutrition care for pediatric and geriatric patients, and for patients with pulmonary disease and weight issues. Application of the nutrition care process to clinical settings is emphasized. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 564 Foodservice Operations ONL (4 crs.) Management of the foodservice operations in a hospital environment including menu development, purchasing systems, production and service of food, and food safety and sanitation. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 565 Community Nutrition and Health Promotion ONL (4 crs.) Explores theories explaining nutrition related behaviors coupled with strategies for promoting behavior change among diverse populations, building on skills in interpreting nutrition information for planning, implementing and evaluating community interventions. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 566 Clinical Nutrition Management ONL (3 crs.) Management of hospital dietary departments including accreditation requirements, financial procedures, human resources practices, and reimbursement techniques. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 567 Introductory Dietetic Research ONL (2 crs.) Critical analysis of credible dietetics research and the identification of gaps in current dietetics literature. Methods for completing dietetics research with an emphasis on research ethics. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 568 Intermediate Dietetic Research ONL (2 crs.) Identification of a dietetics research question, development of a hypothesis, and creation of a research proposal to be completed in the Specialty Rotation. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 569 Advanced Dietetic Research ONL (2 crs.) Completion of a research paper and a research poster to communicate the results of the project completed in the Specialty Rotation. Focus on the presentation of the findings in research and clinical settings. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 570 Research in Dietetic Specialization ONL (4 crs.) Research project conducted in dietetic specialization. Data collection, analysis and presentation of results in table and graph format. (Accelerated Online Program) Pre: Enrolled in MS Dietetics Program, or permission of instructor.

NFS 580 Experiential Learning in Nutrition and Food Sciences PRA (1-6 crs.) Supervised learning in a nutrition-related setting. (Practicum 1-6) Pre: Acceptance into the M.S. nutrition program.

NFS 581 Internship In General Medical Nutrition Therapy PRA (1-3 crs.) Supervised practice in medical nutrition therapy in a hospital setting. (Practicum) Pre: Acceptance into the combined nutrition dietetic internship program.

NFS 583 Internship in Food Service Management PRA (1-3 crs.) Supervised practice in food service management in a hospital setting. (Practicum) Pre: Acceptance into the combined nutrition dietetic internship program.

NFS 584 Internship In Community Nutrition PRA (1-3 crs.) Supervised practice in community nutrition in a variety of community settings. (Practicum) Pre: Acceptance into the combined nutrition dietetic internship program.

NFS 591 Research Problems IND (1-4 crs.) Advanced work under supervision of a staff member. Arranged to suit individual requirements of students. (Independent Study) Pre: permission of chairperson. May be repeated for up to 6 credits.

NFS 599 Master's Thesis Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

NFS 650 Epidemiology of Nutrition and Chronic Disease LEC (3 crs.) This course explores population research in the area of diet and chronic disease. Students will learn basic epidemiologic methods, analysis, and interpretation. (Lec. 3) Pre: Graduate standing and permission of the instructor. Students may take only NFS 550 or NFS 650 for program credit.

NFS 691 Research In Nutrition and Food Sciences IND (1-3 crs.) Assigned research on an advanced level. Students are required to outline the problem, conduct the necessary literature survey and experimental work, and present their observations and conclusions in a report. (Independent Study) May be repeated for up to 6 credits.

NFS 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

NRS | Natural Resources Science

NRS 100 Natural Resource Conservation LEC (3 crs.) Introduction to humans' use and management of natural resources: land, food, forest, wildlife, water, minerals, and air, with a survey of contemporary resource-use problems in environmental pollution. (Lec. 3) (A1)

NRS 101 Freshman Inquiry into Natural Resources Science LEC (1 cr.) Introduction for freshmen to the opportunities, careers, research activities, applied outreach, and educational programs in the Department of Natural Resources Science. Interact weekly with faculty. Explore hands-on modules. (Lec. 1) S/U credit.

NRS 190 Issues in Biotechnology LEC (3 crs.) Cross-listed as (AFS), CMB, NRS, PLS 190. Introduction to modern biotechnology in medical, pharmaceutical, forensic, agricultural, marine, and environmental applications. Consideration of ethical, environmental, health, and social issues. (Lec. 3/Online) (A1)

NRS 200 Seminar In Natural Resources SEM (1 cr.) Review and discussion of research, management, and other topics in natural resources. Speakers expose students to issues that natural resources professionals are concerned with and the work that they do. Pre: 100.

NRS 212 Introduction to Soil Science LEC (4 crs.) Physical, biological, and chemical properties of soils and their practical application to environmental science. Introduction to soil genesis, classification, and land-use and conservation issues. (Lec. 3/Practicum 2/Online)

NRS 223 Conservation Biology LEC (4 crs.) Conservation of biological diversity in a world dominated by humans. Conservation biology theory, application; ecosystem conservation; landscape ecology principles. (Lec. 3, Online 1) Pre: NRS 100, BIO 101 or 102.

NRS 234G Introduction to Water Resources LEC (3 crs.) Cross-listed as (GEO), NRS, EEC 234. Introduction to science and policy related to managing fresh water resources, fundamentals of hydrologic processes, importance of water to human society, environmental impact of water use, global water issues. (Lec. 3) (A1) (GC)

NRS 300 Introduction to Global Issues In Sustainable Development LEC (3 crs.) Cross-listed as (MAF 350) and NRS 300. Role of the United States in development assistance to foreign nations. Topics include foreign aid, sustainable development, transfer of technology, and international career opportunities. (Lec. 3) (C2) (A2)

NRS 301 Introduction To Forest Science LEC (3 crs.) Development and importance of forestry; forest regions; tree characteristics and identification with emphasis on Northeastern species; forest environment; tree growth and site productivity. (Lec. 2, Lab. 2) Pre: BIO 102.

NRS 304 Field Ornithology LEC (3 crs.) Identification, field study techniques, habitats, and basic biology of birds. Emphasis on field identification of local species. (Lec. 2, Lab. 3) Pre: BIO 101 and permission of instructor.

NRS 305 Principles of Wildlife Ecology and Management LEC (3 crs.) Application of ecological knowledge to the management of wild vertebrate populations and the habitat upon which they depend. (Lec. 3) Pre: NRS 223 and BIO 101 and 102.

NRS 309 Wildlife Field Techniques LAB (3 crs.) Application of practical field techniques for quantification and evaluation of wildlife and habitats. Methods of field identification, sampling, and data analysis. (Lab. 4, Project 3) Service learning. Pre: NRS 223, and credit or concurrent enrollment in NRS 305. (D1)

NRS 323 Field Botany and Taxonomy LEC (4 crs.) Cross-list with (NRS), BIO 323. Collection, identification, and study of vascular flora of Rhode Island, including use of manuals and herbarium specimens. Field trips throughout Rhode Island. Discussion of principles, methods, and data used in classification. (Lab. 2, Online) Pre: BIO 102.

NRS 324 Mammalogy LEC (4 crs.) Classification, distribution, field study techniques, ecology, behavior, and biology of mammals. Emphasis on New England species, but includes mammals of the world. (Lec. 3, Lab. 3) Pre: BIO 101 and permission of instructor. In alternate years.

NRS 330G The Biodiversity Crisis LEC (3 crs.) Overview of local-to-global patterns of biodiversity, including historical and recent declines. Emphasis on how biodiversity is interconnected with ecosystem processes and what declines mean for human health (Lec. 3). Pre: NRS100 and (BIO262 or NRS305 or NRS223). (A1) (C2) (GC)

NRS 350 Field Entomology and Taxonomy LEC (4 crs.) Cross-listed as (ENT), BIO, NRS 350. Collection, identification and study of the common families of insects, including use of keys and teaching collection specimens. Field trips throughout Rhode Island. Discussion of insect classification. (Lec. 3, Lab. 1) Pre: BIO 102 or permission of instructor.

NRS 351 Soil Morphology Practicum PRA (2 crs.) Seven weeks of practical experience in the description of soil profiles under field conditions. Field trips to observe, describe, and interpret morphological properties as utilized in soil judging. (Practicum) Pre: NRS 212 or permission of instructor. May be repeated for credit with permission of chairperson.

NRS 355 Wildlife Conservation & Hunting LEC (3 crs.) Designed for students to gain knowledge of Rhode Island's wildlife resources, the North American Conservation model, and management of natural resources through sustainable harvesting. (Lec. 2, Practicum 1) Pre: NRS 100, NRS 223, and NRS 305 or permission of instructor.

NRS 375 Soil Fertility and Plant Nutrition LEC (3 crs.) Soil supply and plant demand for mineral nutrients, production challenges and select environmental concerns (Lec. 3) Pre: NRS 212.

NRS 388 Biology of Bees and Pollination Ecology LEC (3 crs.) Cross-listed as (ENT), BIO, NRS 388. Learn the biology, behavior and pollination services of bees. Learn how to identify bees to family level. Understand the basics of honey bee management. Learn various types of pollination. (Lec. 3) Pre: BIO 101 and 102, or permission of instructor.

NRS 395 Research Apprenticeship in Natural Resources Science PRA (1-3 crs.) Supervised experience for qualified undergraduates who assist NRS faculty and graduate students in departmental research projects. Tasks may include literature review, research design, installation of sampling plots and equipment, laboratory analyses, data collection, and data analysis. (Practicum) Pre: sophomore to senior standing and permission of instructor. Limited to NRS majors. May be repeated for a maximum of 6 credits. S/U credit.

NRS 397 Natural Resources Internship PRA (1-6 crs.) Supervised work experience in forestry, wildlife management, soil science, water resources, environmental education, or related areas of natural resources management. (Practicum) Pre: NRS 100, NRS 212 and approval of chairperson. Open only to NRS majors. May be repeated for a maximum of 6 credits. S/U credit.

NRS 401 Foundations in Restoration Ecology LEC (4 crs.) Overview of factors involved with implementing an ecological restoration. Will synthesize the physical, biological, and human factors that determine restoration success. Includes weekly field/lab sessions. (Lec. 3, Lab. 3) Pre: NRS 223 or BIO 262, or permission of instructor. Not for graduate credit.

NRS 402 Quantitative Wildlife Ecology LEC (3 crs.) Overview of statistical design and analysis of ecological field measurements with an emphasis on probabilistic models used in wildlife population research and conservation. Capstone. (Lec. 2, Lab. 3) Pre: BIO 262 or NRS 223, and STA 308 or 409, or permission of instructor.

NRS 403 Quantitative Wildlife Ecology Field Investigations PRA (1 cr.) Independent field study of wildlife populations using modern quantitative measurements and data analyses. Emphasis on experimental design, data collection and recording, statistical analysis, data interpretation, and reporting. (Practicum) Capstone. Not for graduate credit. Pre: permission of instructor.

NRS 404 Environmental Data Acquisition and Analysis LEC (3 crs.) Cross-listed as (OCG), NRS, GEO 404. Introduction to instrument prototyping and measurements in environmental science. Hands-on with data collection: programming microcontrollers, interfacing hardware and software, wireless sensor networks. Data analysis in Python. (Lec. 2, Lab. 1) Pre: MTH 131 or MTH 141.

NRS 405G Indonesia: Biodiversity, Geology, Water Resources LEC (3 crs.) Students apply their knowledge and gain global competency in an off-campus field experience in Indonesia. Travel required; additional costs apply. (Lec. 3) Pre: Permission of instructor.

NRS 406 Wetland Wildlife Management LEC (4 crs.) Introduction to management of wetland wildlife. Emphasis on management techniques used for major wetland types, waterfowl, furbearers and nongame wildlife. (Lec. 2, Lab 4) Pre: NRS 223 and permission of instructor.

NRS 407 Endangered Species Conservation LEC (3 crs.) Programs for the protection of species under the Endangered Species Act and global approaches to conservation of biodiversity in human-dominated landscapes. (Lec. 3) Pre: BIO 101 and NRS 100.

NRS 409 Concepts in GIS and Remote Sensing LEC (4 crs.) Discussion of the unique properties of geospatial data, geospatial data structures, accessing existing spatial data, and applications of GIS and remote sensing in the environmental sciences. (Lec. 3, Rec. 1) Pre: junior or senior standing or permission of the instructor. Not for graduate credit.

NRS 410 Fundamentals of GIS LAB (3 crs.) Emphasis on using a geographic information system (GIS) to create a geographically referenced spatial database, spatial topology, data visualization, computer-assisted map making, and spatial data query and analysis. (Lab. 3, Online 2) Pre: past or concurrent enrollment in NRS 409 or 509.

NRS 412 Soil-Water Chemistry LEC (3 crs.) Biogeochemistry of soil-water interactions. Soil composition, the exchange and sorption of elements, trace element behavior, redox reactions and control of these factors on availability and loss. (Lec. 3) Pre: NRS 212 and CHM 124 and 126 or permission of instructor. In alternate years.

NRS 415 Remote Sensing Of The Environment LEC (3 crs.) Introduction to fundamentals of airborne and space-borne remote sensing. Emphasis on remote sensing applications in terrestrial environmental and natural resources studies. (Lec. 2, Lab. 2)

NRS 417 Herpetology LEC (4 crs.) Cross-listed as (NRS), BIO 417. Introduces students to the biology, ecology, conservation, and management of reptiles and amphibians, including global perspectives, and field methods for studying amphibians and reptiles of northeastern North America. (Lec. 2, Lab. 4) Pre: BIO 101/103 and 102/104; and NRS 223 or BIO 262, and permission of instructor. Not for graduate credit.

NRS 419 Field Experience in Herpetology PRA (1 cr.) Cross-listed as (NRS), BIO 419. Capstone field trip in herpetology to region with higher amphibian and reptile diversity, such as Appalachia, to hone skills in identification, broaden understanding of ecology, and apply field research methods. (Practicum) Pre: concurrent enrollment in or credit for NRS/BIO 417, and permission of instructor. S/U only. Not for graduate credit.

NRS 423 Wetland Ecology LEC (4 crs.) Formation, development, and distinguishing features of inland and coastal wetlands. Topics include classification, geology, hydrology, soils, plant ecology, vegetation dynamics. Primary emphasis on wetlands of the glaciated Northeast. Capstone. (Lec. 2, Lab. 4) Pre: BIO 262, GEO 103, NRS 223, concurrent enrollment in NRS 425 or 525, and permission of instructor.

NRS 425 Wetland Field Investigations PRA (1 cr.) Independent field study of a diverse freshwater wetland ecosystem, with emphasis on aerial photo-interpretation, wetland classification, and in-depth examination of glacial geology, hydrology, plant ecology, and soils. (Practicum) Capstone. Pre: concurrent enrollment in 423. Not for graduate credit.

NRS 426 Soil Microbiology LEC (3 crs.) Occurrence, metabolism and ecology of soil microorganisms, with emphasis on nutrient cycling, soil pathogens, transformation of organic and inorganic pollutants, and soil biotechnology. (Lec 3) Pre: NRS 212 or permission of instructor.

NRS 442 Environmental Crisis Communication LEC (3 crs.) Effective communication requires strategy, clarity, and an audience-centric approach. Using case studies, this course will explore crisis communication theory and practice through the lens of recent environmental disasters. (Lec. 3) Not for graduate credit.

NRS 445 Invasive Species Research, Management, and Policy LEC (4 crs.) Overview of the major invasive alien species issues in the research, management, and policy arenas. Includes weekly field/lab sessions. (Lec. 3, Lab. 3) Pre: NRS 223 or BIO 262 or permission of instructor. Not for graduate credit.

NRS 450G Soils, Land Use, and the Environment LEC (3 crs.) Application of soils and landscape level data to address land use issues and environmental problems such as waste management, storm-water runoff, water quality, sustainability, restoration, and reclamation in urbanizing environments. Capstone. (Lec. 3) Pre: NRS 212 or permission of instructor, and concurrent enrollment in NRS 452G. (D1) (GC)

NRS 452G Soil, Water, and Land Use Investigations PRA (1 cr.) Independent studies of the application of soils, water, and landscape spatial data to make assessments, apply practices, and develop designs to manage environmental impacts from urban and suburban expansion. (Practicum) Capstone. Pre: NRS 212, and concurrent enrollment in NRS 450G. (D1) (GC)

NRS 461 (361) Watershed Hydrology and Management LEC (4 crs.) Detailed study of the watershed processes that govern the hydrology and quality of surface water. Emphasis on methods and analyses employed for watershed management. (Lec. 3, Lab. 3) Pre: NRS 212, STA 308 or 409 or permission of instructor.

NRS 471 Soil Morphology and Mapping LEC (4 crs.) A detailed study of the morphological properties of soils and their distribution on the landscape. Practical experience in describing soil profiles and preparing soil maps. (Lec. 2, Lab. 4)

NRS 475 Coral Reef Conservation LEC (3 crs.) Investigation of human impacts on coral reef ecosystems and strategies to conserve their biodiversity. Laboratory sessions focus on field surveys and research techniques. Travel required; additional costs apply. Not for graduate credit. (Lec. 1, Lab 3, Rec. 1) Pre: permission of instructor and SCUBA certification required.

NRS 480 Colloquium SEM (2 crs.) Student-directed projects for reflection on educational accomplishments, exploration of post-graduate opportunities, and formulation of long-term professional goals. Requires completion of four major projects. (Seminar) Pre: junior standing. Not for graduate credit.

NRS 482 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 482. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. (Lec. 4) Pre: permission of instructor. In alternate years. Not for graduate credit.

NRS 484 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), NRS, EVS, CVE 484. Physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab. 2) Pre: GEO 483 or CVE 588 or NRS 510, or permission of instructor. Not for graduate credit. Offered every other year.

NRS 485 Salt Marsh Ecology LEC (4 crs.) Cross-listed as (BIO), NRS 485. Structure and function of salt marsh ecosystems, including biogeochemistry, in the context of global change. Seminar-style discussions of primary scientific literature, laboratory and field exercises, and an independent research poster. (Lec. 2, Lab 4) Pre: BIO 262 or NRS 223 and 2 semesters of chemistry or permission of instructor. BIO 360 recommended. Not for graduate credit.

NRS 491 Special Projects IND (1-3 crs.) Special work to meet the needs of individual students in natural resources. (Independent Study) Pre: permission of chairperson.

NRS 492 Special Projects IND (1-3 crs.) Special work to meet the needs of individual students in natural resources. (Independent Study) Pre: permission of chairperson.

NRS 492H Honors section of NRS 492: Special Projects IND (1-3 crs.) Honors section of NRS 492: Special Projects. (Independent Study) Pre: permission of chairperson. Pre: must have a 3.40 overall GPA.

NRS 495 Advanced Natural Resources Apprenticeship PRA (3 crs.) Collaboration with faculty and graduate students in departmental research, including supervision and mentoring of students enrolled in NRS 395. Emphasis on independent decision-making and leadership of undergraduate research teams. Limited to majors. May be repeated for a maximum of 6 credits. (Practicum) Pre: NRS 395 and permission of instructor. S/U only. Not for graduate credit.

NRS 497 Natural Resources Cooperative Internship PRA (6-12 crs.) Supervised work experience with a governmental agency, nongovernmental organization, or private company in the environmental field. Capstone. (Practicum) Pre: senior standing and permission of department. Not for graduate credit.

NRS 498 Teaching Practicum In Natural Resources Science PRA (1-3 crs.) Teaching experience for qualified undergraduates through actual involvement in planning and assisting in NRS courses. May include supervised participation in a discussion group, assisting in a laboratory or field course, or tutoring. (Practicum) Pre: senior standing, previous enrollment in the course to be taught, and permission of instructor. Limited to NRS majors. May be repeated for a maximum of 3 credits. Not for graduate credit. S/U only.

NRS 499 Senior Thesis In Natural Resources Science IND (6 crs.) In-depth research or outreach effort reviewed by a faculty committee and culminating in a thesis written in scientific journal format. Oral presentation to the committee required. Capstone. (Independent Study) Pre: GPA of at least 3.25, successful completion of NRS 491 or 492 and permission of department chairperson. Not for graduate credit.

NRS 501 Foundations of Restoration Ecology LEC (4 crs.) Overview of factors involved with implementing an ecological restoration. Will synthesize the physical, biological and human factors that determine restoration success. Includes weekly field/lab sessions. (Lec. 3/Lab. 3) Pre: NRS 223 or BIO 262, or permission of instructor.

NRS 503 Wildlife Biometrics Field Investigations PRA (1 cr.) Independent field study of wildlife populations using modern quantitative measurements and data analyses. Emphasis on experimental design, data collection and recording, statistical analysis, data interpretation, and reporting. (Practicum) Pre: concurrent enrollment in 402.

NRS 505 Biology and Management of Migratory Birds SEM (2 crs.) Current programs, problems, and techniques for managing migratory game and nongame birds. Emphasis on basic biology of the species, habitat management, and harvest management. (Seminar) Pre: NRS 305 or permission of instructor. In alternate years.

NRS 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

NRS 509 Concepts of GIS and Remote Sensing in Environmental Science LEC (4 crs.) Unique properties of geospatial data, accessing existing GIS and remote sensing data, and applications of GIS and remote sensing in the environmental sciences. Uses in ecology, conservation, soil science, geohydrology, and conservation biology. (Lec. 3, Rec. 1) Pre: graduate standing or permission of instructor.

NRS 514 Climate Change Science and Policy LEC (3 crs.) Overview and analysis of the science and policy issues concerning climate change and global warming. (Lec. 3) Pre: for graduate students, none; for undergraduates GEO 305 or permission of instructor.

NRS 516 Remote Sensing in Natural Resources Mapping LEC (3 crs.) Digital remote sensing in environmental and natural resource studies. Emphasis on satellite remote sensing image rectification, georeferencing, classification, and integration with GIS. (Lec. 2, Lab. 2) Pre: NRS 415 or permission of instructor.

NRS 517 Herpetology LEC (4 crs.) Cross-listed as (NRS), BIO 517. This course provides an in-depth background on the biology, ecology, conservation, and management of reptiles and amphibians, including field methods for studying amphibians and reptiles of northeastern North America. (Lec. 2, Lab. 4) Pre: graduate student in biological and environmental sciences and permission of instructor.

NRS 518 Ecohydrology and Green Design LEC (3 crs.) Relationships between hydrology and ecosystems with applications to green design. Topics address role of hydrology on wetlands, storm water and onsite wastewater infrastructure, dam removal and implications for environmental justice. (Lec. 3) Pre: NRS 361 or NRS 461 or permission of instructor.

NRS 519 Field Experience in Herpetology PRA (1 cr.) Cross-listed as (NRS), BIO 519. Capstone field trip in herpetology to region with higher amphibian and reptile diversity, such as Appalachia, to hone skills in identification, broaden understanding of ecology, and apply field research methods. (Practicum) Pre: Concurrent enrollment or credit for NRS/BIO 517 and permission of instructor. S/U only.

NRS 520 Quantitative Techniques in Natural Resource Research LEC (3 crs.) Cross-listed as (NRS 520), EEC 524. Research design, database management, and analysis and interpretation of natural resource data. Emphasis on hands-on experience of quantitative and computerized techniques commonly used by natural resource scientists. (Lec. 2, Lab 2) Pre: STA 308 and permission of instructor.

NRS 522 Advanced Gis Analysis Of Environmental Data LEC (3 crs.) Discussion and application of terrain modeling, spatial statistics, proximity analysis, remote sensing/GIS linkages, and environmental data integration. Emphasis on ecological data at watershed/landscape scales. Capstone. (Lec. 1, Lab. 6) Pre: NRS 410 or permission of instructor.

NRS 524 Application Of Advanced Spatial Analysis PRA (1 cr.) Independent application of spatial data analysis to derive solutions to environmental problems, with emphasis on GIS data integration, vector and raster modeling, and visualization of analytical and quantitative results. Capstone. (Practicum) Pre: concurrent enrollment in NRS 522.

NRS 525 Wetland Field Investigations PRA (1 cr.) Independent field study of a diverse freshwater wetland ecosystem, with emphasis on aerial photo-interpretation, wetland classification, and in-depth examination of glacial geology, hydrology, plant ecology and soils. (Practicum) Pre: concurrent enrollment in 423.

NRS 526 Microbial Ecology of Soils and Sediments LEC (3 crs.) Occurrence and activity of microorganisms in soils and sediments, including wetlands. Environmental physiology of microbes; habitat interactions; methods of study; importance of microbial processes to ecosystem productivity, pollutant degradation, and atmospheric chemistry. (Lec. 3) Pre: NRS 212, CMB 211, or permission of instructor.

NRS 527 Marine Protected Areas: An Interdisciplinary Analysis LEC (3 crs.) Cross-listed as (MAF), NRS 527. Examination of the ecological, political, social, cultural, and economics factors influencing the use of MPAs (Lec. 3) Pre: permission of instructor.

NRS 528 Geographical Information Systems in Python LEC (3 crs.) Using the Python programming language to undertake and automate GIS processing tasks. (Lec. 1, Lab. 2) Pre: NRS 410 or permission from instructor.

NRS 533 Landscape Pattern And Change LEC (3 crs.) Remote sensing perspective of landscape characterization; landscape dynamics; spatiotemporal land-use and land-cover change; modeling and analysis of landscape by integration of remote sensing, GIS, GPS, and in situ data. (Lec. 2, Lab. 2) Pre: NRS 415 or permission of instructor.

NRS 534 Ecology of Fragmented Landscapes LEC (2 crs.) Presentation of the concepts of landscape ecology with emphasis on populations of plants and animals in fragmented habitats. Topics discussed include habitat corridors, fluxes of energy and species along habitat edges, shape analysis, and stability of populations in habitat patches. (Lec. 2) Pre: BIO 262 or permission of instructor. In alternate years.

NRS 535 Geospatial Watershed Modeling LEC (3 crs.) Cross-listed with (GEO) NRS, CVE 535. Tools to simulate the water quantity and quality of a complex watershed; development of models for examining the water quantity and quality issues that are associated with watershed management. (Lec. 2, Lab. 2) Pre: NRS 461 or GEO 483 or CVE 475 or equivalent, or graduate standing, or permission of instructor.

NRS 538 Physiological Ecology of Wild Terrestrial Vertebrates LEC (3 crs.) Relationships between animal physiology and the ecology and dynamics of wild vertebrate populations, including birds, mammals, reptiles, and amphibians. (Lec. 3) Pre: NRS 305 or permission of instructor.

NRS 542 Environmental Crisis Communication LEC (3 crs.) Effective communication requires strategy, clarity, and an audience-centric approach. Using case studies, this course will explore crisis communication theory and practice through the lens of recent environmental disasters. (Lec. 3)

NRS 543 Public Engagement with Science LEC (3 crs.) Theoretical and practical aspects of public engagement with science, policy, and management, with an emphasis on communication. (Lec. 3) Pre: Graduate Standing or permission of instructor.

NRS 545 Invasive Species Research, Management, and Policy LEC (4 crs.) Overview of the major invasive alien species issues in the research, management, and policy arenas. Includes weekly field/lab sessions. (Lec. 3, Lab. 3) Pre: BIO 262 or NRS 223, or permission of instructor.

NRS 555 Applied Coastal Ecology LEC (2 crs.) Resource management problems in coastal national parks. Topics include air and water pollution, barrier island erosion, deer overpopulation, Lyme disease, and ecosystem restoration. Examples of conflicting land-management mandates and research needs discussed. Optional field trips. (Lec. 2) Pre: advanced course work or experience in topical fields or permission of instructor. Offered in even-numbered years.

NRS 563 Biology and Ecology of Fishes LEC (4 crs.) Cross-listed as (BIO), NRS 563. Exploration of the functional biology and ecology of marine and freshwater fishes through lecture and discussion of primary literature. Laboratory involves specimen study, field trips, and a research project. (Lec. 3, Lab. 3) Pre: BIO 366 or equivalent, or permission of instructor.

NRS 567 Soil Genesis And Classification LEC (3 crs.) Development of soils as influenced by physical, chemical, biological, and climatic factors. Processes of soil formation presented relative to soil taxonomy and geographic distribution. (Lec. 3) Pre: NRS 471 or permission of instructor.

NRS 568 Recent Advances in Natural Resources Science LEC (3 crs.) Critical analysis and presentation of technical reports on recent advances in natural resources science. Topics will vary according to instructor and background of students. (Lec. 3) Pre: graduate standing or permission of instructor.

NRS 570 Geospatial Data Acquisition and Management ONL (3 crs.) Examine the fundamental structure of primary GIS data and integration of non-spatial data sources. Focus is on database creation and data management workflows to prepare data for analysis and visualization. (Accelerated Online Program) Pre: EVS 509 and graduate standing or permission of instructor.

NRS 571 Techniques in Geospatial Data Analysis ONL (3 crs.) Identify and apply appropriate geoprocessing tools or workflows for geospatial analysis in both the desktop and cloud GIS environments to support decision making and problem-solving across disciplines. (Accelerated Online Program) Pre: EVS 509, NRS 570, graduate standing or permission of the instructor.

NRS 572 Advanced Topics in Geospatial Data Visualization ONL (3 crs.) Create visualizations using web maps and application templates available within ArcGIS Online. Apply techniques for effective data presentation while creating storymaps, interactive applications and data dashboards. (Lec. 3) Pre: EVS 509, NRS 570, and graduate standing or permission of instructor.

NRS 573 Emerging Technologies in Geospatial DataCollection ONL (3 crs.) Develop advanced level skills in mobile data collection using field operation applications in ArcGIS Online. Explore emerging techniques to integrate data feeds and imagery using GIS technology. (Accelerated Online Program) Pre: EVS 509, NRS 570, and graduate standing or permission of instructor.

NRS 582 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), EVS 582, NRS 582. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. Offered alternate years (Lec. 4) Pre: permission of instructor.

NRS 583 Innovative Subsurface Remediation Technologies LEC (4 crs.) Cross-listed as (GEO), EVS 582, NRS 583. Innovative remediation technologies for treating contaminated groundwater and sediments: theory, applications, and limitations of selected methods. Discussion of case studies. Offered alternate years (Lec. 4) Pre: permission of instructor.

NRS 584 Environmental Hydrogeology LEC (4 crs.) Cross-listed as (GEO), EVS, NRS 584. Develop an understanding of the physico-chemical principles and fundamental relationships that describe the fate and transport of contaminants in the hydrologic system. (Lec. 3, Lab 2) Pre: GEO 483 or CVE 588 or NRS 510 or permission of instructor.

NRS 585 Salt Marsh Ecology LEC (4 crs.) Cross-listed as (BIO), NRS 585. Structure and function of salt marsh ecosystems, including biogeochemistry, in the context of global change. Seminar-style discussions, weekly assignments, written and oral presentations of independent proposal and research project. (Lec. 2, Lab. 4) Pre: permission of instructor. Prior undergraduate coursework equivalent to a course in ecology and 2 semesters of chemistry is expected.

NRS 591 Special Problems IND (1-3 crs.) Advanced independent research projects supervised by members of the research staff and unrelated to Master's or Doctoral research. Projects developed to meet individual needs. (Independent Study) Pre: permission of chairperson.

NRS 592 Special Problems IND (1-3 crs.) Advanced independent research projects supervised by members of the research staff and unrelated to Master's or Doctoral research. Projects developed to meet individual needs. (Independent Study) Pre: permission of chairperson.

NUE | Nuclear Engineering

NUE 391 Reactor Operations I LEC (3 crs.) Research reactor theory and operations, fundamentals of fission chain reacting systems, reactivity and feedback, fundamentals of radiation safety and protection, application of radiation measurement instruments. (Lec. 3) Pre: permission of instructor.

NUE 392 Reactor Operations II LEC (3 crs.) Hands-on reactor operation, control rod analysis for approach to criticality, reactor cooling

system operational analysis, application of radiation measurement instruments. Second of a two-course sequence. (Lec. 2, Lab. 1) Pre: NUE 391 and permission of instructor.

NUE 471 Nuclear Reactor Engineering LEC (3 crs.) Cross-listed as (MCE), CHE, NUE 471. Energy production from nuclear reactions, cross sections, number density, and binding energy. Fission process, neutron life cycle, criticality, neutron diffusion, reactor design, reactor kinetics and control, reactivity feedback, nuclear system design. (Lec. 3) Pre: MTH 244 or permission of instructor.

NUE 472 Power Plant System Design and Safety Analysis LEC (3 crs.) Cross-listed as (MCE), CHE, NUE 472. Energy production, power systems, energy conversion system design, safety engineering and design, phenomenological modeling and analysis, probabilistic risk assessment, risk-informed design, advanced power plant systems design. (Lec. 3) Pre: MCE 341 or CHE 313 or permission of instructor.

NUE 473 Nuclear Fuel Cycle and Performance LEC (3 crs.) Cross-listed as (CHE), MCE, NUE 473. Analysis and design of stages of the nuclear fuel cycle including mining, milling, conversion, enrichment, fuel fabrication, fuel burn-up, spent fuel interim storage, reprocessing, safety and aspects of high level waste. (Lec. 3/Online) Pre: MTH 244 or permission of instructor.

NUE 474 Nuclear Reactor Thermal-Hydraulics LEC (3 crs.) Cross-listed as (CHE), MCE, NUE 474. Nuclear heat generation, decay heat, heat transport, and conductive, convective, and phase change heat removal in nuclear reactor systems. (Lec. 3) Pre: MCE/CHE/NUE 471. Not for graduate credit.

NUE 475 Measurements in Nuclear Engineering LAB (3 crs.) Experimental methods in nuclear engineering including radiation detection and measurement experiments, reactor control and reactivity experiments. (Lab. 3) Pre: MCE 471 / CHE 471 or NUE 391, or permission of instructor. Not for graduate credit.

NUE 550 Introduction to Radiation Physics and Dosimetry LEC (3 crs.) Cross-listed as (PHY), NUE 550. Basic principles of radiation physics: radioactivity, the physics of ionizing radiation, radiation dosimetry, imaging equipment, radiation therapy equipment and radiation detectors. Pre: PHY 210 or permission of instructor.

NUE 565 Radiation Detection, Instrumentation and Data Analysis LEC (3 crs.) Cross-listed as (PHY), NUE 565. Provide the student a base knowledge of radiation detection as it pertains to radiation therapy, diagnostic imaging, and nuclear medicine. (Lec. 3) Pre: permission of instructor.

NUR | Nursing

NUR 100 Foundations of Professional Practice LEC (3 crs.) Introduction to the role of nurses in professional caring. Concepts include communication, teaching, and ethical decision making with analysis of the interrelationship between client, nurse, and ecosystem influences. (Lec. 3) Pre: NUR code or permission of instructor.

NUR 150 Human Sexuality LEC (3 crs.) Cross-listed as (NUR), HDF 150. Interdisciplinary approach to the study of individual and societal determinants in the development, integration, and expression of human sexuality and a code of sexual behavior. (Lec. 3/Online) (A2) (C3)

NUR 160 Exploring Global Health LEC (3 crs.) Introduction to major global health problems including their distribution, web of causation, and effective strategies for addressing these problems at individual, community, societal, and global levels. (Lec. 3) Intended for freshmen. (B4)

NUR 203 Comprehensive Health Assessment LEC (3 crs.) Introduces the techniques of history taking and systematic health assessment of individuals across the life span. Recognition of normal findings is emphasized. (Lec. 2, Lab. 3) Pre: Credit in BIO 222, BIO 223, CHM 124, NUR 100, WRT 104 or 106, and concurrent enrollment in NUR 213 and credit or concurrent enrollment in CMB 201 and NFS 207 and permission of instructor.

NUR 205X Intro to Critical Thinking and Clinical Judgment LEC (1 cr.) Develop critical thinking and decision-making skills used throughout the nursing process. Students apply systematic approaches to clinical situations, and reflect on their planning and decision-making processes. (Lec. 1)

NUR 207G Introduction to Safety and Quality in Health Care LEC (3 crs.) Cross-listed as (PHP), NUR 207G. Fundamentals of medication safety, patient safety and quality management in the healthcare system. Introduce ethical challenges that can impact patients in the health care setting. (Lec. 3) Pre: Sophomore or higher standing. (A2) (GC)

NUR 208 Growth, Development, and Health Promotion Across the Lifespan LEC (3 crs.) Comprehensive understanding of human growth and development throughout the lifespan with an emphasis on health promotion for clients living with/without disabilities and chronic illness. (Lec. 3/Online) Pre: NUR 203, NUR 213, CMB 201, NFS 207.

NUR 213 Pathophysiology LEC (3 crs.) Examination of basic concepts of pathophysiology and the related levels of prevention, etiology, pathogenesis, and clinical manifestations underlying alterations according to biological processes across the life span. (Lec. 3) Pre: Credit in BIO 222, BIO 223, CHM 124, NUR 100, WRT 104 or 106 and concurrent enrollment in NUR 203 and credit or concurrent enrollment in CMB 201 and NFS 207 and permission of instructor.

NUR 233 Introduction to Care of Adults and Older Adults LEC (3 crs.) Introduction to foundational nursing practice involving adults and older adults. Focus on prevention, collaborative care and nursing management of clients' responses to common disorders and health issues in these populations. (Lec. 3) Pre: NUR 203, NUR 213, CMB 201, NFS 207 and concurrent enrollment in NUR 234, credit or concurrent enrollment in NUR 243, STA 220, and NUR 208.

NUR 234 Practicum: Care of Adults and Older Adults PRA (3 crs.) Practicum emphasizing foundational nursing practice focusing on the adult and older adult with acute and chronic illnesses. (Practicum) Pre: Credit in NUR 203, NUR 213, CMB 201, NFS 207 and concurrent enrollment in NUR 233, credit or concurrent enrollment in NUR 243 and NUR 208 and STA 220.

NUR 243 Pharmacotherapeutics for Nursing LEC (3 crs.) Examination of pharmacotherapeutic concepts and agents used by nurses to treat selected illness and in the promotion, maintenance and restoration of wellness to facilitate safe nursing care across the lifespan. (Lec. 3) Pre: Credit in NUR 203, NUR 213, CMB 201, NFS 207.

NUR 246 Transition to Baccalaureate Nursing Education SEM (2 crs.) Introduction to baccalaureate-nursing education. Development of professional nursing practice explored. Reflective practice, advanced roles and evidence based practice explored. Factors affecting clinical judgment and current issues in practice addressed. (Seminar 2) Pre: Licensed Registered Nurse, or new graduate from RN program.

NUR 247 Introduction to Professional Nursing Practice ONL (3 crs.) Explores essential theoretical concepts for transition to professional nursing practice. Reflective practice, advanced roles and evidence based practice explored. Factors affecting clinical judgment and current issues in practice addressed. (Accelerated Online Program) Pre: RN licensure. For Online RN to BS program only.

NUR 253 Nursing Research LEC (3 crs.) Introduces the principles of scientific inquiry; including identification of various ways of analytical thinking common to problem solving and critical thinking in nursing. (Lec. 3/Online) Pre: Credit in NUR 233, NUR 234, NUR 243, NUR 208 and STA 220 or RN student subplan.

NUR 260 (360) Impact of Death on Behavior LEC (3 crs.) Cross-listed as (NUR), THN 260. Seminar to explore the human experience of dying and the issue of quality of life. Group discussion focuses on the effect that individual and social values and medical and social structures have on one's grief response and bereavement process. (Lec. 3/Online) (A2) (C3)

NUR 260H Honors Sectionof NUR/THN 260 (360): Impact of Death on Behavior LEC (3 crs.) Cross-listed as (NUR), THN 260H. Hon-

ors Section of NUR/THN 260 (360). Impact of Death on Behavior. (Lec. 3/Online) Pre: must have a 3.40 overall GPA. (A2) (C3)

NUR 270 Loss Across the Lifespan LEC (3 crs.) Cross-listed as (THN), NUR 270 (426). Exploration of losses that occur across the lifespan, caused both by situational crisis and through development. Emphasis on individual grief responses and the impact these may have on one's future social and psychological growth. (Lec. 3) (A2) (B2)

NUR 280G Social Determinants of Health ONL (3 crs.) An introduction to social determinants of health and social justice from a public health perspective. Strategies to address health inequities will be included. (Online) (C3) (GC)

NUR 313 Acute Care of Adults and Older Adults LEC (3 crs.) Nursing management of adults and older adults with acute illness, emphasizing nursing strategies based on a collaborative care model. (Lec. 3) Pre: NUR 233, NUR 234, NUR 243, and NUR 208; concurrent with NUR 314; and credit or concurrent enrollment in NUR 253

NUR 314 Practicum: Clients with Acute and Chronic Illnesses PRA (3 crs.) Application of nursing strategies in the management of clients with acute and chronic illness, including the impact on their families. (Practicum) Pre: Credit in NUR 233, NUR 234, NUR 243, NUR 208 and STA 220 and concurrent enrollment in NUR 313 and credit or concurrent enrollment in NUR 253.

NUR 333 Psychiatric Mental Health Nursing LEC (3 crs.) Incorporating an integrated biological, psychological, socio-cultural, environmental, and spiritual approach, this course emphasizes knowledge needed to care for individuals with a psychiatric disorder, and their families, across the care continuum.(Lec. 3) Pre: Credit in NUR 253, NUR 313, NUR 314 and Concurrent enrollment in NUR 334, NUR 353, NUR 354.

NUR 334 Practicum: Psychiatric Mental Health Nursing PRA (3 crs.) This clinical course provides students with the opportunity to apply theoretical knowledge of psychiatric mental health nursing through supervised experience in diverse clinical settings. (Practicum) Service learning. Pre: Credit in NUR 253, NUR 313, NUR 314 and concurrent enrollment in NUR 333, NUR 353, NUR 354.

NUR 346 Organizational & System Leadership in Health Care PRA (4 crs.) Leadership strategies will be explored. Issues of practice including communication, conflict resolution, care transitions, teamwork and collaboration will be analyzed. Theories of leadership and evaluation will be emphasized. (Practicum/Seminar) Service learning. Pre: Licensed Registered Nurse. NUR 246 and NUR 253, or prior approval from faculty.

NUR 347 Nursing Management of Clients ONL (3 crs.) Development of leadership and management strategies for registered nurses. Emphasis on role development and analysis of quality, safety, communication and leadership issues related to client care and nursing practice. (Accelerated Online Program) Pre: NUR 247, NUR 253, RN licensure.

NUR 353 Family Health Nursing LEC (4 crs.) Examines the theories and strategies of family health nursing to promote or restore health and prevent or treat illnesses with an emphasis on pediatric and reproductive care. (Lec. 4) Pre: Credit in NUR 253, NUR 313, NUR 314 and concurrent enrollment in NUR 333, NUR 334, NUR 354.

NUR 354 Practicum: Family Health Nursing PRA (3 crs.) Application of family health nursing strategies used to promote and restore health and prevent and treat illness in children, pregnant women, and their families. (Practicum) Pre: Credit in NUR 253, NUR 313, NUR 314 and concurrent enrollment in NUR 333, NUR 334, NUR 353.

NUR 364G Understanding Suicide LEC (3 crs.) Cross-listed as (THN), NUR 364G. Investigates the complex phenomenon of suicide from ideation through grief experiences. Lecture and group discussion explore historical and contemporary theories and attitudes about suicide across multiple disciplines. Focus on civic responsibility. (Lec. 3) Pre: One prior Thanatology course or permission of instructor. (A2) (C1) (GC)

NUR 365G Losses of Addiction in American Culture LEC (3 crs.) Cross-listed as (THN), NUR 365G. Interdisciplinary study of addiction, effects, and cultural reception and responses. Focus on biopsychosocial and grieving experiences of diverse populations suffering from addiction and their loved ones, helping professionals, and communities. (Lec. 3) Pre: One prior Thanatology course or permission of instructor. (B4) (C3) (GC)

NUR 381G Application of Genetics in Healthcare ONL (3 crs.) Explore how genetics and advanced technologies are applied in precision healthcare across the lifespan. Ethical issues will be examined. (Online) (B4) (D1) (GC)

NUR 382G Designing Innovations in Health and Healthcare PRA (3 crs.) Students work in interdisciplinary teams to identify problems or needs in health or healthcare and design technology, processes, or services that are sustainable, innovative solutions to these problems/needs. (Practicum) Pre: Junior or senior standing. (D1) (GC)

NUR 390 Directed Study IND (1-3 crs.) Cross-listed as (NUR), THN 390. Research study or individual scholarly project relating to the nursing major. Faculty guidance in problem delineation and in development, implementation, and evaluation of the project. (Independent Study) Pre: admission to the College of Nursing and prior faculty approval. S/U credit.

NUR 412 Health Care Economics, Policy and Ethics LEC (3 crs.) Exploration of health care economics, health policy and ethical considerations that impact the care environment, inclusive of contemporary care delivery trends, innovations, and challenges. (Lec. 3) Pre: NUR 353, NUR 354, NUR333, NUR 334, concurrent with NUR 443 and NUR 444.

NUR 413 Complex Care of Adults and Older Adults LEC (3 crs.) Nursing management of clients with complex and critical illnesses, with a focus on the client and family responses to illness, empowering self-care management and maximizing quality of life. (Lec. 3) Pre: NUR 443, NUR 444, NUR 412 and credit or concurrent enrollment in NUR 415 and NUR 417.

NUR 415 Transition to Professional Nursing Practice LEC (3 crs.) Examine issues and apply theories and concepts related to transitional entry into professional nursing practice. Focus on leadership, QSEN competencies, NCLEX success, and successfully navigating the first year of practice. (Lec. 3) NUR 443, 444, NUR 412 and concurrent enrollment in NUR 417 and NUR 413. Not for graduate credit.

NUR 417 Clinical Immersion PRA (6 crs.) Designed to provide students with the opportunity to comprehensively apply and integrate synthesized theoretical and clinical experiences from previous nursing courses into the final comprehension clinical experience. (Practicum) Pre: Credit in NUR 412, NUR 443, NUR 444 and concurrent enrollment in NUR 413 and NUR 415. Not for graduate credit.

NUR 425 Spirituality of Loss and Death SEM (3 crs.) Cross-listed as (THN), NUR 425. Examination of major belief systems and spirituality during loss, death and grief. Emphasis on spiritual issues and ethnic, cultural, gender, and age differences, as well as the role of professional helpers. (Seminar 3) Pre: one prior thanatology course or permission of instructor.

NUR 429 Special Topics in Thanatology LEC (1-3 crs.) Cross-listed as (THN), NUR 429. Selected areas of study related to loss, grief, dying, and bereavement. May be repeated for credit with a change in topic. (Lec. 1-3) Pre: One prior thanatology course or permission of the instructor. Not for graduate credit.

NUR 443 Community/Public Health Nursing LEC (3 crs.) Analysis of concepts related to public health and the nursing care of clients in the home, school, workplace and the community with emphasis on vulnerable and at-risk populations. (Lec. 3) Pre: Credit in NUR 333, NUR 334, NUR 353, NUR 354 and concurrent enrollment in NUR 412 and NUR 444.

NUR 444 Practicum: Community/ Public Health Nursing PRA (3 crs.) Application of the nursing process in community with emphasis on vulnerable and high risk populations. In-depth analysis of a select-

ed population, including utilization of epidemiological and public health principles. (Practicum) Pre: Credit in NUR 333, NUR 334, NUR 353, NUR 354 and concurrent enrollment in NUR 412 and NUR 443. Not for graduate credit. (D1) (C1)

NUR 446 Directed Study for Registered Nurse Students IND (1-4 crs.) Clinical advanced study or individual scholarly project related to the nursing major. Faculty guidance in problem delineation and in development, implementation, and evaluation of the project. (Independent Study) Pre: NUR 246 and NUR 253. Not for graduate credit.

NUR 447 Adult Health Assessment ONL (3 crs.) Systematic assessment of health and illness in the adult client. Students will apply health history and health assessment techniques to virtual patient care scenarios.(Accelerated Online Program) Pre: NUR 247, NUR 253, RN license.

NUR 448 RN-BS Health Assessment LEC (3 crs.) Systematic adult health assessment and critical analysis of findings regarding health and health deviations. Students will complete a comprehensive health history, physical examination, and health risk assessment of class partners. (Lec. 2, Lab. 1) Pre: NUR 246 and NUR 253 are prerequisites.

NUR 500 General Study Of Nursing Knowledge For Nursing Practice LEC (4 crs.) Introduction to the essential features of nursing knowledge and its development in relation to nursing practice. Study of approaches to nursing knowledge development, and major conceptual/theoretical knowledge in nursing. (Lec. 3, Lab. 2) Pre: graduate standing.

NUR 501 PMHNP: Physical Assessment and Diagnostic Reasoning LEC (3 crs.) Development of physical assessment and diagnostic reasoning across the lifespan specifically designed for psychiatric mental health advanced practice nurses. (Lec. 2, Lab. 1) Pre: admission in the PMHNP concentration.

NUR 502 PMHNP: Psych Assessment and Differential Diagnosis LEC (3 crs.) Obtain knowledge needed to accurately conduct comprehensive psychiatric mental health assessments and determine differential diagnosis across the lifespan. (Lec. 3) Pre: NUR 501 or permission of instructor.

NUR 503 Advanced Adult Physical Assessment LEC (4 crs.) Expansion of basic nursing health assessment skills, including: comprehensive health history, physical examination and psychological and social assessment. (Lec. 3, Lab. 1) Pre: Admission to the graduate nursing program and permission of the instructor; other students may be admitted with permission of instructor.

NUR 504 Advanced Pediatric Physical Assessment LEC (1 cr.) Application of advanced physical and health assessment skills to children. Includes assessment of growth and development, psychosocial, cognitive and physical well being of children of all age groups. (Lec. 1) Pre: Admission to the family nurse practitioner program, previous or concurrent enrollment in NUR 503 and permission of instructor.

NUR 505 Translating Research Evidence into Practice LEC (3 crs.) This course provides an overview of qualitative and quantitative methods and addresses how advanced practice nurses can evaluate, translate and apply research evidence to improve clinical practice and healthcare outcomes. (Lec. 3) Pre: Admission to the College of Nursing MS program or by permission of instructor.

NUR 506 Independent Study IND (1-6 crs.) Intensive study of a specific area of interest, a problem or issue in nursing under guidance of the faculty. (Independent Study) Pre: permission of graduate faculty or coordinator of thanatology.

NUR 507 Theoretical Basis of Advanced Nursing Practice SEM (3 crs.)Theories relevant to nursing practice and theories related to decision making, action, knowledge utilization, and influence are examined in relation to their applicability to advanced clinical nursing practice. (Seminar) Pre: Enrollment in the nursing MS program or permission of instructor.

NUR 508 Physical Assessment of Older Adults LEC (1 cr.) Applying a developmental framework, expands and refines history taking and physical exam techniques learned in NUR 503 and utilizes additional assessment tools to conduct a comprehensive evaluation of older adult clients. (Lec. 1) Pre: Concurrent or prior completion of NUR 503 and permission of instructor.

NUR 509 Advanced Assessment for Acute Care NP Practice LEC (2 crs.) Expands and refines history taking, physical assessment and documentation techniques for comprehensive evaluations of acutely and critically ill adults. Pre: Admission to the Nurse Practitioner program, NUR 503 and permission of the instructor.

NUR 510 Nursing Leadership In The Health Policy Process SEM (3 crs.) Study of nurses' participation in the health policy process. Focus on theories for the development of nursing leaders. Analysis and application of creative nursing strategies for the enhancement of health care. (Seminar) Pre: enrollment in the M.S. program in nursing.

NUR 511 Advanced Mental Health Nursing I SEM (3 crs.) Investigation of theories of healthy and psychopathological patterns of individual behavior from a mental health perspective. (Seminar) Pre: NUR 500 and credit or concurrent enrollment in NUR 512.

NUR 512 Practicum In Advanced Mental Health Nursing I PRA (3 crs.) Field experience to develop competence in the practice of advanced mental health nursing. Emphasis on application of relevant theories in solving individuals' mental health problems. (Practicum) Pre: NUR 500 and concurrent enrollment in NUR 511.

NUR 513 PMHNP: Integrated Treatment for Adults/Older Adults LEC (3 crs.) Explores major psychotherapeutic modalities using an integrated evidence-based approach to psychotherapy for adults and older adults. (Lec. 3) Pre: NUR 518 and concurrent enrollment in 514; or permission of instructor.

NUR 514 PMHNP: Practicum I PRA (3 crs.) Application of knowledge and skills to assess, diagnose and treat adult and older adult clients with common psychiatric disorders. (Prac. 3) Pre: Concurrent enrollment or credit in NUR 513; or permission of instructor.

NUR 515 Practicum in Advanced Psychiatric Mental Health Nursing PRA (3 crs.) Field experience to further develop clinical competence in the practice of mental health nursing. Emphasis is placed on the utilization of intervention strategies based on knowledge of psychiatric illness. (Practicum) Pre: NUR 511, 512.

NUR 516 Advanced Mental Health Nursing II SEM (3 crs.) Theoretical analysis of current modes of advanced mental health intervention in order to explain strategies for solution of family, group, and community problems. (Seminar) Pre: NUR 511, 512, and concurrent enrollment in 517.

NUR 517 Practicum in Advanced Psychiatric Mental Health Nursing III PRA (3 crs.) Field experience to develop clinical competence in the practice of advanced mental health nursing in providing client care, consultation, education, and research. (Practicum) Pre: NUR 515.

NUR 518 PMHNP: Neuro-psychopharmacology LEC (3 crs.) Integrates principles of neurobiology and psychopharmacology for effective psychotherapeutic management of individuals with psychiatric mental health problems across the lifespan. (Lec. 3) Pre: NUR 535, NUR 582, and NUR 502; or permission of instructor.

NUR 519 Psychophamacotherapeutics for Advanced Practice Nursing SEM (3 crs.) Integration of psychopharmacotherapeutics and decision making with human pathophysiology utilizing case management approach to prescription of medications. Discussion of legal, ethical and professional issues related to advanced practice role. (Seminar) Pre: Graduate standing in nursing or permission of instructor

NUR 520 Graduate Study Seminar SEM (1 cr.) A seminar designed to facilitate the synthesis and examination of information learned in the master's program about nursing knowledge development, advancement of nursing practice, and leadership role development. (Seminar) Pre: completion of 30 graduate program credits and concurrent enrollment in the final sequence of concentration courses. S/U credit.

NUR 521 Evidence-Based Strategies to Improve Health SEM (3 crs.) This course examines individual health and health behavior within the larger socio-ecological context, identifies multi-level influences of health across family-, community- and macro-systems, and explores historical and geographic variations. (Seminar) Pre: Admission to the College of Nursing MS program or by permission of instructor. S/U only.

NUR 521 Evidence-Based Strategies to Improve Health SEM (3 crs.) This course examines individual health and health behavior within the larger socio-ecological context, identifies multi-level influences of health across family-, community- and macro-systems, and explores historical and geographic variations. (Seminar) Pre: Admission to the College of Nursing MS program or by permission of instructor.

NUR 523 Contemporary Thanatology SEM (3 crs.) Interdisciplinary approach to trends, problems, theories, and strategies in thanatology. Explores effects of professional's personal beliefs and attitudes on care provided to dying clients across the life span and their families. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

NUR 524 Exploring Loss Through Creative Arts Therapy SEM (3 crs.) Cross-listed as (NUR), THN 524. Exploration and assessment of the merits of incorporating creative arts processes (imagery, story, metaphor, music, and movement) with individuals who are experiencing loss, grief and dying. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

NUR 525 Spirituality of Loss and Death for the Helping Professions SEM (3 crs.) Examination of major belief systems and spirituality during loss, death and grief. Emphasis on spiritual issues and ethnicity, culture, gender and developmental stage. Role of professional dealing with spiritual concerns. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

NUR 527 Symptom Management in End-of-Life Care LEC (3 crs.) Principles of nursing care at the end-of-life. Strategies for assessing and managing symptoms along with complementary therapies across age groups. (Lec. 3) Pre: senior standing in nursing or registered nurse (others by permission of instructor).

NUR 529 Special Topics in Thanatology SEM (1-3 crs.) Selected areas of study pertinent to loss, dying and grief. Instruction may be offered in class seminar or clinical settings according to specific needs and purposes. May be repeated for credit with a change in topic. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

NUR 530 Advanced Health Assessment Skills Across the Life LEC (4 crs.) This course provides students with the knowledge and skills necessary to obtain a comprehensive health history and perform a complete physical examination on patients across the lifespan. (Lec. 3, Lab. 1) Pre: Enrollment in Nursing MS program or with permission of instructor.

NUR 531 Family NP Primary Care I SEM (3 crs.) Theoretical knowledge and skills for the development of nursing strategies in analyzing, managing, and preventing health-related problems common to primary health care clients. (Seminar) Pre: NUR 530 or permission of the instructor.

NUR 532 Family NP Practicum I PRA (4 crs.) Clinical application of theoretical knowledge and skills as presented in NUR 531. (Practicum) Pre: concurrent enrollment in NUR 531.

NUR 533 Family NP Primary Care II SEM (3 crs.) Theoretical study for the development of increased nursing competency in primary care practice. Emphasis on health care strategies to assist individuals and families in coping with health-related problems. (Seminar) Pre: NUR 531, 532, and concurrent enrollment in 534.

NUR 534 Family NP Practicum II PRA (6 crs.) Application of theoretical knowledge and skills for the development of nursing strategies for health promotion and management of health-related problems common to families. (Practicum) Pre: NUR 531, 532, and concurrent enrollment in NUR 533.

NUR 535 Advanced Pathophysiology LEC (3 crs.) Cross-listed as (NUR), PHT 535. An in-depth study of pathophysiological phenomena across the life span from the biological life processes perspective. Clinical decision making based on the synthesis of this knowledge and current research findings will be explored. (Lec. 3) Pre: for nursing students: admission to graduate program in nursing or permission of instructor; PHT 500 and 1st year standing in the D.P.T. program for physical therapy students.

NUR 538 Learning Theories and Strategies for Health Professionals LEC (3 crs.) The study of selected learning theories and strategies and their application in health professions. Emphasis will be on expanding the scope of teaching as professionals. (Lec 3) Pre: NUR 500 or permission of instructor. In alternate years.

NUR 539 Application Of Learning Theories In Professional Practice PRA (3 crs.) Field project in the application of learning theories and strategies in professional practice. Emphasis on gaining knowledge of the application of strategies and outcome evaluation in practice and educational settings. (Practicum) Pre: credit or concurrent enrollment in NUR 538 or permission of instructor. In alternate years.

NUR 541 Advanced Study of Teaching in Nursing Education and Practice LEC (3 crs.) Advanced study of educational theories and strategies having application in nursing education and practice. Emphasis will be on role development, instructional design, methods, and evaluation. (Lec. 3) Pre: NUR 507, 539, or permission of instructor. In alternate years.

NUR 542 Practicum in Nursing Education and Practice PRA (6 crs.) A field experience designed to develop competence in teaching. Emphasis is placed on the instructional design component and the utilization of strategies based on theoretical knowledge. (Practicum) Pre: permission of instructor or credit or concurrent enrollment in NUR 541. In alternate years.

NUR 545 PMHNP: Integrated Treatment for Child/Adol/Family LEC (2 crs.) Explores major psychotherapeutic modalities using an integrated evidence based approach to psychotherapy of children, adolescents and their families. (Lec. 2) Pre: NUR 514, NUR 518, concurrent enrollment in NUR 546; or permission of instructor.

NUR 546 PMHNP: Practicum II PRA (6 crs.) Application of psychotherapeutic strategies to provide comprehensive care to children and adolescents with common psychiatric disorders and their families. (Practicum) Pre: Concurrent enrollment or credit in NUR 545; or permission of instructor.

NUR 547 PMHNP: Practicum III PRA (6 crs.) Application of knowledge and skills to assess, diagnose and treat clients across the lifespan presenting with complex psychiatric disorders. (Practicum) Pre: NUR 546; or permission of instructor.

NUR 549 Strategies in Health Care Program Evaluation LEC (3 crs.) Analysis and application of evidenced-based methods, translation of research into practice, and evaluation of practice to improve health care outcomes. (Lec. 3, Online) Pre: Admission to the DNP program or permission of the instructor.

NUR 551 Theoretical Study of Nursing Administration/Leadership SEM (3 crs.) Study of concepts, theories and strategies underpinning planning, decision-making and quality improvement activities in health care administration/leadership. Emphasis on theories, concepts and issues that explain and advance strategies in nursing administration. (Seminar) Pre: NUR 505, 507, two restricted electives, or permission of instructor. In alternate years.

NUR 552 Practicum In Nursing Administration PRA (6 crs.) Field experience in nursing administration. Emphasis on role development and the examination, development, and implementation of strategies in nursing administration. (Practicum) Pre: credit or concurrent enrollment in NUR 551. In alternate years.

NUR 561 Adult-Gerontology Primary Care NP I LEC (3 crs.) Theories of aging, health promotion and maintenance, age-related changes, and health problems common to adolescents, adults and older adults focusing on assessment, diagnosis, therapeutic, and preventive strategies. (Lec. 3) Pre: NUR 530 or permission of instructor.

NUR 562 Adult-Gerontology Primary Care NP Practicum I PRA (4 crs.) Application of theoretical knowledge and skills for development of adult/gerontology nurse practitioner strategies emphasizing health promotion and illness management of healthy adolescents, adults and older adults and their families. (Practicum) Pre: credit or concurrent enrollment in NUR 561 or permission of instructor.

NUR 563 Adult-Gerontological Primary Care NP II LEC (3 crs.) Theoretical knowledge and skills for development of strategies for care of adults and older adults with complex health problems and functional limitations at the individual, family, group, organization, community, and societal levels. (Lec. 3) Pre: NUR 562.

NUR 564 Adult-Gerontological Primary Care NP Practicum II PRA (6 crs.) Development of adult- gerontological nurse practitioner/ clinical nurse specialist competency in care of adults and older adults with complex health problems and functional limitations focusing on strategies at the individual, family, group, organization, community, and societal levels. (Practicum) Pre: credit or concurrent enrollment in NUR 563.

NUR 565 Acute Care Nurse Practitioner I: Adult LEC (3 crs.) Didactic knowledge and clinical decision-making skills necessary to manage health conditions common to the acutely or critically ill adult in emergency departments, acute and critical care units. Pre: admission to the acute care area of emphasis within the nurse practitioner program; NUR 509 and permission of instructor. Must be taken concurrently with NUR 566.

NUR 566 Acute Care Nurse Practitioner Practicum I: Adult PRA (6 crs.) Application of clinical decision making skills necessary to the management of adults who are acutely or critically ill in hospital emergency, acute and critical care units. Pre: NUR 509 and permission of instructor. Must be taken concurrently with NUR 565.

NUR 567 Acute Care Nurse Practitioner II: Adult LEC (3 crs.) This course builds on the principles learned in ACNP I. The focus is on the management of chronic illness exacerbations in adults who require care in a sub-acute, acute or critical care setting, using principles of family-centered care. Pre: NUR 566 and permission of instructor. Must be taken concurrently with NUR 568.

NUR 568 Acute Care Nurse Practitioner Practicum II: Adult PRA (6 crs.) Individually precepted clinical experiences with the focus on developing management skills in the care of adults with exacerbations of chronic illnesses who are hospitalized in acute care facilities. Pre: NUR 566 and permission of instructor. Must be taken concurrently with NUR 567.

NUR 571 Theoretical Study Of Well Women'S Health Care SEM (3 crs.) A study of major theories, client issues, and nurse-midwifery strategies used in the care of well women seeking gynecological health care. (Seminar) Pre: NUR 500.

NUR 572 Practicum: Theoretical Study of Well Women's Health Care PRA (3 crs.) Clinical application of the theoretical knowledge and interventions in the care of well women in ambulatory health care settings. (Practicum) Pre: credit or concurrent enrollment in NUR 571.

NUR 573 Theoretical Study of the Childbearing Woman and Her Family SEM (3 crs.) Within a systems perspective, theories are utilized to examine client issues related to the normal childbirth experience. Knowledge and skills relevant to nurse-midwifery strategies of normal childbirth are emphasized. (Seminar) Pre: credit or concurrent enrollment in NUR 571, 572; concurrent enrollment in NUR 574.

NUR 574 Practicum: Theoretical Study of Childbearing Woman and Her Family PRA (3 crs.) Theoretical application of nurse-midwifery strategies during the normal childbirth experience. Knowledge and skills relevant to patient care are emphasized. (Practicum) Pre: concurrent enrollment in NUR 573.

NUR 575 Advanced Practice: Collaborative Nurse-Midwifery SEM (3 crs.) Within a systems perspective, theories are utilized to examine client issues of the at-risk childbirth experience. Expanded nurse-midwifery strategies related to collaborative practice within the community are emphasized. (Seminar) Pre: concurrent enrollment in NUR 576.

NUR 576 Advanced Practice: Collaborative Nurse-midwifery Practicum PRA (6 crs.) Field study of the clinical application of theoretical knowledge and skills in the at-risk childbirth experience. Use of collaborative practice and the management process within communities is emphasized. (Practicum) Pre: concurrent enrollment in NUR 575.

NUR 577 Practice And Integration Of Nurse-midwifery PRA (5 crs.) Comprehensive and practical application of clinical skills and theoretical knowledge in nurse-midwifery. Complete integration of the nurse-midwifery role with the client, family, and community. (Practicum) Pre: NUR 575 and 576.

NUR 582 Pharmacotherapeutics in Advanced Practice Nursing LEC (3 crs.) Integration of pharmacotherapeutic and decision-making theories with human pathophysiology. Case management approach to the prescription of medications in primary health care across the life span. (Lec. 3) Pre: matriculation into master's program in nursing or permission of instructor.

NUR 584 Psychopharmacotherapeutics for Child/Adolescent APRNS LEC (3 crs.) Integration of psychopharmacotherapeutics and decision-making theories with human pathophysiology utilizing case management approach to prescription of medications. Discussion of ethical, legal, professional issues related to APRN role. (Lec. 3) Pre: graduate standing or permission of instructor.

NUR 585 Advanced Child/Adolescent Psychiatric Mental Health Nursing I LEC (3 crs.) Theoretical knowledge and skills for assessing, preventing, and diagnosing common clinical problems emergent in the practice of child and adolescent advanced psychiatric mental health nursing. (Lec. 3) Pre: NUR 500 and 584; 586 must be taken concurrently.

NUR 586 Practicum in Advanced Child/Adolescent Psychiatric Mental Health Nursing I LAB (3 crs.) Clinical practicum to develop competence in the assessment and diagnosis of children and adolescents with psychiatric mental health problems. (Lab. 9)

NUR 587 Advanced Child/Adolescent Psychiatric Mental Health Nursing II LEC (3 crs.) Analysis and evaluation of theories and concepts that serve as the basis for psychiatric mental health nursing strategies for children and adolescents who present with complex psychiatric mental health problems. (Lec. 3) Pre: NUR 586; 588 must be taken concurrently.

NUR 590 Directed Study/Practice in Advanced Clinical Nursing IND (1-6 crs.) In-depth and supervised clinical practice in a specialized area of nursing. (Independent Study) Service Learning. May be repeated with different topic. Pre: graduate standing and permission of graduate faculty.

NUR 600 Philosophical Foundations of Healthcare Research LEC (3 crs.) Study of ontological and epistemological foundations of healthcare science and analysis of nursing knowledge. A variety of philosophical positions, along with implications for theory, research and practice will be considered. (Lec. 3) Pre: Enrollment in the PhD program in Nursing or permission of instructor.

NUR 602 Construction of Nursing Theory I: Inductive Process SEM (4 crs.) Study of inductive approaches to generating theory relevant to nursing science. Examination of multidisciplinary strategies for generation of theory from field data. (Seminar) Pre: enrollment in the Ph.D. program in nursing or permission of instructor.

NUR 603 Construction of Nursing Theory II: Deductive Process SEM (3 crs.) Study of deductive theory-building as applied to nursing science. Focus on the nature of deductive theories and the application of deductive process to nursing theory construction. (Seminar) Pre: enrollment in the Ph.D. program in nursing or permission of instructor.

NUR 611 Theories and Research in the Nursing Domains LEC (3 crs.) Study of Kim¿s nursing knowledge domains: client, client-nurse, practice, environment. Emphasis is on identification of phenomena of interest, concepts of interest, evaluating theories and related research for further theory development. (Lec. 3) Pre: Enrollment in PhD program or permission of the instructor.

NUR 649 Responsible Conduct of Nursing & Health Research SEM (1 cr.) This course examines issues related to the responsible conduct and dissemination of research and meets the federal guidelines for graduate training in the Responsible Conduct of Research outlined in NOT-OD-10-019. (Seminar) Pre: Admission to the College of Nursing PhD program or by permission of instructor. S/U only.

NUR 650 Research Roles & Methods in Nursing SEM (3 crs.) This course provides an overview of research roles, trajectories and classic and emerging methodologies for answering research questions relevant to nursing. The strengths and limitations of various approaches are compared. (Seminar) Pre: Admission to the College of Nursing PhD program or by permission of instructor.

NUR 651 Advanced Qualitative Methods in Nursing Research SEM (3 crs.) In-depth study of approaches used in qualitative research including philosophical underpinnings and research design, and their potential application to knowledge development in nursing. (Seminar) Pre: enrollment in the Ph.D. program in nursing and NUR 650, or permission of instructor.

NUR 652 Advanced Quantitative Methods in Nursing Research SEM (3 crs.) In-depth study of application of theories and methods in sampling, research design, data collection, and data analysis for quantitative and evaluative research in nursing. (Seminar) Pre: enrollment in the Ph.D. or D.N.P. program in nursing, NUR 650, or permission of instructor.

NUR 653 Measurement and Instrument Development in Nursing Research SEM (3 crs.) In-depth study of theories and methods relevant to measurement and instrument development for nursing and health sciences. Emphasis on measurement as an ongoing process of successive approximation, refinement, and validation. (Seminar) Pre: completion of NUR 652 or permission of instructor.

NUR 655 Applied Data Management and Analysis I ONL (3 crs.) This course provides an introduction to data management strategies, descriptive and inferential statistics and the use of the SPSS data management and analysis package. (Online)

NUR 656 Applied Data Management and Analysis II ONL (3 crs.) Presents advanced techniques for management and analysis of multiple quantitative variables. These techniques apply to complex research designs characteristic of studies of nursing problems and behavioral science questions. (Online) Pre: NUR 655.

NUR 660 Philosophical and Theoretical Bases of Health Research SEM (4 crs.) Presentation of the philosophical and theoretical bases of healthcare research. (Seminar) Pre: Enrollment in the M.S., Ph.D. or D.N.P. program in Nursing, or permission of instructor.

NUR 671 Role Development In Nursing Research SEM (3 crs.) In-depth examination of the role of the nurse researcher as a member of a multidisciplinary team and in academia. Emphasis on theories and issues related to researcher role development. (Seminar) Pre: doctoral standing in nursing.

NUR 680 Informatics in Health Care Settings LEC (3 crs.) Theory and application of nursing science, computer science and information science for decision making, practice management and communication in health care settings. (Lec. 3) Pre: D.N.P. enrollment or permission of instructor.

NUR 681 Implementation Science SEM (3 crs.) This course introduces implementation science concepts, theories and analytic tools. Students learn how to promote the uptake of research findings into healthcare practice and settings to improve population health outcomes. (Seminar) Pre: Enrollment in Nursing DNP Program, statistics course, NUR 505 or equivalent; graduate students from other colleges and/or majors with permission of instructor.

NUR 683 Secondary Analysis of Health-Related Data SEM (3 crs.) This course introduces students to methods for finding, transferring and processing existing data sources to guide advanced practice decision-making and/or to answer research questions. (Seminar) Pre: Enrollment in Nursing doctoral program (DNP or PhD), statistics course, NUR 505 or equivalent; graduate students in other colleges and/or majors with permission of instructor

NUR 686 Doctor of Nursing Practice Role Development PRA (1-6 crs.) Implement the role of the doctorally prepared advanced practice nurse in selected clinical settings. Practicum experiences will be related to research, informatics, leadership, evidence-based practice, and health care policy. Pre: Enrollment in D.N.P. program and concurrent enrollment in NUR 549, 651, 652, 680, 688 or HDF 527, or permission of instructor. May be repeated with a different focus for a maximum of 6 credits.

NUR 688 DNP Capstone Practicum and Project PRA (1-7 crs.) A synthesis of prior practicums in the student's area of interest, applying theoretical knowledge and research findings at the individual, professional, organizational, and societal levels culminating in a final written and defendable capstone project. (Practicum) Pre: MBA 540, HDF 527, and 5 credits of NUR 686; concurrent enrollment in NUR 686.

NUR 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

NUR 995 Reading and Research in Nursing IND (1-6 crs.) Advanced work by individual student on a selected issue in nursing under the direction of a faculty member. (Independent Study) Pre: graduate standing. S/U credit.

NVP | Nonviolence and Peace Studies

NVP 200 Nonviolence and Peace Studies Colloquium LEC (1 cr.) A series of speakers introduce a range of issues in nonviolence and peace studies. (Lec. 1)

NVP 399G Nonviolent Economics LEC (3 crs.) Cross-listed as (ECN), NVP 399G. Interdisciplinary consideration of Economics and Nonviolence & Peace Studies through an examination of Taoist Economics and Buddhist Economics, and how these two perspectives apply to contemporary policy and ethical issues. (Lec. 3) (A2) (GC)

NVP 425 Peace Psychology LEC (3 crs.) Cross-listed as (PSY), NVP 425. Peace psychology combines aspects of cognitive, social, clinical and cross-cultural psychology that bear on the prevention of violence and the promotion of constructive nonviolent behavior. (Lec. 3/Online) Pre: Prior coursework in psychology, or permission of instructor. Prior coursework in another social science is recommended.

NVP 500 Theory and Research on Nonviolence and Peace LEC (3 crs.) Cross-listed as (NVP), PSY 500. Surveys selected issues in the interdisciplinary field of Nonviolence and Peace Studies. It focuses on human problem solving in potentially violent situations, and the creation of conditions for peace. (Online)

OCE | Ocean Engineering

OCE 101 Introduction to Ocean Engineering SEM (1 cr.) Overview of ocean engineering topics pointing out the common areas with other engineering branches but emphasizing specific ocean applications. (Seminar)

OCE 205 Ocean Engineering Design Tools LEC (4 crs.) An introduction to design and analysis tools for ocean engineering including computer aided design (CAD) in two- and three-dimensions, circuit layout and analysis, hydrodynamic modeling, mathematical computation, visualization, and algorithm development. (Lec. 3, Lab. 1) Pre: EGR 106 or permission of instructor.

OCE 206 Ocean Measurements and Instrumentation LEC (3 crs.) Ocean measurement and instrumentation exercises using boats and laboratories. Includes acceleration, force, wave characteristics, and sediment properties. Application of several techniques related to data sampling and signal processing. (Lec. 2, Lab. 1) Pre: OCE 205, PHY 204 and PHY 274 (or PHY 204H, 274H), or permission of instructor.

OCE 213 Computer Programming for Ocean Engineers LEC (3 crs.) Cross-listed as (OCE 213), CSC 203. Computer programming, with an emphasis on ocean engineering problems; developing codes in

MATLAB /Python, covering standard topics including algorithms, procedural programming, OOP, conditional statements, Inputs/Outputs, Monte-Carlo methods, and optimization problems. (Lec 3.) Pre: MTH 243) or permission of instructor

OCE 301 Fundamentals of Ocean Mechanics LEC (4 crs.) Mathematical methods for the analysis of ocean phenomena; Fourier analysis; partial differential equations for modeling water wave and underwater acoustics; vector calculus in wave mechanics; fundamental probability theory and applied statistics. (Lec. 3) Pre: MTH 244 and OCE 205 or permission of instructor.

OCE 311 Coastal Measurements and Applications LEC (4 crs.) Exercises in basic coastal measurement from vessels, in situ, and in the laboratory. Experiments in measuring currents, surface elevation, wave and wave forces, geotechnical properties and applications, and acoustic propagation. (Lec. 2, Lab. 4) Pre: OCE 206 and MCE 354, or permission of instructor.

OCE 315 Hydrodynamics Laboratory for Ocean Engineers LAB (1 cr.) Supplemental fluid mechanics and hydrodynamics laboratory for ocean engineers enrolled in fluid mechanics. Covers topics in model testing, force coefficients, potential flow, lifting surfaces, and external fluid flows. (Lab. 1) Pre: Credit or concurrent enrollment in MCE 354 or permission of instructor.

OCE 360 Robotic Ocean Instrumentation Design LEC (3 crs.) Design of robotic ocean instrumentation systems featuring team-based, hands-on projects. Includes power, sensor, communication, propulsion and control system design for remotely operated and autonomous ocean instruments and underwater vehicles. (Lec. 2, Lab. 3) Pre: OCE 206 or permission of instructor.

OCE 394 Design Applications in Ocean Engineering LEC (3 crs.) Application of fundamental design principles for an ocean floating structure. Incorporation of regression analysis, hydrostatic analysis, structural mechanics, and environmental loading in an ocean system concept design. (Lec. 2, Lab. 1) Pre: OCE 315 or permission of instructor.

OCE 408 Introduction to Engineering Wave Mechanics and Littoral Processes LEC (4 crs.) Description of coastal area. Linear wave theory and applications. Sediment transport and beach dynamics. Coastal protection methods. Coastal engineering problem solving with Matlab. (Lec. 4) Pre: PHY 205, MCE 354, OCE 315 and OCE 301, or permission of instructor.

OCE 416 Ocean Engineering Professional Practice LEC (2 crs.) Introduction to professional practice in Ocean Engineering, including contemporary issues in the field, career planning and placement, life long learning strategies, professional licensure process, publication and presentation, and project management. (Lec. 2)

OCE 421 Coastal Structure Design LEC (3 crs.) Review of wave mechanics; design breaker; probability and random variables; probabilistic wave elevation height models; short-term and long-term wave statistics; probability distribution models for extreme events; selection of design waves and water levels; wave run-up and overtopping; design of rubble mound structures; design of vertical breakwaters/seawalls; wave forces on vertical piles. (Lec. 3) Pre: OCE 408 or permission of instructor.

OCE 422 Offshore Structure Design LEC (3 crs.) Cross-listed as (OCE), CVE 422. Introduction to offshore structures, structural modeling, structural dynamic analysis, structural design for storms, structural design against fatigue failure. (Lec. 3) Pre: OCE 421. Not for graduate credit.

OCE 425 Coastal Experiments LEC (4 crs.) Basic coastal measurement techniques for coastal management. Experimental (field and laboratory) measurements of physical and geological parameters. Major student designed, operated, and reported experiment addressing a practical problem. (Lec. 2, Lab. 4) Not for credit in ocean engineering. Pre: MTH 107 or 108 or equivalent.

OCE 456 Foundations of Robotics LEC (3 crs.) Cross-listed as (ELE), MCE, OCE 456. The course provides the theoretical background to formulate and address problems in robotics. Its objective is to give a basic understanding of robot kinematics, sensing, actuation, localization, control, and planning. (Lec. 3) Pre: PHY 204 and permission of instructor

OCE 467 Design of Remotely Operated Vehicles LEC (3 crs.) This course will provide the students with the fundamental elements of remotely operated vehicle (ROV) design, and the specifics of ROV components. (Lec. 3) Pre: OCE 360 or permission of instructor.

OCE 471 Underwater Acoustics LEC (4 crs.) Vibrations, the acoustic wave equation, duct acoustics, and sound pressure levels and spectra. Underwater acoustics including transducers, arrays, surface and bottom scattering, and ray propagation. (Lec. 3) Pre: OCE 301 and PHY 205. Not for graduate credit.

OCE 472 Sonar Systems Design LEC (3 crs.) Fundamentals of design of sonar systems. Effects of sound propagation in deep and shallow oceans, noise, scattering on system performance. Array, transducer, and signal design. Passive and active sonar applications. (Lec. 3) Pre: 471.

OCE 483 Shallow Foundations LEC (3 crs.) Cross-listed as (CVE), OCE 483. Applications of geotechnical engineering principles to analysis and design of shallow foundations. Foundation types, lateral earth pressures, bearing capacity, settlement, gravity retaining walls, cantilever sheet pile walls. (Lec. 3) Pre: CVE 381 or permission of instructor.

OCE 491 Special Problems I IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. Not for graduate credit.

OCE 492 Special Problems II IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson. Not for graduate credit.

OCE 495 Ocean Systems Design Project I LEC (3 crs.) Capstone design of an ocean system under the direction of a faculty advisor. Project must include engineering, economic, environmental, safety, and societal considerations. This is first of a two-course ocean engineering design sequence. Pre: OCE 394, senior standing, and permission of instructor. Not for graduate credit.

OCE 496 Ocean Systems Design Project II LEC (3 crs.) Capstone design of an ocean system under the direction of a faculty advisor. Project must include engineering, economic, environmental, safety, and societal considerations. This is second of a two-course ocean engineering design sequence. Pre: permission of instructor. Not for graduate credit. (D1) (B2)

OCE 500 Ocean Engineering Design Studies LEC (1-6 crs.) Off-campus ocean engineering design studies. Must include significant hands-on (laboratory or field) experience, use of engineering design tools, and the design, development, test and evaluation of hardware/software systems. Pre: Junior standing in Ocean Engineering and permission of department chair.

OCE 506 Numerical Models and Data Analysis in Ocean Sciences LEC (3 crs.) Cross-listed as (OCG), OCE 506. An introduction to numerical methods in all disciplines of oceanography and ocean engineering. Topics include model formulation, analysis, and simulation; data analysis and parameter estimation. Problem solving with Matlab and C in the weekly computer laboratory. (Lec. 2, Lab. 3)

OCE 510 Engineering Ocean Mechanics LEC (3 crs.) Fundamental equations of estuarine and coastal hydrodynamics. Scaling of governing equations. Long period waves including seiches, tides, storm surges, and tsunamis. Wind- and estuarine-induced circulation. Pollutant and sediment transport. (Lec. 3) Pre: MCE 354 or equivalent.

OCE 512 Ocean Waves and Storm Surge Modeling LEC (3 crs.) Cross-listed as (OCG), OCE 512. Wind wave generation, evolution, and dissipation. Statistical description of surface waves. Interaction between waves and currents. Wave prediction models. Observational methods of waves. Storm surge models and prediction. (Lec. 3) Pre: OCE 408 or equivalent, or permission of instructor.

OCE 513 Ocean Renewable Energy LEC (3 crs.) Cross-listed as (OCE), OCG 513. Introductory topics related to global ocean renewable energy, including fundamentals of hydrokinetic, tidal, and wave energy, leading energy devices, and more advanced topics including resource assessment and environmental interactions. (Lec. 3) Pre: MCE 354 or permission of instructor.

OCE 514 Engineering Wave Mechanics and Nearshore Processes LEC (3 crs.) Linear water wave boundary value problem. Engineering wave properties. Nonlinear waves (long waves, Stokes waves, stream function waves). Nearshore hydrodynamics and wave breaking. Fully nonlinear transient waves. (Lec. 3) Pre: MCE 455 or equivalent.

OCE 516 Biomimetics in Ocean Engineering LEC (3 crs.) Biologically-inspired design mechanics in ocean engineering applications. Topics include unsteady propulsion (fish swimming), dynamic lift, high-speed maneuvering, energy extraction, drag reduction, and optimization. Pre: EGR 515 or permission of instructor. (Lec. 3)

OCE 517 Fluid-Structure Interactions and Floating Body Dynamics LEC (3 crs.) Covers fundamental concepts and specific topics related to general fluid structure interactions including floating body dynamics and flow-induced vibrations. (Lec. 3) Pre: EGR 515 or equivalent or permission of instructor.

OCE 522 Dynamics of Waves and Structures LEC (3 crs.) Deterministic analysis for SADOF structures; MDOF dynamic analysis; distributed-parameter systems; linear and second-order Stokes wave theories; wave forces on cylinders; chaotic vibration of marine structures. (Lec. 3) Pre: MCE 464 or permission of instructor.

OCE 534 Corrosion and Corrosion Control LEC (3 crs.) Cross-listed as (CHE), OCE 534. Chemical nature of metals, electrochemical nature of corrosion. Types of corrosion, influence of environment, methods of corrosion control. Behavior of engineering materials in corrosion with emphasis on industrial and ocean environments. (Lec. 3) Pre: permission of instructor.

OCE 550 Ocean Systems Engineering LEC (3 crs.) Cross-listed as (OCE), ELE 550. Introduction to the design of systems for use in the ocean environment with emphasis on interaction of various subsystem disciplines to achieve total system performance characteristics. Introduction to detection, localization, classification and time measurement strategies including Global Positioning system, underwater Acoustics Positioning and control, wireless acoustic and electromagnetic communication, and remote time transfer. Examples will include mobile, fixed, autonomous, distributed and networked sensors. Pre: MTH 451 or equivalent.

OCE 555 Modern Oceanographic Imaging and Mapping Techniques LEC (3 crs.) Cross-listed as (OCG), OCE 555. Overview of current imaging and mapping techniques used in oceanography and ocean engineering including; photographic and laser imaging, side scan and multibeam sonar; underwater vehicle navigation and map making. (Lec. 3) Pre: undergraduates - OCE 471 or permission of instructor; graduate students - none, this is an overview course appropriate for science-focused graduate students.

OCE 560 Introduction to Data Collection Systems LEC (3 crs.) Practical problems of data collection. Probes and sensors, interfaces, signal conditioning, and storage. Examples found among the current research areas within ocean engineering will be emphasized. (Lec. 3) Pre: graduate standing in engineering or permission of instructor. In alternate years.

OCE 561 Introduction to the Analysis of Oceanographic Data LEC (3 crs.) Design of oceanic experiments to determine spatial and temporal sampling rate, precision, accuracy, signal-to-noise ratio, etc. Description of typical ocean data collection and analysis systems. Development of relevant techniques. (Lec. 3) Pre: ISE 311 (411), MTH 451, or equivalent.

OCE 562 Modeling, Simulation and Control of Marine Vehicles LEC (3 crs.) Design of control systems for surface and underwater vehicles; Development of linear and nonlinear maneuvering models; heading and sea-keeping autopilots; waypoint navigation; thruster and control surface modeling. (Lec. 3) Pre: EGR 515 or permission of instructor.

OCE 565 Ocean Laboratory I LEC (3 crs.) Measurements, experiments, operation of apparatus in the ocean and in the laboratory. Statistical theory, planning multivariable experiments, checking of data, etc. (Lec. 1, Lab. 6) Pre: graduate standing in engineering or oceanography, or permission of instructor.

OCE 571 Underwater Acoustics I LEC (3 crs.) Cross-listed as (OCE), ELE 571. Introduction to sound generation, transmission, and reception, including vibration of mechanical systems, acoustic waves in fluids, acoustic transducers and arrays, acoustic propagation in the ocean, and sonar systems. (Lec. 3)

OCE 572 Underwater Acoustic Transducers LEC (3 crs.) Theory, design, and calibration of electroacoustical transducers including dynamical analogies and equivalent circuits, piezoelectric and magnetostrictive materials, transmitting and receiving responses, reciprocity and acoustic measurements. (Lec. 3) Pre: OCE 471 or equivalent.

OCE 575 Marine Bioacoustics LEC (3 crs.) Introduction to marine mammal hearing, sound production, and the uses of sound for communication and echolocation; dolphin sonars; analysis and processing of marine mammal signals including passive tracking; the effects of noise on marine mammals. (Lec. 3) Pre: OCE 471 or permission of instructor.

OCE 581 Experimental Geomechanics LEC (3 crs.) Cross-listed as (CVE), OCE 581. Advanced methods and techniques of geotechnical testing. Behavior of granular and cohesive soils with determination of engineering properties. Interpretation, evaluation, and engineering applications of test data. Emphasis on shearing strength, consolidation, bearing capacity, earth pressures, seepage, and slope stability. (Lec. 3) Pre: CVE 381 or equivalent.

OCE 582 Marine Geotechnics LEC (3 crs.) Cross-listed as (OCE), CVE 582. Geotechnical engineering principles as applied to marine problems. Site survey and in-situ testing, soil properties, shallow foundations and deadweight anchors, piles and pile anchors, direct and drag embedment anchors, scour. (Lec. 3) Pre: CVE 381 or equivalent or OCE 311, or permission of instructor.

OCE 583 Deep Foundations LEC (3 crs.) Cross-listed as (CVE), OCE 583. Applications of soil mechanics principles to analysis and design of piles and drilled shafts under vertical and lateral loading. Static and dynamic load testing. Introduction to ground improvement technologies. (Lec. 3) Pre: CVE 381 or equivalent.

OCE 591 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

OCE 592 Special Problems IND (1-6 crs.) Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

OCE 599 Master's Thesis Research IND (1-9 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

OCE 605 Ocean Engineering Seminar SEM (1 cr.) Seminar discussions including presentation of papers based on research or literature survey. (Seminar) S/U credit.

OCE 606 Ocean Engineering Seminar SEM (1 cr.) Seminar discussions including presentation of papers based on research or literature survey. (Seminar) S/U credit.

OCE 661 Analysis of Oceanographic Data Systems LEC (3 crs.) Design of systems for deep-ocean and estuarine data collection and processing. Space-time sampling, multivariate analysis, and convergence of moments as applied to ocean data estimation and system design. Current topics in ocean data systems. (Lec. 3) Pre: OCE 560 or ELE 506 or equivalent.

OCE 672 Underwater Acoustics II LEC (3 crs.) Cross-listed as (OCE), ELE 672. Sound transmission in ocean, transducers, active signal design for range and Doppler resolution, ambient and platform noise, classical and wave vector-frequency methods of beamforming, adaptive beamforming, characteristics of targets, and active/passive sonar systems. (Lec. 3) Pre: OCE 571.

OCE 673 Advanced Course in Underwater Acoustic Propagation LEC (3 crs.) Analysis of propagation from a concentrated acoustic source in the ocean by methods such as advanced normal mode theory, numerical integration, and Fast Fourier Transforms. Applications to ocean features such as surface ducts, shadow zones, deep-sound channel, etc. (Lec. 3) Pre: OCE 571 or equivalent.

OCE 676 Acoustic Radiation from Underwater Vibrators LEC (3 crs.) Fundamentals of acoustic radiation from submerged structures. Radiation from planar, cylindrical, and spherical surfaces. In-vacuo and in-fluid vibration of elastic bodies. Acoustic coincidence and fluid-loading effects on radiation from elastic bodies. (Lec. 3) Pre: OCE 571 or permission of instructor.

OCE 677 Statistical Sonar Signal Processing LEC (3 crs.) Cross-listed as (ELE), OCE 677. Basic results in probability and statistics, signal processing, and underwater acoustics are applied to the design of detection, estimation, and tracking in active sonar, passive sonar, and underwater acoustic communication. (Lec. 3) Pre: MTH 451 or ELE 509, ELE 506, and ELE 571 (or OCE 571), or equivalents. ELE 510 is useful and closely related, but not required.

OCE 691 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

OCE 692 Special Problems IND (1-6 crs.) Advanced work under supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of chairperson.

OCE 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

OCG | Oceanography

OCG 103G Impact of Global Change on Coastal New England LEC (3 crs.) The relationship between science and society will be explored with a range of environmental change topics related to climate change (e.g., sea level rise, major storm frequency) and societal change (e.g., population trends, globalization). (Lec. 3) (A1) (C2) (GC)

OCG 106G You, Me, and Life in the Sea LEC (3 crs.) The ocean hosts an incredible array of life, from bacteria to blue whales. This course explores the biodiversity of life in the ocean and their relationship to humans. (Lec. 3) (A1) (B4) (GC)

OCG 108G Living by the Ocean LEC (3 crs.) About 44 percent of the world's population lives within 150 kilometers of the sea. It is important for us to understand some great challenges that we are facing related to the ocean. This course will cover topics including but not limited to natural hazards, pollution, and ocean conservation. (Lec. 3) (D1) (GC)

OCG 110 The Ocean Planet LEC (3 crs.) Cross-listed as (OCG), GEO 110. Introduces the origin and structure of the solar system; interaction of earth's solid interior, oceans' atmosphere and biosphere with emphasis on earth science; energy resources and present environment on Earth. (Lec. 3) (A1) (B4)

OCG 111 Ocean Exploration LEC (3 crs.) An introduction to the basic tenants of oceanography as illustrated by the significant scientific discoveries that have shaped our understanding of the ocean its role on the planet. (Lec. 3) (A1) (B3)

OCG 120G The World of Robots LEC (3 crs.) A guide to living with robots at home and at work; covering the fundamentals of robotic systems, future trends and surrounding issues such as ethics, privacy, safety and economics. (Lec. 2.5, Lab. .5) (A1) (B4) (GC)

OCG 123G Climate Change and the Oceans LEC (3 crs.) The impact of human activities on the climate system, with emphasis on the ocean, set against a background of natural processes in and history of global environmental changes. (Lec. 3) (A1) (C2) (GC)

OCG 131G Volcanoes And The Environment LEC (3 crs.) General introduction to volcanic eruptions and their impact on the global environment and on human activity. Basic principles of the generation of magmas and their eruption at the earth's surface. (Lec. 3) (A1) (B4) (GC)

OCG 150 Coastal Oceanographic Data in RI Waters LEC (3 crs.) Collecting oceanographic data during on-the-water field experience in Rhode Island coastal waters. Students work in teams constructing, deploying, recovering and analyzing data from various oceanographic instruments. Declared STEM majors only. (Lec., Lab.)

OCG 200G Extreme Weather LEC (3 crs.) Introduction to the observations, theories and forecasts of weather phenomena with focus on extreme weather. Learn the vocabulary and specifics of weather, put these facts together to understand key weather principles and then apply those principles to decision making. (Lec. 3) (A1) (C2) (GC)

OCG 250 Global Ocean Data Science Analysis and Visualization LEC (3 crs.) Students will access oceanographic data from local and global depositories: satellites, floats, and gliders. Students will manipulate, graph, and visualize data of increasing complexity while coding to visualize oceanographic events. (Lec. 3) Pre: credit for or concurrent enrollment in a 100-level calculus, or equivalent. (B3) (B4)

OCG 301 General Oceanography LEC (3 crs.) Oceanography for undergraduate marine biology majors. General survey of the major disciplines including geological, physical, chemical and biological oceanography integrated into a study of the earth's ocean system. (Lec. 3) Pre: at least one year of biological or physical science with laboratory.

OCG 350 Ocean Food Web Exploration and Analysis LEC (3 crs.) Ocean data are collected, analyzed and used by student teams to build food-web models of marine ecosystems. Student field and laboratory data are augmented with archived data. Computer programming instruction is provided. (Lec. 2, Lab. 1) Pre: credit or concurrent enrollment in a 100-level calculus course. (D1) (B3)

OCG 351 Oceanographic Data Integration II LEC (3 crs.) Introduction to the basics of conceptual, analog and numerical modeling and simulation of oceanographic data at different spatial and temporal scales. (Lec. 3) (D1) (B3)

OCG 404 Environmental Data Acquisition and Analysis LEC (3 crs.) Cross-listed as (OCG), NRS, GEO 404. Introduction to instrument prototyping and measurements in environmental science. Hands-on with data collection: programming microcontrollers, interfacing hardware and software, wireless sensor networks. Data analysis in Python. (Lec. 2, Lab. 1) Pre: MTH 131 or MTH 141.

OCG 420 Deep-sea Biology LEC (3 crs.) Overview of the biology and ecology of the deep sea, including organisms and habitats, spatial and temporal patterns, physiology and adaptations, energetics, evolution and hydro-thermal vent ecology. (Lec. 3) Pre: one semester general biology (BIO 100, 101, 102, 103, 104, 130, 141) and one semester general chemistry (CHM 101, 103). One semester ecology or oceanography recommended (OCG 123, 301, 451, BI0 455).

OCG 440 Geological Oceanography LEC (4 crs.) Origin and evolution of the ocean basin and its margin: morphology, structure, plate tectonics, volcanism, geochemistry, stratigraphy, sedimentation, and paleoceanography. (Lec. 3, Lab. 2) Pre: GEO 103 or permission of instructor. Not for graduate credit.

OCG 451 Oceanographic Science LEC (3 crs.) Oceanography for undergraduate science majors. The approach used is to present and apply basic physical, chemical, geological, and biological principles to the integrated study of the world ocean system. (Lec. 3) Pre: two semesters of MTH 131 and 132 or 141 and 142, one semester of CHM

101 and 102 or 191, one semester of PHY 111 and 185 or 203 and 273 or 213 and 285. A second semester of CHM 112 and 114 or 192 is recommended. Not for graduate credit in oceanography.

OCG 480 Introduction to Marine Pollution LEC (3 crs.) Cross-listed as (OCG) CVE 480. An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport, and fate of pollutants in the coastal marine environment. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103) is recommended. Not for graduate credit.

OCG 483 Laboratory And Research Problems In Physics LEC (3 crs.) Cross-listed as (PHY), AST, OCG 483. Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: PHY 381 and 382.

OCG 484 Laboratory and Research Problems In Physics LEC (3 crs.) Cross-listed as (PHY), AST, OCG 484. Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: PHY 381 and 382. (D1) (B3)

OCG 491 Ocean Studies IND (15 crs.) Full-time intensive work experience with Graduate School of Oceanography research at Narragansett Bay Campus. Student expected to participate in research program, seminars, and other activities of Bay Campus. (Independent Study) Pre: junior standing in natural sciences, natural resources, or engineering, and permission of supervising faculty member. Not for graduate credit in oceanography. S/U only.

OCG 493 Special Problems And Independent Study In Oceanography IND (1-6 crs.) Research in oceanography conducted as supervised individual study. (Independent Study) Pre: junior or senior standing in natural science, natural resources, or engineering, and permission of instructor. S/U only.

OCG 494 Special Problems And Independent Study In Oceanography IND (1-6 crs.) Research in oceanography conducted as supervised individual study. (Independent Study) Pre: junior or senior standing in natural science, natural resources, or engineering, and permission of instructor. S/U only.

OCG 501 Physical Oceanography LEC (3 crs.) Basic course covering physical properties of seawater, heat budget, distribution of variables, dynamics, water masses and general circulation, waves and tides. (Lec. 3) Pre: PHY 111 or 203 and MTH 131 or 141 or permission of the instructor. Although PHY 111 is acceptable, PHY 203 is strongly recommended.

OCG 502 Marine Geobiology SEM (3 crs.) This course will focus on the role of marine microbes in Earth's biogeochemical cycles, their effect on Earth history, and the nature of microbial life in marine geologic systems. (Seminar)

OCG 505 Marine Analytical Chemistry LEC (3 crs.) Application of analytical methods to marine problems with emphasis on understanding basic methods and instruments. Combines general principles with practical experience. Students conduct analytical projects in the laboratory. (Lec. 1, Lab. 2)

OCG 506 Numerical Models and Data Analysis in Ocean Sciences LEC (3 crs.) Cross-listed as (OCG), OCE 506. An introduction to numerical methods in all disciplines of oceanography and ocean engineering. Topics include model formulation, analysis, and simulation; data analysis and parameter estimation. Problem solving with Matlab and C in the weekly computer laboratory. (Lec. 2, Lab. 3)

OCG 507 Oceanography for Educators LEC (3 crs.) Survey of ocean science concepts. Investigation of marine issues that affect the environment. Ten hours in the field. Integration of national science education standards and inquiry based pedagogy. (Lec. 3) Pre: CHM 100 and BIO 113 (or equivalent). A semester of general geology (GEO 100 or 103) and at least one college level math course are recommended.

OCG 508 Global Environmental Change Education LEC (3 crs.) Survey of global environmental change issues focusing on environmental systems, related ocean science topics, and local marine and coastal environments. Integration of national science education standards and inquiry-based pedagogy. (Lec. 3) Pre: CHM 100 and BIO 113 (or equivalent). A semester of general geology (GEO 100 or 103) is recommended.

OCG 510 Descriptive Physical Oceanography LEC (3 crs.) Observed distributions of temperature, salinity, currents; methods of deducing deep flow; physical properties of seawater; flow in estuaries; practical work in the analysis of oceanographic data; study of recent literature. (Lec. 3) Pre: OCG 501.

OCG 512 Ocean Waves and Storm Surge Modeling LEC (3 crs.) Cross-listed as (OCG), OCE 512. Wind wave generation, evolution, and dissipation. Statistical description of surface waves. Interaction between waves and currents. Wave prediction models. Observational methods of waves. Storm surge models and prediction. (Lec. 3) Pre: OCE 408 or equivalent, or permission of instructor.

OCG 513 Ocean Renewable Energy LEC (3 crs.) Cross-listed as (OCE), OCG 513. Introductory topics related to global ocean renewable energy, including fundamentals of hydrokinetic, tidal, and wave energy, leading energy devices, and more advanced topics including resource assessment and environmental interactions. (Lec. 3) Pre: MCE 354 or permission of instructor.

OCG 517 Foundations Of Earth System Dynamics LEC (3 crs.) Introduction to the fundamental principals underlying fluid dynamics as applied to the study of specific problems and processes in earth, marine and environmental sciences. Basics of numerical modeling are covered. (Lec. 3) Pre: MTH 141 and 142, or equivalent.

OCG 519 Marine Environmental Organic Chemistry LEC (3 crs.) Cross-coded with (OCG), GEO, CVE 519. Physico-chemical properties of organic compounds, their transformations and environmental fluxes with a focus on marine topics. Offered alternate years. (Lec. 3) Pre: graduate standing or permission of instructor.

OCG 521 Chemical Oceanography LEC (3 crs.) Processes regulating the composition of seawater and the distribution of chemical species. The interaction of marine chemistry with the ocean floor, atmosphere, and marine organisms. (Lec. 2, Lab. 2) Pre: CHM 101 and 112 and PHY 213.

OCG 523 Organic Geochemistry Of Natural Waters LEC (3 crs.) Chemistry of organic matter in natural waters with emphasis on the marine environment. Topics include a consideration of the origin, nature, and biogeochemical reactions of organic matter in aquatic environments. (Lec. 3) Pre: CHM 228 or permission of instructor.

OCG 524 Atmospheric Pollution and the Upper Ocean LEC (3 crs.) Gas and aerosol chemistry and physics; land-air-sea transfer of N, S, C, halogen, and metal compounds; effects of air pollution on the marine atmosphere and upper ocean. (Lec. 3) Pre: CMB 435 or CHE 313 or CHM 431 or MCE 341 or PHY 420 or permission of instructor.

OCG 525 Chemistry of the Earth LEC (3 crs.) Cross-listed as (OCG), GEO 525. Analysis of the solid Earth, ocean and atmosphere as a geological/chemical/biological system. Fundamentals of geochemistry will be developed within the context of broad Earth science questions: Earth formation, differentiation, evolution and human impacts. (Lec. 3) Pre: graduate or advanced undergraduate standing in a science major or permission of instructor.

OCG 530 Principles of Ocean Circulation LEC (3 crs.) Provides a dynamical framework for understanding ocean circulation. Covers how ocean circulation is observed, wind and buoyancy-forced circulation, water-mass formation processes, heat/fresh water transport, mixing, and meridional overturning circulation. (Lec. 3) Pre: OCG501.

OCG 533 Graduate Writing In Marine and Environmental Sciences LEC (3 crs.) Graduate writing in marine and environmental sciences; writing and editing journal articles and abstracts; principles and practice in scientific writing. Pre: graduate standing and WRT 104 or 106, or permission of instructor.

OCG 535 Climate, Radiation, Gases and Aerosols LEC (3 crs.) Role of short- and long-wave radiation in climate. Occurrence and consequences of natural and enhanced concentrations of radiatively-active gases. Role of aerosols and associated forcings and feedbacks. (Lec. 3) Pre: PHY 205 or 214, CHM 192 or permission of instructor.

OCG 539 Hacking for Environment: Oceans LEC (3 crs.) Cross-listed as (OGC), MBA 539. Students will tackle complex problems critical to our oceans and the environment. They will learn to apply entrepreneurial methods and tools to solve real-world problems in teams of students and in collaboration with mentors/sponsors. Gain marketable skills through a flipped-classroom approach and learning Lean LaunchPad principles. (Lec. 1, Project 2)

OCG 540 Geological Oceanography LEC (4 crs.) Origin and evolution of the ocean basin and its margin: morphology, structure, plate tectonics, volcanism, geochemistry, stratigraphy, sedimentation, and paleoceanography. (Lec. 3, Lab. 2) Pre: GEO 103 or permission of instructor.

OCG 545 Volcaniclastic Sedimentation LEC (3 crs.) Generation of volcanic particles by explosive volcanism, the processes by which they are dispersed on land and in the sea, and physical characteristics of their deposits in different volcanic environments. (Lec. 3) Pre: OCG 540 or permission of instructor.

OCG 555 Modern Oceanographic Imaging and Mapping Techniques LEC (3 crs.) Cross-listed as (OCG), OCE 555. Overview of current imaging and mapping techniques used in oceanography and ocean engineering including; photographic and laser imaging, side scan and multibeam sonar; underwater vehicle navigation and map making. (Lec. 3) Pre: undergraduates - OCE 471 or permission of instructor; graduate students - none, this is an overview course appropriate for science-focused graduate students.

OCG 560 Ecosystem-Based Fisheries Science & Management LEC (3 crs.) Cross-listed as (AFS), OCG 560. The scientific components of ecosystem-based fisheries management: climate variation, trophic interactions, habitat, bycatch, and human dimensions. Classes emphasize problem-solving through case studies of domestic and international fisheries. (Lec. 3) Pre: Graduate standing or instructor permission.

OCG 561 Biological Oceanography LEC (3 crs.) Biology and ecology of marine ecosystems; role of ocean biology in global biogeochemical processes; Emphasis on marine plankton; patterns of distribution, productivity and species interactions. (Lec. 3) Pre: general ecology.

OCG 562 Biological Oceanography - Laboratory LAB (1 cr.) Course covers measurement and analysis techniques commonly used in biological oceanography. Includes laboratory work, computer exercises and research cruises on Narragansett Bay. This course supplements OCG 561 and lectures and reading from that class are essential preparation for the labs. Evaluation based on participation in all the exercises and a cumulative laboratory reports. (Lab. 1) Pre: OCG 561.

OCG 569 Oceanographic Processes LEC (3 crs.) Broad survey of general oceanography. The approach is to present and apply basic geological, physical, chemical, and biological principles to the integrated study of the world ocean system. (Lec. 3) Pre: permission of instructor.

OCG 576 Marine Microbial Ecology LEC (4 crs.) Cross-listed as (OCG), CMB 576. Examines role of microbes in the oceans and their impact on oceanographic processes and biogeochemical cycles. Emphasis is on bacteria and their interactions with other marine organisms and the marine environment. Laboratory exercises make use of modern techniques to study metabolic rates and community structure. (Lec. 3, Lab. 3) Pre: permission of instructor.

OCG 579 Special Topics on Emerging Contaminants LEC (2 crs.) Cross-listed as (PHC), CHE, OCG 579. Introduction to emerging contaminants such as PFASs, focusing on their chemistry, detection, epidemiology, human health, metabolism, and remediation, as well as interdisciplinary collaboration, research translation, community engagement, and professional development. (Lec. 2) Pre: graduate standing. S/U only.

OCG 580 Introduction To Marine Pollution LEC (3 crs.) Cross-listed as (OCG), CVE 580. An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport and fate of pollutants in the coastal marine environment. Review papers or research proposals will be required. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103).

OCG 591 Individual Study IND (1-6 crs.) Individual study of assigned topics or special problems involving literature search and/or original investigation under one or more members of the faculty. (Independent Study)

OCG 592 Individual Study LEC (1-6 crs.) Individual study of assigned topics or special problems involving literature search and/or original investigation under one or more members of the faculty. (Independent Study)

OCG 593 Special Studies IND (1-4 crs.) Studies of specialized topics in the marine sciences. (Independent Study)

OCG 594 Special Studies IND (1-4 crs.) Studies of specialized topics in the marine sciences. (Independent Study)

OCG 599 Master's Thesis Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor. (Independent Study) S/U credit.

OCG 601 Ocean Resilience ONL (3 crs.) Course focuses on complex issues related to changes in the ocean environment. Topics include climate change, sea level rise, fisheries management, marine pollution, natural hazards and emerging ocean energy initiatives. (Accelerated Online Program) Pre: Matriculating URI Online Masters of Oceanography student, one URI Online Masters of Oceanography core course (OCG 501, 521, 540 or 561) or permission of instructor.

OCG 605 Dynamical Oceanography LEC (3 crs.) Simple steady-state theories applied to ocean motion. Review of well-known force balances in oceanography, wind-driven circulation, thermohaline circulation, the thermocline, oceanic boundary layers, nearshore circulation, diffusion. (Lec. 3) Pre: OCG 501.

OCG 610 Geophysical Fluid Dynamics I LEC (3 crs.) Natural world fluid dynamics emphasizing ocean circulation. Classical fluid dynamics; GFD fundamentals (rotation and stratification); Taylor-Proudman theorem; potential vorticity; planetary waves; geostrophic contours; shallow water quasi-geostrophic theory; frictional layers. (Lec. 3) Pre: OCG 605 or permission of instructor.

OCG 611 Geophysical Fluid Dynamics II LEC (3 crs.) Continuously stratified quasi-geostrophic theory; classical and modern theories of the wind-driven ocean circulation; stability theory; oceanic convection; wave-mean flow interactions; ageostrophic dynamics; topographical effects. (Lec. 3) Pre: OCG 610 or permission of instructor.

OCG 613 Waves LEC (3 crs.) Generation, propagation, and decay of surface waves, internal waves, and Rossby waves in the ocean. (Lec. 3) Pre: MCE 550 or permission of instructor.

OCG 614 Tides LEC (2 crs.) Generation, propagation, and dissipation of ocean tides. Earth tides. Relation between theory and observation. Tidal analysis. (Lec. 2) Pre: OCG 501.

OCG 620 Chemical Distributions LEC (3 crs.) Interdisciplinary study of the processes responsible for oceanic chemical distributions with emphasis on conservative properties, biologically active constituents, and radionuclides. Includes projects involving data-processing analysis. (Lec. 3) Pre: OCG 501, 521, 540, and 561 or permission of instructor.

OCG 623 Physical Chemistry Of Seawater LEC (3 crs.) Characterization of dissociation, solubility, and redox equilibria in seawater. Partial molar volumes, conductivity, and diffusion of ions in seawater. Kinetic studies in seawater; effect of temperature, salinity, and pressure on physiochemical properties in seawater. (Lec. 3) Pre: OCG 521 and CHM 432 or permission of instructor.

OCG 625 Organic Geochemistry Of Sediments LEC (3 crs.) Chemistry of organic matter in recent to ancient sediments. Topics include the source, characterization, significance, and fate of sedimentary

organic compounds with emphasis on the marine environment. (Lec. 3) Pre: OCG 523 or permission of instructor.

OCG 628 High-Temperature Geochemistry LEC (3 crs.) Principles and factors governing the distribution of trace elements in volcanic processes. Applications to the study of rock genesis, mantle dynamics, oceanic crust formation, and hotspots. (Lec. 3) Pre: CHM 431 or equivalent, or permission of instructor.

OCG 631 Seminar In Marine And Atmospheric Chemistry SEM (1 cr.) Discussion of problems of current interest in marine chemistry. (Seminar) Pre: OCG 521 or permission of instructor. S/U credit.

OCG 643 Subduction Zones LEC (3 crs.) Structure, petrology, and geochemistry of subduction zones, island arcs, and other magmatic arcs at convergent plate margins. Petrogenesis of andesites and related magmas. (Lec. 3) Pre: OCG 540 or permission of instructor.

OCG 645 Petrology Of The Oceanic Crust LEC (3 crs.) Nature and origin of igneous and metamorphic rocks of the oceanic crust of the earth; mineralogy, petrology, and petrogenesis of seafloor rocks; metamorphism of the ocean crust. (Lec. 3) Pre: graduate standing or permission of instructor.

OCG 648 Paleoceanography LEC (3 crs.) Earth history and its relation to global climate. Tools, data, and concepts related to past climate change as observed in the oceanic, ice, and terrestrial records. (Lec. 3) Pre: OCG 540.

OCG 651 Marine Stratigraphy SEM (3 crs.) Concepts and methods of biostratigraphy, lithostratigraphy, and chronostratigraphy. Stratigraphic nomenclature. Stratigraphic correlation and completeness. Special focus will be placed on the integration of multiple stratigraphic techniques and their application to the Cretaceous and Cenozoic marine record. Class discussion of advances and problems in recent research articles. (Seminar) Pre: permission of instructor.

OCG 664 Phytoplankton Ecology LEC (3 crs.) Biology and ecology of the pelagic marine microscopic algae with emphasis on their adaptations, physiological ecology, distribution, succession, production, and regional and seasonal dynamics. (Lec. 3) Pre: permission of instructor.

OCG 665 Marine Bio-optics And Remote Sensing LEC (3 crs.) Bio-optical properties of ocean waters. Major focus is on basic principles of visible-band ocean remote sensing and its application to determining phytoplankton pigment and production at regional to global scales. (Lec. 2, Lab. 2) Pre: OCG 561.

OCG 669 Marine Fish Ecology And Production LEC (3 crs.) Functioning of fishes in major world ecosystems is explored through comparison of feeding ecology, bioenergetics, and production rates. (Lec. 3) Pre: OCG 561 or permission of instructor.

OCG 670 Fish Population Dynamics LEC (3 crs.) Methods for estimating vital statistics of fish populations, stock assessment theory and methods, analytical and empirical model development, and fisheries forecasting. (Lec. 3) Pre: graduate standing or permission of instructor.

OCG 673 Fisheries Oceanography LEC (3 crs.) Physical and biological processes acting at the egg, larval, juvenile, and adult stages of commercially important fish and shellfish. Topics include: growth, survival, and recruitment dynamics; larval dispersal and fish distributions; changes in long-term abundance in relation to climate. (Lec. 3) Pre: graduate standing or permission of instructor. OCG 501, 561 recommended.

OCG 691 Individual Study IND (1-6 crs.) Individual study of assigned topics or special problems involving literature search and/or original investigation under one or more members of the faculty. (Independent Study)

OCG 692 Individual Study IND (1-6 crs.) Individual study of assigned topics or special problems involving literature search and/or original investigation under one or more members of the faculty. (Independent Study)

OCG 693 Special Studies IND (1-4 crs.) Studies of specialized topics in the marine sciences. (Independent Study)

OCG 694 Special Studies IND (1-4 crs.) Studies of specialized topics in the marine sciences. (Independent Study)

OCG 695 Seminar In Oceanography SEM (1 cr.) Students give seminar reports on problems and current research in various areas of oceanography. (Seminar) Attendance and registration are required of all graduate students in residence, but no more than 2 credits are allowed for a program of study. S/U credit.

OCG 699 Doctoral Dissertation Research IND (1-12 crs.)Number of credits is determined each semester in consultation with the major professor or doctoral committee. (Independent Study) S/U credit.

OCG 930 Workshop In Oceanography Topics For Teachers WRK (0-3 crs.) Especially designed for teachers of physical sciences. Basic topics in oceanography from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

OCS | Off Campus Study - Undergraduate

OCS 997 Off Campus Study - Undergraduate FLD Undergraduate URI students completing approved Off Campus Experience. Fall or Spring Semester.

OCS 998 Off Campus Study - Undergraduate FLD Undergraduate URI Students taking approved URI courses elsewhere for URI credit.

OCS 999 Off Campus Study - Undergraduate FLD Undergraduate URI students taking approved full-time courses at another institution for transfer credit to URI.

OCSG | Off Campus Study - Graduate

OCSG 997 Off Campus Study - Graduate FLD URI Graduate students completing approved Off Campus Experience. Fall or Spring Semester.

OCSG 998 Off Campus Study - Graduate FLD URI Graduate Students taking approved URI courses elsewhere for URI credit.

OCSG 999 Off Campus Study - Graduate FLD URI Graduate students taking approved full-time courses at another institution for transfer credit to URI.

PHC | Pharmacy

PHC 316 Pharmacists' Patient Care Process Laboratory I LAB (1 cr.) Introduction to developing patient care plans by performing objective and subjective patient data collection and assessment. Communication strategies including patient counseling and motivational interviewing are introduced. Begin interpretation of prescriptions and addressing medication-related problems with patients and/or healthcare providers to optimize health outcomes. (Lab. 3) Pre: Successful completion of BPS 318, or permission of instructor. Concurrent enrollment in BPS 338 and PHP 328 is required. S/U only.

PHC 415 Pharmacists' Patient Care Process Laboratory II LAB (1 cr.) Develop patient care plans by performing objective and subjective patient data collection and assessment for increasingly complex patients. Practice communication strategies including patient counseling and motivational interviewing. Identify and address medication-related problems with patients and/or healthcare providers to optimize health outcomes. (Lab 3) Pre: Successful completion of PHC 316, or permission of instructor. Concurrent enrollment in BPS 437 and PHP 427 is required. S/U only.

PHC 416 Integrated Pharmacy Lab III LAB (1 cr.) Medications for use in central nervous system and psychiatric disorders and their actions, including effects on physiologic functions. Simulated practice sessions designed to develop the delivery of pharmaceutical care, physical assessment, use of patient profiles, and patient counseling. (Lab. 3) Pre: Successful completion of PHC 415 with a grade of C- or better, or permission of instructor. Concurrent enrollment in PHP/BPS 412, BPS 432, PHP 424 is required.

PHC 417 Interactive Learning Session III SEM (1 cr.) Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: second-year Doctor of Pharmacy professional student in good standing; or permission of the instructor.

PHC 427 Interactive Learning Session IV SEM (1 cr.) Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, enhance patient assessment, and the delivery of pharmaceutical care. (Seminar) Pre: second-year Doctor of Pharmacy professional student in good standing or permission of instructor.

PHC 502 Drug Development LEC (3 crs.) Scientific and regulatory aspects of drug development from discovery to market, exemplified by URI research. (Lec. 3) Pre: graduate standing in Pharmacy. Open to CHE students in pharmaceutical track.

PHC 515 Integrated Pharmacy Lab IV LAB (2 crs.) Medications for use in gastrointestinal and endocrine disorders and their actions, including effects on physiologic functions. Simulated practice sessions designed to develop the delivery of pharmaceutical care, physical assessment, use of patient profiles, and patient counseling. (Lab./Rec. 4) Pre: Successful completion of PHC 416 with a grade of C- or better, or permission of instructor. Concurrent enrollment in PHP/BPS 410, BPS 422, PHP 414 is required.

PHC 516 Integrated Pharmacy Lab V REC (2 crs.) Medications for use in oncologic and hematologic disorders and their actions, including effects on physiologic functions. Simulated practice sessions designed to develop the delivery of pharmaceutical care, physical assessment, use of patient profiles, and patient counseling. (Lab./Rec. 4) Pre: Successful completion of PHC 515, or permission of instructor. Concurrent enrollment in PHP/BPS 526, BPS 521, PHP 513 is required.

PHC 517 Interactive Learning Session V SEM (1 cr.) Small group active learning designed to reinforce progressively the basic science curriculum, promote problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: third-year Doctor of Pharmacy professional student in good standing; or permission of the instructor.

PHC 520 Pharmaceutical Sciences Journal Club LEC (1 cr.) Critical reviews of current research reports in the field of pharmaceutical sciences. The students will be evaluated on the basis of their effectiveness in organization, interpretation, and oral presentation, according to criteria already established in the department. (Lec. 1) Pre: graduate standing or in good standing in the P1-P4 years of the Pharm.D. curriculum.

PHC 527 Interactive Learning Session VI SEM (1 cr.) Small group active learning designed to reinforce progressively the basic science curriculum, promote communication and problem-solving skills, and enhance patient assessment and the delivery of pharmaceutical care. (Seminar) Pre: third-year Doctor of Pharmacy professional student in good standing or permission of instructor.

PHC 579 Special Topics on Emerging Contaminants LEC (2 crs.) Cross-listed as (PHC), CHE, OCG 579. Introduction to emerging contaminants such as PFASs, focusing on their chemistry, detection, epidemiology, human health, metabolism, and remediation, as well as interdisciplinary collaboration, research translation, community engagement, and professional development. (Lec. 2) Pre: graduate standing. S/U only.

PHC 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

PHC 693 Seminar I SEM (1 cr.) Seminar discussions including presentation of papers on selected topics in pharmacy. (Seminar) Required of all graduate students, with a maximum of 1 credit allowed per year. May be repeated for a maximum of 2 credits for M.S. candidates. May be repeated for a maximum of 5 credits for Ph.D. candidates.

PHC 694 Seminar II SEM (1 cr.) Seminar discussions including presentation of papers on selected topics in pharmacy. (Seminar) Required of all graduate students, with a maximum of 1 credit allowed per year. May be repeated for a maximum of 2 credits for M.S. candidates. May be repeated for a maximum of 5 credits for Ph.D. candidates.

PHC 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

PHL | Philosophy

PHL 101 Critical Thinking LEC (3 crs.) Identification, formulation and evaluation of both inductive and deductive patterns of reasoning. Consideration of topics such as probability, reasoning about causes, fallacies, foundations of argument, and the issues in logical theory. (Lec. 3/Online) (A3) (B3)

PHL 103 Introduction to Philosophy LEC (3 crs.) Pursues such basic questions as: What is a person? What is knowledge? Are we free? What is moral right and wrong? Does God exist? What is the meaning of death? (Lec. 3/Online) Not open to students with 9 or more credits in philosophy. (A3) (B1)

PHL 110G Love and Sex LEC (3 crs.) This course considers the natures and ethics of love and sex by asking questions like: What is love? What counts as sex? What constitutes consent? What counts as infidelity? (Lec. 3) (A3) (C3) (GC)

PHL 110GH Honors Section of PHL 110G: Love and Sex LEC (3 crs.) Honors Section of PHL 110G: Love and Sex: This course considers the natures and ethics of love and sex by asking questions like: What is love? What counts as sex? What constitutes consent? What counts as infidelity? (Lec. 3) (A3) (C3) (GC)

PHL 114 The Problem of Evil LEC (3 crs.) Introduction to philosophical inquiry through a major topic in the philosophy of religion. Questions such as moral evil, natural evil, fate, freedom, and meaning in human existence will be considered. (Lec. 3) (A3) (B1)

PHL 204 Theories of Human Nature LEC (3 crs.) An introduction to philosophical inquiry by critical examination of some major traditional and contemporary views of human nature as expressed in a variety of religious, literary, scientific, and philosophical writings. (Lec. 3) (A3) (B1)

PHL 205 Philosophical Topics LEC (3 crs.) An intensive study of one or more problems, issues or topics of classical or current interest in philosophy. Emphasis on the analysis and construction of arguments relevant to the topic(s). Small class format. (Lec. 3)

PHL 212 Ethics LEC (3 crs.) Evaluation of major ethical theories. Application of moral reasoning to topics such as virtues and vices, human dignity, conscience, responsibility, moral dilemmas, and reasons to be moral. (Lec. 3) (A3) (C3)

PHL 212H Honors Section of PHL 212: Ethics LEC (3 crs.) Honors Section of PHL 212: Ethics (Lec. 3) Pre: must have a 3.40 overall GPA. (A3) (C3)

PHL 215 Science and Inquiry LEC (3 crs.) The objective is to survey both the influence of philosophy on science and the influence of science on philosophy, all from a western historical perspective. (Lec. 3) (A1) (B1)

PHL 217 Social Philosophy LEC (3 crs.) A systematic introduction to the philosophical problems of contemporary social relations: models of community, sources of alienation, property and ownership, the meaning of work and technology, human rights and freedom. (Lec. 3/Online) (A3) (C2)

PHL 235 Modern Thought: Philosophy and Literature LEC (3 crs.) Introduction to recent thought in philosophy and literature. Emphasis on Kierkegaard, Marx, Nietzsche, Freud, Sartre, and complementary literary texts. (Lec. 3) (A3) (C2)

PHL 235H Honors Section of PHL 235: Modern Thought: Philosophy and Literature LEC (3 crs.) Honors Section of PHL 235: Modern Thought: Philosophy and Literature. (Lec. 3) Pre: 3.40 overall GPA. (A3) (C2)

PHL 314 Ethical Problems in Society and Medicine LEC (3 crs.) Ethical analysis of topics such as war, capital punishment, sexual morality, suicide, animal rights, honesty and deception, world hunger, discrimination, abortion. (Lec. 3/Online) Pre: PHL 101 or 101H or 103 or 103H or one 200-level PHL course or permission of instructor.

PHL 316G Engineering Ethics LEC (3 crs.) Cross-listed as (EGR), PHL 316G. A broad introduction to moral theory and its application to engineering, professionalism, and moral responsibility as an engineer. An understanding of engineering in a societal context. (Lec. 3) Pre: sophomore standing, PHL, ISE, or MCE major, or permission of instructor. (A3) (C1) (GC)

PHL 316GH Honors Section of EGR 316G: Engineering Ethics LEC (3 crs.) Cross-listed as (EGR), PHL 316GH. Honors Section of EGR 316G: Engineering Ethics. (Lec. 3) Pre: must have a 3.40 overall GPA, sophomore standing, and PHL, ISE, or MCE major, or permission of instructor. (A3) (C1) (GC)

PHL 318 Power/Justice: Contemporary Critical Philosophies LEC (3 crs.) Study of contemporary critical philosophies in the traditions of Marxism, existentialism, postmodernism, and feminism, with emphasis on philosophers such as Habermas and Foucault. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 321 Ancient Philosophy LEC (3 crs.) Survey of major thinkers and schools of thought in Ancient Greece, including selected pre-Socratics, Plato, and Aristotle. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course, or permission of the instructor.

PHL 322 Medieval Philosophy LEC (3 crs.) Survey of major thinkers and schools of thought in the Middle Ages, including Augustine, Anselm, Aquinas, and Ockham. (Lec. 3)

PHL 323 Modern Philosophy: Descartes to Kant LEC (3 crs.) Survey of 17th- and 18th-century European philosophy. Includes, but is not limited to, empiricism, rationalism, and Kant's critical philosophy. (Lec. 3) Pre: PHL 101, or 103, or one 200-level PHL course, or permission of instructor.

PHL 324 Recent European Philosophy LEC (3 crs.) 19th- and 20th-century British and European continental developments. Discussion of movements such as idealism, utilitarianism, existentialism, and phenomenology and of philosophers such as Hegel, Kierkegaard, Mill, Husserl, Sartre, and Heidegger. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 325 American Philosophy LEC (3 crs.) A study of American philosophy including such movements as puritanism, transcendentalism, pragmatism, naturalism, process-philosophy, realism, and philosophical analysis. (Lec. 3) Pre: PHL 01 or 103 or one 200-level PHL course or permission of instructor.

PHL 325H Honors Section of PHL 325: American Philosophy LEC (3 crs.) Honors Section of PHL 325: American Philosophy. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course and 3.40 overall GPA.

PHL 328 The Philosophy of Religion LEC (3 crs.) A systematic and critical consideration of such topics as the existence and nature of God, the problem of evil, the relation of faith to reason, religious language, miracles, and immortality. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 331 East Asian Thought LEC (3 crs.) A study of the important philosophical and religious systems of China, Korea, and Japan; emphasis on Chinese traditions. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or RLS 131 or permission of instructor.

PHL 341 Introduction to Metaphysics LEC (3 crs.) Analyzes topics such as person, mind-body, human action, freedom and determinism, causation, time, space, essence and existence, universals, and types of beings. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 342 Knowledge, Belief, and Truth LEC (3 crs.) Analysis of topics such as knowledge, belief, certainty, doubt, skepticism, faith, the ethics of belief, truth, error, perception, a priori knowledge, subjectivity and objectivity, and memory. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 346 Existential Problems in Human Life LEC (3 crs.) Discussion of ultimate questions of human existence such as meaning in life, personal commitment, human relations, suffering, despair, hope, freedom, authenticity, self-deception, death, God, and immortality. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 355 Philosophy of Art LEC (3 crs.) Systematic problems arising from reflection on the creation and perception of works of art. (Lec. 3) Pre: PHL 101 or 103 or one 200-level PHL course or permission of instructor.

PHL 366 Love and Nihilism: European Philosophy Now! LEC (3 crs.) This course introduces key topics in contemporary European philosophy, such as community and exclusion, politics and capitalism, love and nihilism, and the singular and the universal. (Lec. 3) (A3) (C2)

PHL 401 Special Problems IND (3 crs.) Course may vary from year to year, allowing one or more advanced students to pursue problems of special interest with guidance of instructor in conferences. One or more written papers. (Independent Study) Pre: 3 credits in philosophy and permission of instructor. May be repeated for credit.

PHL 402 Special Problems IND (3 crs.) Course may vary from year to year, allowing one or more advanced students to pursue problems of special interest with guidance of instructor in conferences. One or more written papers. (Independent Study) Pre: 3 credits in philosophy and permission of instructor. May be repeated for credit.

PHL 421G Secularism and Islamism in the Modern World SEM (4 crs.) Cross-listed as (PSC) PHL 421G. Explore secularism and Islamism through interdisciplinary readings in philosophy, religion and political science. Examine the dynamics of interaction between adherents of both ideologies, both on a state and individual level. (Seminar) Pre: RLS/PSC 221 or PSC 322 or PSC 211 or PSC 310. (A2) (C3) (GC)

PHL 451 Symbolic Logic LEC (3 crs.) Cross-listed with (PHL), CSC 451. Selected topics in modern symbolic logic including calculus of propositions, predicate calculus, and modal logics. Philosophical and mathematical aspects of the subject. (Lec. 3) Pre: Any one of PHL 101, CSC 340, CSC/MTH 447, or MTH 180, or permission of instructor.

PHL 452G Philosophy Of Science SEM (3 crs.) Analysis of the nature and structure of scientific thought. Consideration of issues such as structure and types of scientific explanation, verification and falsification, and unity of the sciences. (Seminar) Pre: PHL 101, 215, or 451, one 300-level PHL course, and 6 credits of natural science; or permission of instructor. Not for graduate credit. (A1) (C2) (GC)

PHL 477 Field Experience in Philosophy PRA (3-6 crs.) Supervised experiential learning with relevant agency, organization, or institution. Activities and expectations determined between site supervisor and student and approved by faculty advisor prior to registration. If taken for 3 credits, may be repeated once with permission of the instructor and chair, but not for department major/minor credit. (Practicum) Pre: Junior or senior standing or permission of the chair. Not for graduate credit. S/U only.

PHL 490 Senior Seminar In Philosophy SEM (3 crs.) In-depth study of the major works of a significant Western philosopher or of a major philosophical topic. (Seminar) Pre: senior standing in philosophy or permission of instructor. May be repeated for credit.

PHL 499 Senior Thesis IND (3 crs.) Independent research. Student works in close conjunction with a faculty member on a mutually agreeable topic. Written thesis required. (Independent Study) Pre: senior standing and permission of instructor. Not for graduate credit.

PHP | Pharmacy Practice

PHP 201 Introduction to the U.S. Health Care System LEC (3 crs.) This course introduces the student to the U.S. health care system, cost, quality, and access implications associated with the delivery of health care services and goods. (Lec. 3) Pre: Intended for freshmen and sophomores. Not for program credit for pharmacy majors in the third year or beyond.

PHP 203G Understanding Cancer: Basics and Beyond LEC (3 crs.) This is a grand challenge course designed for future healthcare professionals to provide a foundation for understanding cancer and its treatment whilst incorporating larger scale ethical and social issues, including global disparities in treatment and the economic impact of cancer care. (A2) (GC)

PHP 207G Introduction to Safety and Quality in Health Care LEC (3 crs.) Cross-listed as (PHP), NUR 207G. Fundamentals of medication safety, patient safety and quality management in the healthcare system. Introduce ethical challenges that can impact patients in the health care setting. (Lec. 3) Pre: Sophomore or higher standing. (A2) (GC)

PHP 303 Pharmacy Immunization Delivery LEC (1 cr.) This practice-based curriculum represents a fusion of science and clinical pharmacy and is designed to educate pharmacy students about the professional opportunities for vaccine advocacy and administration. (Lec.1) Pre: First year Doctor of Pharmacy student.

PHP 307 Introduction to Pharmacy Law and Social Administrative Sciences I LEC (3 crs.) Roles and responsibilities of pharmacists along with issues that impact the profession and regulatory agencies that influence the practice of pharmacy are introduced. Foundational drug information skills are developed. (Lec. 3) Pre: First-year Doctor of Pharmacy student.

PHP 308 Pharmacy Law and Social Administrative Sciences II LEC (3 crs.) Application of drug information skills with introduction to study methodology and interpretation are developed. Federal pharmacy law governing safety and efficacy of drugs, drug marketing, and controlled substances is introduced. (Lec. 3) Pre: PHP 307, First-year Doctor of Pharmacy student; or permission of instructor. (B4)

PHP 315 Self-Care Therapeutics & Nonprescription Drugs I LEC (3 crs.) An introduction to self-care and nonprescription medicines with emphasis on the role of the pharmacist in the patient care process. Includes foundation information and case studies. (Lec. 3) Pre: First professional year Doctor of Pharmacy student.

PHP 315 Self-Care Therapeutics & Nonprescription Drugs I LEC (3 crs.) An introduction to self-care and nonprescription medicines with emphasis on the role of the pharmacist in the patient care process. Includes foundation information and case studies. (Lec. 3) Pre: First professional year Doctor of Pharmacy student.

PHP 327 Clinical & Therapeutic Sciences I LEC (3 crs.) An introduction to cardiovascular and renal pathophysiology and management of hypertension and dyslipidemia. Includes pharmacy practice concepts such as the Patient Pharmacist Care Process, lab tests, and SOAP notes. (Lec. 2, Rec. 1) Pre: First professional year Doctor of Pharmacy student.

PHP 328 Clinical & Therapeutic Sciences II LEC (4 crs.) Ambulatory management of ischemic heart disease, venous thromboembolism, and atrial fibrillation, with introduction to infections in the outpatient setting, men's health, and women's health. (Lec. 3, Rec. 1) Pre: First professional year Doctor of Pharmacy student.

PHP 336G Exploring Interdisciplinary Healthcare Solutions for Opioid Use Disorder LEC (3 crs.) The theme of this course is an interdisciplinary survey of a multifaceted response to opioid epidemic in the United States through the lenses of pharmacy, epidemiology, and sociology. (Lec. 3) Pre: Junior standing or higher. (D1) (C1) (GC)

PHP 336GH Honors Section of PHP 336G: Exploring Interdisciplinary Healthcare Solutions for Opioid Use Disorder LEC (3 crs.) The theme of this course is an interdisciplinary survey of a multifaceted response to opioid epidemic in the United States through the lenses of pharmacy, epidemiology, and sociology. (Lec. 3) Pre: Junior standing or higher. Must have 3.4 GPA or higher. (D1) (C1) (GC)

PHP 340 Service Learning: A Health Care Experience PRA (1 cr.) Structured practical experiences in a healthcare setting or community outreach program. Develops social responsibility and professionalism while providing needed assistance to the community. Students take PHP 340 or PHP 350. (Practicum) Pre: First year Doctor of Pharmacy professional student in good standing or permission of instructor. A valid and up-to-date HIPAA certificate, background check and Rhode Island Intern license. S/U only

PHP 350 Service Learning: Intro Geriatric Practice Experience PRA (1 cr.) Structured practical experience in a healthcare setting related to geriatric care. Develops social responsibility, professionalism, and communication skills while introducing the concept of medication therapy management. Students take PHP 340 or PHP 350. (Practicum) Pre: First-year Doctor of Pharmacy professional student in good standing or permission of instructor. A valid and updated HIPAA certificate, background check, and Rhode Island pharmacy intern license. S/U only.

PHP 360 Hospital Pharmacy LEC (3 crs.) Introduction to practice of pharmacy in hospitals, including both professional and administrative activities. Field trips to representative hospital pharmacies. (Lec. 3) Pre: first-year Doctor of Pharmacy professional student in good standing or permission of the instructor.

PHP 401 Pharmacy Resources for Practice LEC (3 crs.) Introduces pharmacy management skills to assist students in understanding the effective use of the human, technological, and fiscal resources to manage a positive work environment and maximize their patient interaction time. (Lec. 3) Pre: First year Doctor of Pharmacy student in good standing; or permission of the instructor.

PHP 405 Epidemiology in Health Care LEC (4 crs.) Basic principles of epidemiology as they apply to public health research and practice; emphasizing the practical application of epidemiologic knowledge to literature evaluation. (Lec. 3, Independent Study) Pre: STA 307, PSY 200 (300) or PHP 305. Open only to juniors and seniors. Not for graduate credit. (D1) (B4)

PHP 407 Pharmacy Law and Social Administrative Sciences III LEC (3 crs.) Application of biostatistics used in biomedical research with further emphasis on critique of biomedical literature. Introduction to health insurance and care settings. Continued exploration of law that governs pharmacy practice. (Lec. 3) Pre: PHP 308, Second-year Doctor of Pharmacy student; or permission of instructor.

PHP 408 Pharmacy Law and Social Administrative Sciences IV LEC (3 crs.) Introduction to pharmacoeconomics and pharmacoepidemiology with emphasis on critique of biomedical literature. Discussion of healthcare quality and accreditation. Continued application of pharmacy law to pharmacy practice. (Lec. 3) Pre: PHP 407, Second-year Doctor of Pharmacy student; or permission of instructor.

PHP 409 Foundations of Human Disease III: Infectious and Pulmonary Processes LEC (2 crs.) Cross-listed as (BPS), PHP 409. The etiology, pathogenesis, epidemiology, symptomatology, and diagnosis of infections and pulmonary diseases. (Lec. 2) Pre: second-year Doctor of Pharmacy student in good standing; or permission of the instructor

PHP 410 Foundations for Human Disease V: GI, Endocrine LEC (2 crs.) Cross-listed as (PHP), BPS 410. The etiology, pathogenesis, symptomatology, and diagnosis of endocrine, and gastrointestinal diseases. (Lec. 2) Pre: P3 standing in the Doctor of Pharmacy program.

PHP 411 Biostatistics II LEC (4 crs.) Cross-listed as (STA), PHP, BPS 411. An overview of statistical methods with applications to health-related studies. Chi-square tests, effect measures, analysis of variances, multiple comparison procedures, linear and logistic regression, some nonparametric and survival tests. (Lec. 3, Rec. 1) Pre: STA 307, or 308, or 409, or permission of instructor.

PHP 412 Foundations of Human Diseases: CNS LEC (2 crs.) Cross-listed as (PHP), BPS 412. The etiology, pathogenesis, epide-

miology, symptomatology, and diagnosis of diseases of the central nervous and musculoskeletal system. (Lec. 2) Pre: Doctor of Pharmacy student in good standing or permission of instructor. Not for graduate credit.

PHP 413 Pharmacotherapy of Infectious Diseases and Pulmonary Disorders LEC (3 crs.) The appropriate use of medications in the treatment of human infectious and pulmonary disorders. Interpretation of patient data to design, monitor, and modify drug therapy in infectious and pulmonary diseases. (Lec. 3) Pre: second-year Doctor of Pharmacy student in good standing; or permission of the instructor.

PHP 414 Pharmacotherapy of Gastrointestinal and Endocrine Diseases LEC (3 crs.) The appropriate use of medications in the treatment of human disease. Interpretation of clinical data to design, monitor, and modify drug therapy in endocrine and gastrointestinal disease. (Lec. 3) Pre: second-year Doctor of Pharmacy student in good standing; or permission of the instructor.

PHP 415 Immunology and Immunotherapeutics LEC (3 crs.) Cross-listed as (BPS), PHP 415. The pathogenesis, etiology, epidemiology, symptomatology, and diagnosis and treatment of autoimmune diseases. The pharmacology and medicinal chemistry of anti-inflammatory, immunosuppressives, and solid-organ graft rejection medications. (Lec. 3) Pre: Second-year Doctor of Pharmacy student (P2) or permission of the instructor. Open to BSPS students.

PHP 418 Self-Care Therapeutics and Nonprescription Drugs 2 LEC (3 crs.) Cross-listed as (PHP), BPS 418. Continued development of self-care principles, foundational knowledge about use of self-care products, and integration of clinical reasoning skills in development of a self-care plan. (Lec. 3) Pre: second-year Doctor of Pharmacy Student; PHP 315.

PHP 420 Biotechnology Products in Pharmacy LEC (2 crs.) Cross-listed as (BPS), PHP 420. Clinical, pharmaceutical, and economic impact of biotechnology products in pharmacy, including monoclonal antibodies, interleukins, human growth factors, antigens oligonucleotides, DNase, and interferons. (Lec. 2)

PHP 424 Pharmacotherapy of CNS and Musculoskeletal Disease LEC (2 crs.) The appropriate use of medications in the treatment of human disease. Interpretation of data to design, monitor, and modify drug therapy in psychiatric, neurologic, and musculoskeletal diseases. (Lec. 2) Pre: Doctor of Pharmacy student in good standing or permission of the instructor. Not for graduate credit.

PHP 427 Clinical & Therapeutic Sciences III LEC (4 crs.) Ambulatory management of respiratory diseases and smoking cessation, gastrointestinal conditions, viral infections, menopause/osteoporosis, and diabetes (types 1 and 2) are covered. (Lec. 3, Rec. 1) Pre: Second professional year Doctor of Pharmacy student. Not for graduate credit.

PHP 428 Clinical & Therapeutic Sciences IV LEC (4 crs.) Complex outpatient psychiatric and neurological conditions are covered along with an in-depth discussion of acute and chronic renal failure and heart failure as a prelude to CTS-V. (Lec. 3, Rec. 1) Pre: Second professional year Doctor of Pharmacy student.

PHP 430 Public Health Consequences of Infectious Diseases LEC (3 crs.) Through a variety of learning techniques, students will learn about current and emerging public health challenges, focusing on team-based identification, prevention, and control of transmissible infectious diseases. (Lec. 3) Pre: PHP 413, second- or third-year Doctor of Pharmacy professional student in good standing or permission of the instructor. Not for graduate credit.

PHP 440 Advanced Pediatric Pharmacotherapy LEC (3 crs.) Pharmacotherapeutic needs of infants, children, and adolescents with a focus on pharmacokinetic, pharmacodynamic, and other developmental-associated physiological changes. (Lec.3) Pre: second- or third-year Doctor of Pharmacy professional student in good standing or permission of the instructor.

PHP 444 Pharmacotherapy for Older Adults LEC (3 crs.) Explore how aging affects drug disposition and the risk of adverse drug events; explore assessment tools for evaluating older adults; recognize an evidence-based approach to the treatment of geriatric syndromes, and understand differences in how frail elders are treated for chronic medical conditions in contrast to younger adults. (Lec. 3) Pre: Second professional-year standing in the PharmD program; or other health discipline students or graduate students with permission of the instructor.

PHP 450 Introductory Community Pharmacy Practice Experience PRA (2 crs.) Structured practical experience in community pharmacy settings. (Practicum) Pre: Second year Doctor of Pharmacy professional student or permission of instructor. Active Rhode Island Pharmacy intern license. Not for graduate credit. S/U only.

PHP 451 Introductory Institutional Pharmacy Practice Experience PRA (1 cr.) Structured practical experience in an institutional pharmacy setting. (Practicum) Pre: Second year Doctor of Pharmacy professional student or permission of instructor. Active Rhode Island Pharmacy intern license. Not for graduate credit. S/U only.

PHP 460 Palliative Care LEC (3 crs.) Principles of palliative care including control of pain and other symptoms, and psychological, social, and spiritual issues. (Lec.3) Pre: second- or third-year Doctor of Pharmacy professional student in good standing or permission of the instructor. Not for graduate credit.

PHP 464 Pharmacy Leadership and Political Advocacy LEC (3 crs.) Aimed at exploring various leadership opportunities and political advocacy issues through the lens of the pharmacy profession. Major course themes include leadership development and applying advocacy for pharmacy. (Lec. 3) Pre: Pharmacy students who are in second professional year standing in the PharmD curriculum or other interested students with permission of instructor. This course is not intended for students completing work towards a leadership minor. Not for graduate credit.

PHP 497 Special Problems IND (1-3 crs.) Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Independent Study) Pre: permission of chairperson.

PHP 498 Special Problems IND (1-3 crs.) Methods of carrying out a specific research project. Literature search, planning, laboratory work, writing an acceptable report. (Independent Study) Pre: permission of chairperson.

PHP 504 Health Systems LEC (3 crs.) Analysis of the U.S. health care system, including care delivery, and economic, finance, payment and policy perspectives, with emphasis on the role of the pharmacist. (Lec. 2, Rec. 1) Pre: third-year Doctor of Pharmacy professional student in good standing or permission of the instructor.

PHP 505 Advanced Pharmacotherapy in Geriatrics LEC (3 crs.) Broad issues in pharmacotherapy for older persons including age-related physiologic changes, pharmacokinetics and pharmacodynamics, assessment, and the importance of interdisciplinary teams in the management of complex drug therapy. (Lec. 3) Pre: Doctor of Pharmacy professional student in good standing or permission of instructor.

PHP 508 Pharmacy Law and Social Administrative Sciences V LEC (3 crs.) Application of pharmacy law to pharmacy practice, discussion of the healthcare system and its economics, and the use of big data and pharmacy informatics are covered. (Lec. 3) Pre: PHP 408 and third professional year Doctor of Pharmacy student; or permission of instructor. Not for graduate credit.

PHP 513 Pharmacotherapy of Oncology and Toxicology-Therapeutics IV LEC (2 crs.) The appropriate use of medications in the treatment of human disease. Interpretation of clinical data to design, monitor, and modify drug therapy in cancer, blood disorders, and overdose conditions. (Lec. 2) Pre: third-year Doctor of Pharmacy student in good standing; or permission of the instructor.

PHP 519 Self-Care II LEC (3 crs.) Cross-listed as (PHP), BPS 519. Expansion of nonprescription and complementary medicine therapeutics. Explore the implementation of pharmaceutical care programs in community pharmacy practice. (Lec. 3) Pre: PHP 418 (or BPS 418); third-year Doctor of Pharmacy professional student.

PHP 520 Advanced Gastrointestinal and Endocrine Pharmacotherapy LEC (3 crs.) Provides students with an expanded knowledge base in the area of GI and endocrine pharmacotherapy, emphasizing active learning, literature evaluation, data interpretation. (Lec. 3) Pre: third-year Doctor of Pharmacy professional student in good standing or permission of instructor. Not for graduate credit.

PHP 526 Foundations of Human Disease VI: Hematology-Oncology LEC (2 crs.) Cross-listed as (PHP), BPS 526. The etiology, pathogenesis, symptomatology, and diagnosis of hematology and oncology diseases in people. Introduction to pharmacogenomics, gene-drug interactions, and genetic therapy in human disease. (Lec. 2) Pre: third-year Doctor of Pharmacy professional student standing. Taken concurrently with BPS 521 and PHP 513. Not for graduate credit.

PHP 540 Principles, Methods, and Applications of Epidemiology LEC (3 crs.) An introduction to epidemiology, the study of health and disease in populations. Epidemiologic methods and research design for conducting and interpreting health research. (Lec. 3) Pre: STA 307; second- or third-year Doctor of Pharmacy professional student in good standing; or permission of the instructor.

PHP 542 Evaluation of Controversies in Drug Literature LEC (3 crs.) Through critical review of literature, controversies in drug therapy and drug-associated illness will be evaluated to improve students knowledge and analytical skills. (Lec. 3) Pre: second or third year Doctor of Pharmacy professional student in good standing; or permission of the instructor.

PHP 550 Pharmacoepidemiology LEC (3 crs.) The application of epidemiologic principles to the study of drug effects in human populations. (Lec. 3) Pre: PHP 540, third year Doctor of Pharmacy student in good standing; or permission of the instructor.

PHP 555 Advanced Neuropsychiatric Pharmacotherapy LEC (3 crs.) Comprehensive and advanced course on the pharmacotherapy of psychiatric and neurological diseases. Use of clinical case studies, evaluation of the primary literature, and other forms of interactive teaching will be emphasized. (Lec) Pre: PHP 324, 312 or BPS 312, BPS 322, second- or third-year Doctor of Pharmacy student in good standing or permission of the instructor.

PHP 560 Advanced Cardiovascular and Renal Pharmacotherapy LEC (3 crs.) Advanced assessment and pharmacotherapeutic management of patients with cardiovascular and renal disease through the application of evidence-based medicine and critical evaluation of literature. (Lec. 3) Pre: second- or third-year Doctor of Pharmacy student in good standing or permission of the instructor. Not for graduate credit.

PHP 575 Causal Inference for Biomedical Research LEC (3 crs.) Cross-listed as (PHP), STA 575. Using a potential outcomes framework, this course will present methodologies for drawing causal inference in a variety of settings. Examples will be drawn from epidemiologic and medical studies. (Lec. 3) Pre: STA 411 or 412 or permission of instructor.

PHP 580 Pharmacoeconomic Analysis LEC (3 crs.) Introduction to methodologic approaches utilized in economic evaluation of drug use and therapy in community and managed care settings, and clinical trials, including the FDA approval process and liability issues. (Lec. 3) Pre: STA 307 or equivalent, or permission of instructor. In alternate years.

PHP 585 Measurement of Health Outcomes LEC (3 crs.) Cross-listed as (PHP), STA 414. This course introduces classical psychometric theories and helps students understand methods to measure important health outcomes of medication use, including clinical, humanistic, and economic outcomes. (Lec. 3) Pre: PHP 405, STA 411 or equivalent; graduate student standing or permission of the instructor.

PHP 591 Advanced Pharmacy Practice Experience: Community PRA (6 crs.) An advanced practice experience designed to integrate current pharmacy practice with innovative patient-oriented services in a community pharmacy. A variety of sites are used which include independent, chain, and outpatient pharmacies. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

PHP 592 Advanced Pharmacy Practice Experience: Inpatient PRA (6 crs.) Through collaboration with other health care professionals including the medical team, and application of evidence-based medicine, students will develop clinical skills to provide pharmaceutical care for patients in the inpatient setting. (Practicum) Pre: Fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

PHP 593 Advanced Pharmacy Practice Experience: Elective PRA (6 crs.) Experiential courses in a wide variety of settings in clinical, industry, and managed care sites. Students learn and practice the core concepts of pharmaceutical care through interaction with faculty, health care professionals, and patients. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

PHP 594 Advanced Pharmacy Practice Experience: Institutional PRA (6 crs.) An advanced practice experience designed to integrate institutional pharmacy practice with innovative patient-oriented and distributive services in a variety of sites such as hospital pharmacies and other institutions. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program.

PHP 595 Advanced Pharmacy Practice Experience: Ambulatory PRA (6 crs.) In collaboration with health care professionals, students will provide pharmaceutical care to individuals in ambulatory care sites using patient-specific information to modify, create, and monitor pharmacotherapy regimens. (Practicum) Pre: fourth-year professional standing in the Doctor of Pharmacy Program and completion of all required didactic courses in the program. (D1)

PHP 640 Epidemiologic Methods for the Health Sciences LEC (3 crs.) A focus on quantitative methods used in epidemiologic and health-related research. Students will learn to analyze and interpret data from large-scale observational studies and will be exposed to problematic situations in research design and data analysis. (Lec. 3) Pre: PHP 540, STA 412, or permission of instructor.

PHP 680 The Legal Environment in Health Administration LEC (3 crs.) Application of specialized statutory and regulatory provisions in federal and state law to the delivery of health care. (Lec. 3) Pre: graduate standing.

PHP 685 Pharmacoeconomic Methods and Applications LEC (3 crs.) Methodologies for conducting pharmacoeconomic analyses in observational settings and clinical trials, and the application of pharmacoeconomic techniques to describe and evaluate cost-effectiveness of medication use. (Lec. 3) Pre: PHP 580, or graduate student standing with permission of instructor.

PHP 697 Research in Pharmacy Administration IND (1-3 crs.) Literature survey, laboratory work, and a detailed research report on one or more assigned topics in pharmacy. (Independent Study)

PHP 698 Research In Pharmacy Administration IND (1-3 crs.) Literature survey, laboratory work, and a detailed research report on one or more assigned topics in pharmacy. (Independent Study)

PHT | Physical Therapy

PHT 440 Head and Neck Anatomy LEC (3 crs.) Cross-listed as (PHT), CMD 440. Study of structure and function of human head and neck anatomy, supplemented by dissection laboratory. Emphasis on the musculoskeletal, visceral, nervous, and vascular systems related to dental hygiene and communicative disorders. (Lec. 2, Lab. 2)

PHT 500 Human Anatomy and Histology LEC (5 crs.) Structure and function of human anatomy as related to physical therapy. Emphasis on musculoskeletal, visceral, nervous and vascular systems and tissue histology. Functional changes after injury will be emphasized. (Lec. 4, Lab. 2) Pre: DPT student in good standing or early contingent admit DPT or permission of the chairperson.

PHT 501 Applied Human Anatomy Laboratory LAB (3 crs.) Surface anatomy, palpation, introduction to forces and torques, stretching and strengthening. (Lab. 6) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 505 Introduction to Physical Therapy LEC (1 cr.) Introduction to the profession of physical therapy including concepts related to disability, rehabilitation, evidence based practice, models of care and introduction to the Guide to Physical Therapist Practice. Characteristics and history of the profession and professional expectations for practitioners will be included. (Lec. 1) Pre: DPT student in good standing or early contingent admit DPT, or permission of the chairperson.

PHT 508 Psychosocial Issues in Physical Therapy LEC (2 crs.) Behavioral and psychosocial issues relevant in physical therapy practice. Patient's perception of care and interactions in the health care environment. (Lec. 2) Pre: DPT student in good standing or early contingent admit DPT or permission of the chairperson.

PHT 510 Biomechanics and Pathokinesiology LEC (5 crs.) Principles, theories, and recent investigations of the biomechanics of human motion and posture are presented to develop analytical skills for normal and abnormal movement evaluation. (Lec. 5) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 511 Human Neuroscience and Neurology LEC (5 crs.) Cross-listed as (PHT) NEU 511. Anatomy, functional anatomy, dysfunction and evaluation of the human nervous system as a basis for understanding its morphology, function, and therapeutic intervention. (Lec. 4, Lab. 2) Pre: DPT student in good standing, PHT 552 or permission of the chairperson, or matriculated in the INP.

PHT 512 Physical Examination and Evaluation I LEC (3 crs.) Provides students with basic skills for physical examination and evaluation in the provision of physical therapy. Focus will be on strength testing, range of motion, and sensation (Lec. 3) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 513 Directed Study in Physical Therapy IND (1-3 crs.) Subject matter arranged to meet the individual needs of graduate students in physical therapy under the supervision of staff. (Independent Study) Pre: DPT student in good standing or early contingent admit DPT, or permission of the chairperson

PHT 518 Communication and Education in Physical Therapy LEC (3 crs.) Topics include teaching in classroom and clinic, psychomotor skills and home exercise programs; increasing patient adherence; and community health. Communication development focuses on verbal/non-verbal, conflict management, assertiveness. (Lec. 3) Pre: DPT student in good standing, PHT 508, concurrent enrollment with PHT 537 and PHT 544, or permission of the chairperson.

PHT 522 Physical Examination and Evaluation II LEC (4 crs.) A continuum of PHT 512, this course will cover posture, functional mobility, gait, balance, assistive devices, wheelchair fitting, and home evaluation. Practice of basic skills through course content using role modeling and patient cases. (Lec. 4) Pre: DPT student in good standing or early contingent admit DPT, PHT 512, PHT 510, PHT 501, PHT 508 or permission of the chairperson

PHT 528 Ethical, Legal, and Professional Issues in Physical Therapy LEC (3 crs.) Practice standards, interdisciplinary issues, ethical considerations, and legal implications of physical therapy practice. Professional development, expert practice, doctoring professions, informed consent, patient rights, standards of practice, advanced directives, malpractice, domestic violence, child and elder abuse. (Lec. 3) Pre: DPT student in good standing or permission of the chairperson.

PHT 532 Physical Agents LEC (4 crs.) Theory, practice, and current research regarding application of physical agents. Diagnostic methods, interventions, and personnel supervision and administration of mechanical, thermal, and hydrotherapeutic agents. (Lec. 2, Lab. 2) Pre: DPT student in good standing or early contingent admit DPT, PHT 500, or permission of the chairperson.

PHT 535 Advanced Pathophysiology LEC (3 crs.) Cross-listed as (NUR), PHT 535. An in-depth study of pathophysiological phenomena across the life span from the biological life processes perspective. Clinical decision making based on the synthesis of this knowledge and current research findings will be explored. (Lec. 3) Pre: for nursing students: admission to graduate program in nursing or permission of instructor; PHT 500 and 1st year standing in the D.P.T. program for physical therapy students.

PHT 536 Advanced Pathophysiology for Physical Therapy LEC (4 crs.) Weekly case study presentations are discussed to illustrate basic pathophysiologic phenomena and highlight the relevance to physical therapy practice and therapeutic decision-making. (Lec. 4) Pre: DPT student in good standing or early contingent admit DPT, PHT 512, concurrent enrollment with PHT 570, or permission of the chairperson.

PHT 537 Management Theory in Physical Therapy LEC (2 crs.) An overview of health policy and management theory and its relationship to health care settings. Competent managers need to have a comprehensive understanding of how health care delivery is regulated. This topic will be covered in relationship to third party reimbursement, state regulations, health policy formulation roles of government and politics in health care. (Lec. 2) Pre: DPT student in good standing, concurrent enrollment with PHT 518 and PHT 544, or permission of the chairperson.

PHT 538 Management and Administration in Physical Therapy LEC (2 crs.) Practical managerial and supervisory techniques and theory in physical therapy settings with emphasis on application in a variety of settings are presented. Topics: strategic planning, consultation, performance improvement, professional development planning, resumes and interviews, management, and performance appraisal, the health care continuum, budgeting, productivity, outcomes and patient satisfaction. (Lec. 2) Pre: DPT student in good standing, PHT 537 or permission of the chairperson.

PHT 544 Health Promotion in Physical Therapy LEC (2 crs.) Provides physical therapy students with an understanding of their role in wellness and health promotion across systems and the lifespan. Content includes health behavior and health education. (Lec. 2) Pre: DPT student in good standing, PHT 536, concurrent enrollment with PHT 518 and PHT 537, or permission of the chairperson.

PHT 545 Topics in Physical Therapy - Gender Issues LEC (2 crs.) Introduction to physical therapy issues specific to gender health throughout the life cycle. Topics include physical therapy management of pelvic and genitourinary health. (Lec. 2) Pre: DPT student in good standing, PHT 552, or permission of the chairperson.

PHT 550 Musculoskeletal Therapeutics I: The Extremities LEC (5 crs.) Physical therapy management of individuals with, and the prevention of: impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with musculoskeletal dysfunction in the extremities. (Lec. 5) Pre: DPT student in good standing or early contingent admit DPT, PHT 501, PHT 508, PHT 510, PHT 512, PHT 532, or permission of the chairperson.

PHT 552 Musculoskeletal Therapeutics II: The Spine LEC (5 crs.) Physical Therapy management of individuals with, and the prevention of, impaired joint mobility, motor function, muscle performance, range of motion, and reflex integrity associated with musculoskeletal dysfunction in the spine. (Lec. 5) Pre: DPT student in good standing, PHT 522 PHT 536, PHT 550, PHT 570, PHT 655 or permission of the chairperson.

PHT 560 Neuromuscular Therapeutics LEC (5 crs.) Physical therapy management of individuals with, and the prevention of, impaired motor function and sensory integrity associated with neuromuscular dysfunction. (Lec. 5) Pre: DPT student in good standing, PHT 511, PHT 544, PHT 586, PHT 672, PHT 545, PHT 518 and concurrent enrollment with PHT 592 or permission of the chairperson.

PHT 570 Cardiopulmonary Physical Therapy LEC (4 crs.) Physiological basis, testing and evaluation, treatment, and administration of programs for cardiac and pulmonary-diseased patients requiring

physical therapy. (Lec. 4) Pre: DPT student in good standing or early contingent admit DPT, PHT 501, PHT 508, PHT 512, concurrent enrollment with PHT 536, or permission of the chairperson.

PHT 574 Sports Physical Therapy LEC (2 crs.) Advanced knowledge and competency in sports injury evaluation and treatment are developed. Additional coverage of sports injury prevention, athletic screening, medical intervention, interdisciplinary coordination, and patient or public education is provided. (Lec. 1, Lab. 3) Pre: DPT student in good standing or early contingent admit DPT, PHT 552 or permission of the chairperson.

PHT 575 Physical Therapy Internship I PRA (4 crs.) Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Specific setting and rotational time schedule are determined by the student, academic clinical coordinator, and clinical site. (Practicum) Pre: DPT student in good standing, PHT 605 or permission of the chairperson.

PHT 576 Broadening Experiences in Physical Therapy LEC (2 crs.) Provision of physical therapy service in a non-traditional setting or with a unique population. Preparatory work and two-week hands-on experience. (Lec. 1, Practicum in approved setting) Pre: DPT student in good standing, PHT 518 or permission of the chairperson. S/U credit.

PHT 580 Pediatric Physical Therapy LEC (2 crs.) Physical therapy assessment, care planning, and treatment of the pediatric population in diverse practice settings. Some hands-on experience with infants and children with a variety of diagnoses. (Lec. 2) Pre: DPT student in good standing, PHT 511 or permission of the chairperson.

PHT 585 Physical Therapy Internship II PRA (4 crs.) Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Specific setting and rotational time schedule are determined by the student, academic clinical coordinator, and clinical site. (Practicum) Pre: DPT student in good standing, PHT 575 or permission of the chairperson. S/U credit.

PHT 586 Physical Therapy in Geriatric Populations LEC (2 crs.) Geriatric and aging issues related to physical therapy practice. Evaluation and treatment strategies for disorders affecting adults, including biology, cognition, and motor function. Exposure to geriatric populations. (Lec. 2) Pre: DPT student in good standing, PHT 522 or permission of the chairperson.

PHT 592 Interprofessional Comprehensive Cases LEC (2 crs.) Cross-curricular integration of physical therapy evaluation, diagnosis, prognosis, intervention and outcome assessment applied to complex cases. Consideration of modifications necessary for different stages of development/age, different cultures, and across the continuum of care. (Lec. 2) Pre: DPT student in good standing, PHT 511, PHT 518, PHT 544, PHT 545, PHT 586, PHT 672, concurrent enrollment with PHT 560 or permission of the chairperson.

PHT 595 Physical Therapy Internship III PRA (4 crs.) Assignment to various clinical settings that provide supervised experiences with practicing physical therapists and support personnel. Selection of clinical specialty area of student's interest is considered in determination of the setting. (Practicum) Pre: DPT student in good standing, PHT 585 or permission of the chairperson. S/U credit.

PHT 600 Foundations of Evidence-Based Practice LEC (3 crs.) Presentation and application of principles of evidence-based practice as related to current physical therapy practice, theory development, and scientific literature. Preparation of proposal through literature review. (Lec. 3) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson.

PHT 605 Special Topics and Professional Preparation in Physical Therapy LEC (2 crs.) Integration of the art and science of physical therapy with the delivery of services. Comprehensive review of systems, including evaluation and interventions as they relate to physical therapy. (Lec. 2) Pre: DPT student in good standing, PHT 560, PHT 592 or permission of the chairperson.

PHT 610 Evidence-Based Inquiry I PRA (1 crs.) Introduces the student to the concept of evidence based inquiry and its importance in the physical therapy profession. Initial stages of an evidence-based inquiry project formulated with the guidance of a faculty advisor. (Practicum 1) Pre: DPT student in good standing or early contingent admit DPT, PHT 600 or permission of the chairperson. S/U credit.

PHT 611 Integrated Clinical Experience (ICE) I PRA (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing or early contingent admit DPT, PHT 500 or permission of the chairperson. (S/U only)

PHT 612 Integrated Clinical Experience (ICE) II PRA (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing or early contingent admit DPT, PHT 611 or permission of the chairperson . (S/U only)

PHT 613 Integrated Clinical Experience (ICE) III PRA (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing, PHT 612 or permission of the chairperson. (S/U only)

PHT 614 Integrated Clinical Experience (ICE) IV PRA (1 cr.) Provides students with early opportunities to apply their academic knowledge and skill in the clinical setting under the supervision of a physical therapist/clinical instructor. (Practicum) Pre: DPT student in good standing, PHT 613 or permission of the chairperson. (S/U only)

PHT 620 Evidence-Based Inquiry II PRA (3 crs.) Guides the student through the refinement and focusing of a previously identified multiphase inquiry project in which evidence is the critical feature. Identification of target audience, delineation of scope of evidence to be gathered occurs along with initial evidence collection. (Practicum) Pre: DPT student in good standing, PHT 610 or permission of the chairperson. S/U credit.

PHT 630 Evidence-Based Inquiry III PRA (3 crs.) Final data gathering, analysis/synthesis, and documentation aspects of a multiphase inquiry project in which evidence is the critical feature. Statistical analysis and literature synthesis are potential techniques to be utilized. (Practicum) Pre: DPT student in good standing, PHT 620 or permission of the chairperson. S/U credit.

PHT 640 Physical Therapy Capstone PRA (1 cr.) Provides the student with the opportunity to formally present the culminating findings of their research or leadership project to the faculty and peers. A comprehensive guide will be followed to summarize the work performed in PHT 610, PHT 620, and PHT 630. (Practicum) Pre: DPT student in good standing, PHT 630 or permission of the chairperson. S/U credit.

PHT 650 Elective Topics Related To Physical Therapy LEC (1-2 crs.) Instruction, observation, seminar and/or participation in a variety of topics related to Physical Therapy. (Lec. 1-2) Pre: DPT student in good standing, PHT 552 or permission of the chairperson. S/U grades only.

PHT 655 Diagnostic Imaging LEC (2 crs.) Referral and interpretation of diagnostic images relevant in musculoskeletal assessment and management. Radiologic anatomy, normal variants, and pathological and traumatic conditions reviewed. CT scan, magnetic resonance imaging, ultrasonography, angiography addressed. (Lec. 2) Pre: DPT student in good standing or early contingent admit DPT, PHT 501, PHT 510 or permission of the chairperson.

PHT 672 Pharmacology for Physical Therapists LEC (2 crs.) Pharmacological actions, interventions, and interactions that physical therapists encounter in their treatment of patients undergoing physical rehabilitation. Drug administration appropriate to physical therapy practice. (Lec. 2/Online) Pre: DPT student in good standing, PHT 536 or permission of the chairperson.

PHT 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study). S/U credit.

PHY | Physics

PHY 109 Introduction to Physics LEC (3 crs.) Appreciation of the physical environment and an introduction to the principles and theories of contemporary physics. Recommended for elementary education majors. (Lec. 3) Pre: concurrent enrollment in PHY 110. Not open to students with credit in PHY 111 or PHY 112 or PHY 203 or PHY 204 or PHY 205. (A1) [Need passing credit in PHY 109 and 110 to fulfill general education requirement.]

PHY 110 Laboratory for Introduction to Physics LAB (1 cr.) Demonstrations and laboratory exercises related to PHY 109. (Lab. 2) Pre: concurrent enrollment in PHY 109. (A1) [Need passing credit in PHY 109 and 110 to fulfill general education requirement.]

PHY 111 General Physics I LEC (3 crs.) Mechanics, heat, and sound. (Lec. 3) Pre: concurrent enrollment in PHY 185. (A1) (B3) [Need passing credit in PHY 111 and 185 to fulfill general education requirement.]

PHY 112 General Physics II LEC (3 crs.) Optics, electricity, magnetism, and modern physics. Non-calculus presentation of fundamental physics. (Lec. 3) Pre: concurrent enrollment in PHY 186. (A1) (B3) [Need passing credit in PHY 112 and 186 to fulfill general education requirement.]

PHY 185 Laboratory for General Physics I LAB (1 cr.) Selected laboratory exercises applicable to materials in PHY 111. (Lab. 2) Pre: concurrent enrollment in PHY 111. (A1) (B3) [Need passing credit in PHY 111 and 185 to fulfill general education requirement.]

PHY 186 Laboratory for General Physics II LAB (1 cr.) Selected laboratory exercises applicable to materials in PHY 112. (Lab. 2) Pre: concurrent enrollment PHY 112. (A1) (B3) [Need passing credit in PHY 112 and 186 to fulfill general education requirement.]

PHY 203 Elementary Physics I LEC (3 crs.) Introduction to Newtonian mechanics. Kinematics and dynamics of particles and systems of particles. Motion of rigid bodies and oscillatory motion. Conservation principles. (Lec. 3) Pre: credit or concurrent enrollment in MTH 141 and concurrent enrollment in PHY 273. Intended for science or engineering majors. (A1) [Need passing credit in PHY 203 and 273 to fulfill general education requirement.]

PHY 203H Honors Section of PHY 203: Elementary Physics I LEC (3 crs.) Honors Section of PHY 203: Elementary Physics I. (Lec. 3) Pre: must have a 3.40 overall GPA. Credit or concurrent enrollment in MTH 141 and concurrent enrollment in PHY 273. Intended for science or engineering majors. Not open to students with credit in PHY 213. (A1) [Need passing credit in PHY 203 and 273 to fulfill general education requirement.]

PHY 204 Elementary Physics II LEC (3 crs.) Introduction to electricity and magnetism, leading to Maxwell's equations. Electric fields and Gauss' law; magnetic fields and Ampere's law. Capacitance and inductance, DC and AC circuits. Electromagnetic waves. (Lec. 3) Pre: PHY 203, credit or concurrent enrollment in MTH 142, and concurrent enrollment in PHY 274. Intended for science or engineering majors. (A1) [Need passing credit in PHY 204 and 274 to fulfill general education requirement.]

PHY 204H Honors Section of PHY 204: Elementary Physics II LEC (3 crs.) Honors Section of PHY 204: Elementary Physics II. (Lec. 3) Pre: must have a 3.40 overall GPA. PHY 203 or PHY 203H; credit or concurrent enrollment in MTH 142, and concurrent enrollment in PHY 274. Intended for science or engineering majors. Not open to students with credit in PHY 214. (A1) [Need passing credit in PHY 204 and 274 to fulfill general education requirement.]

PHY 205 Elementary Physics III LEC (3 crs.) Introduction to topics of thermodynamics, kinetic theory, wave motion, acoustics, and optics. (Lec. 3) Pre: PHY 203, credit or concurrent enrollment in MTH 243 or MTH 362, and concurrent enrollment in PHY 275. Intended for science or engineering majors. (A1) (B3) [Need passing credit in PHY 205 and 275 to fulfill general education requirement.]

PHY 205H Honors Section of PHY 205: Elementary Physics III LEC (3 crs.) Honors Section of PHY 205: Elementary Physics III. (Lec. 3) Pre: must have a 3.40 overall GPA. PHY 203; concurrent enrollment in MTH 243 or 362; concurrent enrollment in PHY 275. Intended for science or engineering majors. Not open to students with credit in PHY 213, 214. (A1) (B3) [Need passing credit in PHY 205H and 275H to fulfill general education requirement.]

PHY 210 Radiation Safety LEC (1 cr.) Radiation safety instruction sufficient to qualify students as radiation workers under state and federal regulations. (Lec. 1)

PHY 273 Elementary Physics Laboratory I LAB (1 cr.) Laboratory exercises and recitation sessions related to topics in PHY 203. (Lab. 3, Rec.) Pre: concurrent enrollment in PHY 203. (A1) [Need passing credit in PHY 203 and 273 to fulfill general education requirement.]

PHY 273H Honors Section of PHY 273: Elementary Physics Laboratory I LAB (1 cr.) Honors Section of PHY 273: Elementary Physics Laboratory I (Lab. 3) Pre: Must have a 3.40 overall GPA. Concurrent enrollment in PHY 203. [Students must register for both a Lab & Recitation of PHY 273H.] (A1) [Need passing credit in PHY 203 and 273 to fulfill general education requirement.]

PHY 274 Elementary Physics Laboratory II LAB (1 cr.) Laboratory exercises and recitation sessions related to topics in PHY 204. (Lab. 3, Rec.) Pre: concurrent enrollment in PHY 204. [Students must register for Lab. & Recitation.] (A1) [Need passing credit in PHY 204 and 274 to fulfill general education requirement.]

PHY 274H Honors Section of PHY 274: Elementary Physics Laboratory II LAB (1 cr.) Honors Section of PHY 274: Elementary Physics Laboratory II (Lab. 3) Pre: must have a 3.40 overall GPA. Concurrent enrollment with PHY 204. (A1) [Need passing credit in PHY 204 and 274 to fulfill general education requirement.]

PHY 275 Elementary Physics Laboratory III LAB (1 cr.) Laboratory exercises and recitation sessions related to topics in PHY 205. (Lab. 3, Rec.) Pre: Concurrent enrollment in PHY 205. [Students must register for Lab & Recitation section.] (A1) (B3) [Need passing credit in PHY 205 and 275 to fulfill general education requirement.]

PHY 275H Honors Section of PHY 275: Elementary Physics Laboratory III LAB (1 cr.) Honors Section of PHY 275: Elementary Physics Laboratory III. (Lab. 3) Pre: must have a 3.40 overall GPA. Concurrent enrollment in PHY 205H. (A1) (B3) [Need passing credit in PHY 205H and 275H to fulfill general education requirement.]

PHY 306 Elementary Modern Physics LEC (3 crs.) Introduction to relativistic and quantum physics: special relativity theory, structure of atoms, molecules, nuclei, and solids including semiconductor devices; wave and particle properties (Lec. 3) Pre: PHY 204 and 205. Not open to students with credit in PHY 341.

PHY 322 Mechanics LEC (3 crs.) Introduction to Newtonian statics and dynamics using vector analysis; particle motion, Lagrange's equations; rigid body motion. Application to various topics in physical mechanics. (Lec. 3) Pre: PHY 204 and MTH 244.

PHY 331 Electricity and Magnetism LEC (3 crs.) Electrostatic fields and dielectric materials; magnetic fields, magnetic induction and magnetic materials; introduction to Maxwell's equations. (Lec. 3) Pre: PHY 204 and MTH 243.

PHY 334 Optics LEC (3 crs.) Cross-listed as (PHY), AST 334. Geometrical and physical optics; thick lens optics, interference, diffraction, polarization. (Lec. 3) Pre: PHY 112 or 205.

PHY 381 Advanced Laboratory Physics LAB (3 crs.) Key experiments covering a wide range of disciplines including nuclear physics, properties of the electron, magnetism thermodynamics, and optics. Quantitative analysis is stressed, including statistics and curve fitting. Technical skills are developed. (Lab. 6) Pre: PHY 204 and 205.

PHY 382 Advanced Laboratory Physics LAB (3 crs.) Key experiments covering a wide range of disciplines including nuclear physics, properties of the electron, magnetism thermodynamics, and optics. Quantitative analysis is stressed, including statistics and curve fitting. Technical skills are developed. (Lab. 6) Pre: PHY 205 or HPR 322.

PHY 401 Seminar In Physics SEM (1 cr.) Preparation and presentation of papers on selected topics in physics. (Seminar)

PHY 402 Seminar In Physics SEM (1 cr.) Preparation and presentation of papers on selected topics in physics. (Seminar)

PHY 410 Computational Physics LEC (3 crs.) Development and application of computer techniques to classical and quantum physics problems. Emphasis will be on approximation techniques and numerical methods for solving matrix, integral, and differential equations arising in physics. (Lec. 2, Lab. 3) Pre: MTH 215 and CSC 200 or CSC 201 or CSC 211. Credit or concurrent enrollment in MTH 244 and PHY 306.

PHY 420 Introduction to Thermodynamics and Statistical Mechanics LEC (3 crs.) Emphasis on laws of thermodynamics and properties of thermodynamic systems, kinetic theory of gases, molecular velocity distributions, transport phenomena, Maxwell-Boltzmann statistics. (Lec. 3) Pre: PHY 205 and MTH 243.

PHY 430 Modern Biological Physics LEC (3 crs.) Quantitative representation of the structure and organization of biological molecules (DNA, RNA, proteins, membranes), the forces that stabilize biomolecules, cooperative transitions, protein folding, membrane physics, energy transduction in biological systems, molecular motors, and ratchet models. (Lec. 3) Pre: MTH 244. Not for graduate credit.

PHY 451 Introduction to Quantum Mechanics LEC (3 crs.) Particle-wave duality, uncertainty principle; Schridinger equation: eigenvalues, wave functions, time dependence; Dirac notation; Heisenberg representation: operators, matrices, eigenvectors; angular momentum: spin and polarization, Pauli matrices, hydrogen atom, application to quantum computation; symmetries: conservation laws, fermions and bosons. (Lec. 3) Pre: PHY 306 and 322, and MTH 215, and 244.

PHY 452 Quantum Mechanics: Techniques and Applications LEC (3 crs.) Approximation techniques including time-dependent and time-independent perturbation theory, WKB, variational method, Born, Hartree, and computational techniques. Applications to atomic and molecular structure, model potentials, radiative transitions, and scattering. (Lec. 3) Pre: PHY 451 and MTH 461.

PHY 455 Introduction to Solid-State Physics LEC (3 crs.) Crystal structure, thermal, electrical, and magnetic properties of solids. Electron gas theory of metals, band theory of solids. Semiconductors. (Lec. 3) Pre: PHY 451 and MTH 243.

PHY 483 Laboratory And Research Problems In Physics LEC (3 crs.) Cross-listed as (PHY), AST, OCG 483. Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: PHY 381 and 382.

PHY 484 Laboratory and Research Problems In Physics LEC (3 crs.) Cross-listed as (PHY), AST, OCG 484. Research in current areas of physics. Students perform research projects with individual faculty members. Students in physics and physical oceanography may coordinate their research project with a faculty member of the Graduate School of Oceanography. (Lec. 1, Lab. 6) Pre: PHY 381 and 382. (D1) (B3)

PHY 491 Special Problems IND (1-6 crs.) Cross-listed as (PHY), AST 491. Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study)

PHY 492 Special Problems IND (1-6 crs.) Cross-listed as (PHY), AST 492. Advanced work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study)

PHY 510 Mathematical Methods of Physics I LEC (3 crs.) Topics designed to include applications in physics: linear algebra; determinants, matrices, eigenvalues; properties of finite and infinite bases; basics of numerical linear algebra; probability and statistics; Monte Carlo methods. (Lec. 3) Pre: Graduate standing in physics.

PHY 520 Classical Dynamics LEC (3 crs.) Newton's laws. Conservation theorems and symmetry properties. Lagrangian mechanics. Central force motion. Dynamics of rigid bodies. Hamiltonian mechanics. Canonical transformations. Action-angle coordinates. Hamilton-Jacobi theory. Deterministic chaos. Relativistic mechanics. (Lec. 3) Pre: credit or concurrent enrollment in PHY 510.

PHY 525 Statistical Physics I LEC (3 crs.) Equilibrium thermodynamics. Thermodynamics of phase transitions. Elements of kinetic theory. Statistical ensembles and partition functions. Classical and quantum equilibrium statistical mechanics. (Lec. 3) Pre: PHY 420 or equivalent, PHY 510.

PHY 530 Electromagnetism I LEC (3 crs.) Electrostatics, including boundary value problem. Multipoles, electrostatics of macroscopic media, dielectrics. Magnetostatics. Time-varying fields, Maxwell equations, conservation laws. Plane electromagnetic waves, wave propagation. Wave guides, resonant cavities. Magnetic materials. (Lec. 3) Pre: credit or concurrent enrollment in PHY 510 and 520.

PHY 540 Modern Biological Physics LEC (3 crs.) Quantitative representation of biological molecules (DNA, RNA, proteins, membrane) structure and organization, forces stabilized biomolecules, cooperative transitions, protein folding, membrane physics, energy transduction in biological systems, molecular motors, ratchet models. Pre: MTH 244.

PHY 545 Nanotechnology in Imaging and Therapy LEC (3 crs.) Nanomaterials: physical properties, application in drug delivery and diagnostics, nanodevices, nano-oncology. (Lec. 3) Pre: MTH 244.

PHY 550 Introduction to Radiation Physics and Dosimetry LEC (3 crs.) Cross-listed as (PHY), NUE 550. Basic principles of radiation physics: radioactivity, the physics of ionizing radiation, radiation dosimetry, imaging equipment, radiation therapy equipment and radiation detectors. Pre: PHY 210 or permission of instructor.

PHY 552 Radiobiology LEC (3 crs.) Basic principles of radiation biology: factors that modify radiation response; linear energy transfer; relative biological effectiveness; tissue radiosensitivity; time-dose and fractionation; radiobiological modeling. Pre: PHY 210 or permission of instructor.

PHY 555 Radiation Oncology Clinical Practicum LEC (4 crs.) Provide the student a base knowledge and overview of a medical physics in the environment of a modern radiation oncology clinic practice, opportunities for practical clinical training as a Medical Physicist, and a familiarity with the roles and practices of the clinical team tasked with the treatment of cancer patients. (Lec. 2, Prac. 2) Pre: PHY 550 and PHY 552 or permission of instructor.

PHY 560 Experimental Methods LEC (3 crs.) Overview of the main principles of experimental methods used in physics, engineering, chemistry, biology and medicine. (Lec. 3) Pre: MTH 244 or permission of instructor

PHY 565 Radiation Detection, Instrumentation and Data Analysis LEC (3 crs.) Cross-listed as (PHY), NUE 565. Provide the student a base knowledge of radiation detection as it pertains to radiation therapy, diagnostic imaging, and nuclear medicine. (Lec. 3) Pre: permission of instructor.

PHY 570 Quantum Mechanics I LEC (3 crs.) Dirac notation. Matrix representations, observables, uncertainty relations. Time evolution; Schroedinger and Heisenberg pictures. Schroedinger equation applications. Propagators and Feynman path integrals. Aharonov-Bohm effect. Angular momentum; Wigner-Eckart theorem. (Lec. 3) Pre: credit or concurrent enrollment in PHY 510 and 520.

PHY 575 Introduction to Quantum Computing LEC (3 crs.) Qubits and their physical realization. Entanglement and Bell states. Quantum gates and circuits. Quantum algorithms: searches, factoring, Fourier transforms. Quantum information theory with applications to teleportation and cryptography. Physical applications. (Lec. 3) Pre: PHY451 or Graduate Standing in Physics

PHY 576 Advanced Quantum Computing LEC (3 crs.) Advanced quantum circuit theory. Decoherence and density matrices. Error correction. Dense and superdense coding. Quantum tomography. Hardware. (Lec. 3) Pre: PHY 575.

PHY 577 Quantum Computing Internship PRA (4 crs.) Provides students with practical experience in Quantum Computing while working on an internship. (Practicum) Pre: PHY 575. S/U only.

PHY 578 Seminar In Sensors And Surface Technology SEM (1 cr.) Students, faculty, and invited outside speakers present and discuss selected topics related to research interests of the Sensors and Surface Technology Partnership. (Seminar) Pre: permission of instructor. May be repeated. S/U credit.

PHY 580 Condensed Matter Physics I LEC (3 crs.) Drude and Sommerfiled theories. Crystal lattices and symmetries. Bragg scattering. Properties and calculation of electron spectra. Fermi surfaces of metals. Electrons in magnetic field. De Haas - van Alphen effect and Phonons. Electron-phonon interaction. Defects in solids. (Lec. 3) Pre: PHY 525, 570 or permission of chair.

PHY 585 Advanced Clinical Medical Imaging LEC (4 crs.) Advanced topics in diagnostic and clinical imaging modalities with an emphasis on clinically relevant modalities. Modalities include radiography, fluoroscopy, computed tomography, nuclear imaging, mammography, magnetic resonance imaging, ultrasound and positron emission tomography. (Lec. 3, Practicum 1) Pre: ELE 564 or instructor permission.

PHY 590 Faculty Project IND (1-6 crs.) A special project directly related to the research program of an individual faculty member. (Independent Study). Pre: permission of chairperson. Not to exceed 6 credits.

PHY 591 Special Problems IND (1-6 crs.) Advanced study under the supervision of a faculty member arranged to suit the individual needs of the student. (Independent Study) Pre: permission of chairperson. Not to exceed 6 credits.

PHY 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

PHY 610 Mathematical Methods of Physics II LEC (3 crs.) Topics designed to include applications in physics. Ordinary and partial differential equations; Sturm-Liouville theory. Numerical methods and computational techniques. Probability and statistics. Integral transforms. Integral equations; Green's functions. Special functions of mathematical physics. (Lec. 3) Pre: PHY 510.

PHY 625 Statistical Physics II LEC (3 crs.) Statistical physics of soft condensed matter: colloids, polymers, gels, liquid crystals, amphiphiles, biological matter. Interactions, conformations, hierarchical structures, phase transitions, aggregation, self-assembly, kinetics, transport. (Lec. 3) Pre: PHY 525.

PHY 626 Statistical Physics III LEC (3 crs.) Stochastic processes. Markov condition. Master equation. Fokker-Planck equation. Brownian motion. Langevin equation. Transport phenomena. Onsager theory of irreversible processes near equilibrium. Boltzmann equation. Linear response theory, fluctuation dissipation theorem. (Lec. 3) Pre: PHY 525.

PHY 630 Electromagnetism II LEC (3 crs.) Radiating systems, scattering, and diffraction. Special theory of relativity. Dynamics of relativistic particles and electromagnetic fields. Collisions between charged particles, energy loss and scattering. Radiation by moving charges. Multipole fields. (Lec. 3) Pre: PHY 530.

PHY 670 Quantum Mechanics II LEC (3 crs.) Symmetry (parity, translation, time-reversal). Time-independent (dependent) perturbation theory, variational methods. Identical particles. Scattering theory (Lippman-Schwinger equation, Born series, partial waves, resonances, optical theorem, inelastic scattering). Applications. Relativistic quantum mechanics. (Lec. 3) Pre: PHY 570 or permission of chairperson.

PHY 680 Condensed Matter Physics II LEC (3 crs.) Interacting systems. Green's functions. Diagrammatic methods. Applications to superconductivity. Fluctuations. Functional integration Generalized susceptibility and dielectric response. Fluctuation-dissipation theorem. Structure function. (Lec. 3) Pre: PHY 530 and 580 or permission of instructor.

PHY 690 Topics In Physics LEC (3 crs.) Advanced topics in areas of research specializations: a) neutron physics; b) quantum fluids; c) magnetism; d) surface physics; e) nonlinear phenomena; f) advanced quantum physics; g) nuclear physics; h) low-temperature physics. (Lec. 3) Pre: permission of chairperson.

PHY 691 Advanced Special Topics LEC (1-6 crs.) Special topics related to current developments by visiting or permanent faculty. (Lec. 1-6) Pre: permission of instructor.

PHY 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

PHY 930 Workshop In Physics Topics For Teachers WRK (0-3 crs.) Especially designed for teachers of physical sciences. Basic topics in physics from an advanced or pedagogical perspective. (Workshop) Pre: teacher certification.

PLA | Prior Learning Assessment

PLA 100 Prior Learning Assessment Portfolio Development SEM (1 cr.) Identification through self-assessment of student prior learning and appropriate methods for seeking credit. Analysis and application of the process for developing a prior learning portfolio. (Seminar) Pre: matriculated status and permission of the student's academic dean. Offered through the Alan Shawn Feinstein College of Continuing Education. S/U only.

PLS | Plant Sciences

PLS 132G Sustainable Agriculture, Food Systems, and Society LEC (3 crs.) Cross-listed as (AFS), AVS, PLS 132G. Food is essential to life, and a foundation of civilization. This course will explore agriculture's history, culture, and practices world-wide, and challenge students to develop sustainable agricultural practices. (Lec. 3) (A2) (GC)

PLS 132GH Honors Section of AFS/AVS/PLS 132: Sustainable Agriculture, Food Systems, and Society LEC (3 crs.) Cross-listed as (AFS), AVS, PLS 132H. Honors Section of AFS/AVS/PLS 132: Sustainable Agriculture, Food Systems, and Society. (Lec. 3) Pre: 3.40 overall GPA. (A2) (GC)

PLS 150 Plants, People and the Planet LEC (3 crs.) Fundamentals of plant biology, emphasizing the structure, physiology, and ecology of vascular plants common to gardens and landscaped environments. (Lec. 3) (A1)

PLS 190 Issues in Biotechnology LEC (3 crs.) Cross-listed as (AFS), CMB, NRS, PLS 190. Introduction to modern biotechnology in medical, pharmaceutical, forensic, agricultural, marine, and environmental applications. Consideration of ethical, environmental, health, and social issues. (Lec. 3/Online) (A1)

PLS 200 Introduction to Plant Protection LEC (4 crs.) Basic study of weeds, insects, and disease agents, and the problems they cause. Recognition of important plant pests and application of integrated cultural, chemical, and biological pest management procedures. (Lec. 4) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 210 Plant Protection Practicum PRA (2 crs.) Introduction to practical aspects of plant protection, concentrating on field diagnostic techniques and development of analytical and observation skills. Diagnostics are primarily an interactive field activity, supplemented by microscopy, report writing, and oral presentations. (Practicum) Pre: credit or concurrent enrollment in 200 or permission of instructor.

PLS 215 Propagation of Plant Materials LEC (3 crs.) The art and science of propagating ornamental and food plants by seeds, cuttings, grafting and tissue culture. (Lec. 3) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 216 Plant Propagation Practicum LAB (2 crs.) Practical application of the principles of propagating ornamental and food plants by seed, cuttings, grafting, layering and division. (Lab 5). Pre: PLS 215 or concurrent enrollment.

PLS 250 Plant Breeding and Genetics LEC (4 crs.) Introduction to the general principles of plant breeding, with emphasis on the application of genetic principles in plant improvement strategies. (Lec. 3, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 255 Applied Plant Biology LEC (3 crs.) Fundamental concepts in plant biology and applications to cultivation and management of plants. Emphasis on plant physiology, plant nutrition and plant reproduction and how they relate to horticultural plant production. (Lec. 3) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 275 Pasture and Grazing Management in Sustainable Agriculture LEC (4 crs.) Cross-listed as (AVS), PLS 275. An introduction to managing livestock and grasslands to promote animal health and increase food and fiber supplies while sustaining land productivity, promoting ecosystem function, and maintaining farm economic viability. Lec. 3, Lab 2) Pre: AVS 101 and 102 or permission of instructor.

PLS 306 Landscape Management and Arboriculture LEC (4 crs.) Culture of new and established trees, shrubs, and vines in the landscape. Practical exposure to planting, pruning, fertilization, and plant protection. Prepares the student for Arborist's Certification Examination. (Lec. 3, Lab. 3) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 311 Fruit Culture LEC (3 crs.) Principles of fruit production with emphasis on home gardens. Topics include propagation, planting, soils, fertilization, cultural practices, pruning and storage of tree and small fruits and dwarfs or semi-dwarf stocks. (Lec. 2, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 312 Fruit Culture Practicum PRA (2 crs.) Hands-on propagation, grafting, pruning, fertilization, pest management and sustainable culture of various fruit plants (apple, pear, peach, blueberry, bramble, grape, strawberry). (Practicum 4) Pre: PLS 150.

PLS 320 Landscape Design LEC (3 crs.) Examination of landscape design principles and practices including introduction to landscape graphics, preliminary design, and planting design. (Lec. 3) Not open to landscape architecture majors.

PLS 321 Sustainable Grain Production LEC (4 crs.) Study of cereal, pseudocereal, and pulse crops commonly grown in the United States. Focuses on organic and agroecological systems of production appropriate for home gardeners and small-scale commercial farmers. Explores cultural uses of grains and associated end-use technologies. (Lec. 3, Lab. 1) Pre: PLS 132G or PLS 150 or BIO 102 or permission of instructor.

PLS 322 Power Units LEC (3 crs.) Principles of operation, maintenance, and adjustment of power units including gasoline and diesel engines and electric motors. Emphasis on tractors and other power units important in farm, nursery, greenhouse, and grounds maintenance operations. (Lec. 2, Lab. 2)

PLS 324 Vegetable Crops LEC (4 crs.) A study of vegetable crops including the botany and systematics of the vegetables commonly grown in the United States. Includes organic and conventional production techniques for home gardeners and market farmers. (Lec. 3, Lab. 2) Pre: PLS 150 or BIO 102 or permission of instructor. (D1) (B4)

PLS 325 Hydroponic and Greenhouse Vegetable Production LAB (2 crs.) Hands-on instruction in vegetable production with emphasis on season extension techniques such as high and low tunnels, hydroponic greenhouse production, and production of transplants. (Lab. 2) Pre: PLS 150 or BIO 102 or permission of instructor.

PLS 331 Horticultural Plant Production LEC (4 crs.) Foundation of horticulture plant production, growing facilities, equipment and cultural practices. History of the greenhouse and nursery industries, current challenges and recent innovations. (Lec. 3, Lab. 3) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 332 Plant Pathology: Introduction to Plant Diseases LEC (4 crs.) Cross-listed as (BIO), PLS 332. Nature, cause, and control of plant diseases. Use of basic techniques for identification of major types of plant diseases and their causal agents. (Lec. 4) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 341 Introduction To Turf Management LEC (3 crs.) Fundamental aspects of turfgrass science including identification, propagation, fertilization, pest control, and other soil-plant relationships. (Lec. 2, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 350 Herbaceous Garden Plants LEC (3 crs.) Identification and use of annual and perennial herbaceous ornamental plants in the landscape. Emphasis on sustainable landscaping and the use of native plants. (Lec. 2, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 353 Landscape Plants I LEC (3 crs.) Cross-listed as (LAR), PLS 353. Identification and description under fall conditions; classification and adaptation of the important trees and shrubs including broadleaf evergreens and their value in ornamental plantings. (Lec. 1, Lab. 4) Pre: BIO 102 or PLS 150.

PLS 354 Landscape Plants II LEC (3 crs.) Cross-listed as (PLS), LAR 354. Identification and description under winter and spring conditions; classification and adaptation of the coniferous evergreens, vines, and groundcovers and their value in ornamental plantings. (Lec. 2, Lab. 2) Pre: LAR 353 or PLS 353.

PLS 361 Weed Science LEC (3 crs.) Ecological and cultural aspects of weed problems, physiology of herbicide action, selected problem areas in weed control and plant identification. (Lec. 2, Lab. 2) Pre: BIO 102 or PLS 150 or permission of instructor.

PLS 385 Agroecology and Global Food Systems LEC (3 crs.) A study of agriculture and food during production, distribution and use as it relates to country, culture and science. (Lec. 3)

PLS 390 Irrigation Technology LEC (3 crs.) A study of the science and technology of obtaining, applying, and managing water as it relates to the culture of field, forage, vegetable, turf, and ornamental crops. (Lec. 2, Lab. 2) Service learning. Pre: MTH 107 or MTH 108 or MTH 111 or permission of instructor.

PLS 399 Plant Sciences Internship PRA (1-6 crs.) Directed work experience programs at nurseries, turf farms, greenhouses, plant breeding farms, arboreta, research farms, or laboratories. (Practicum) Pre: BIO 102 or PLS 150 or permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

PLS 401 Plant Sciences Seminar SEM Presentations and discussions of current topics of concern to producers and consumers of plants and plant products, including plant protection. (Seminar)

PLS 402 Plant Sciences Seminar SEM (1 cr.) Presentations and discussions of current topics of concern to producers and consumers of plants and plant products, including plant protection. (Seminar)

PLS 415 Plant Plagues: Causes and Consequences LEC (2 crs.) Events and decisions leading to major plant epidemics, historical and current. Emphasizes causative organisms and their characteristic biology, with subsequent consideration from diverse social-political-economic viewpoints. Extensive student preparation/participation required. (Lec. 2) Pre: PLS 200 or BIO 102 or permission of instructor.

PLS 440 Diseases of Turf and Ornamentals LEC (3 crs.) Diagnosis, epidemiology, and control measures of common turf and ornamental plant diseases found in the Northeast United States. (Lec. 3) Pre: PLS 200 or 332. Not for graduate credit.

PLS 442 Advanced Turf Management LEC (3 crs.) Establishment and maintenance practices for specialty turfgrass areas (golf courses, athletic fields, and parks) including design and construction specifications and budget management. (Lec. 3) Pre: PLS 341 and 440 or permission of instructor. Not for graduate credit.

PLS 471 Plant Improvement LEC (4 crs.) Traditional breeding, techniques and methods used for germplasm development and enhancement. Plant cell and tissue culture methodologies as they relate to the improvement of plant varieties through biotechnology. (Lec. 3, Lab. 2) Pre: PLS 215 and PLS 250 or permission of instructor. Not for graduate credit.

PLS 491 Special Projects and Independent Study IND (1-3 crs.) Special work to meet individual needs of students in various fields

of plant nutrition, propagation, growth and development, garden design, site planning, plant pathology, entomology, and related subjects. (Independent Study) Pre: permission of instructor.

PLS 492 Special Projects and Independent Study IND (1-3 crs.) Special work to meet individual needs of students in various fields of plant nutrition, propagation, growth and development, garden design, site planning, plant pathology, entomology, and related subjects. (Independent Study) Pre: permission of instructor.

PLS 498 Teaching Practicum in Plant Sciences PRA (1-3 crs.) Teaching experience, for qualified undergraduate students, through direct involvement in planning and assisting in PLS courses. May include supervised participation in discussion groups, assisting in a laboratory course, or tutoring. (Practicum) Pre: Senior standing, previous enrollment in the course to be taught, and permission of instructor. Limited to PLS majors. May be repeated for a maximum of 3 credits. Not for graduate credit. S/U only.

PLS 501 Graduate Seminar In Plant Sciences SEM Presentation of technical reports and discussion of current research papers in crop science, landscape ecology, growth and development of economic plants, and production, protection, and management of economic crops. (Seminar)

PLS 502 Graduate Seminar In Plant Sciences SEM Presentation of technical reports and discussion of current research papers in crop science, landscape ecology, growth and development of economic plants, and production, protection, and management of economic crops. (Seminar)

PLS 508 Seminar in Biological Literature SEM (1 cr.) Cross-listed as (BIO), CMB, AFS, AVS, PLS, NRS, LIB 508. Survey of biological literature including traditional methods of bibliographic control, contemporary information retrieval services, and the development of a personalized information system. (Sem. 1) Pre: graduate standing or permission of the instructor.

PLS 540 Diseases of Turf and Ornamentals LEC Disease diagnosis, epidemiology and control measures of common turf and ornamental diseases found in the Northeast United States. (Lec. 3) Pre: PLS 200 or PLS 332.

PLS 542 Advanced Turf Management LEC (3 crs.) Establishment and maintenance practices for specialty turfgrass areas (golf course, athletic fileds and parks) including design and construction specifications and budget management. (Lec. 3) Pre: PLS 341, PLS 440.

PLS 571 Plant Improvement LEC (4 crs.) Traditional breeding, techniques and methods used for germplasm development and enhancement. Plant cell and tissue culture methodologies as they relate to the improvement of plant varieties through biotechnology. (Lec. 3, Lab. 1) Pre: PLS 250 and PLS 215 or permission of instructor. Offered in alternate years.

PLS 591 Nonthesis Research in Plant Sciences IND (1-3 crs.) Advanced work under the supervision of researchers to expand research experience into areas other than those related to thesis research. Arranged to suit individual requirements. (Independent Study) Pre: permission of instructor.

PLS 592 Nonthesis Research in Plant Sciences IND (1-3 crs.) Advanced work under the supervision of researchers to expand research experience into areas other than those related to thesis research. Arranged to suit individual requirements. (Independent Study) Pre: permission of instructor.

POR | Portuguese

POR 101 Beginning Portuguese I LEC (3 crs.) Fundamentals of modern European Portuguese. Emphasis on standard pronunciation, development of familiarity with most common grammar structures, and acquisition of working vocabulary. (Lec. 3) Pre: no prior Portuguese is required. Will not count toward the language requirement if the student has studied Portuguese for more than one year within the last six years. (A3) (C2)

POR 102 Beginning Portuguese II LEC (3 crs.) Continuation of POR 101. Students enrolling in this course should have taken POR 101 or equivalent. (Lec. 3) (A3) (C2)

POR 103 Intermediate Portuguese I LEC (3 crs.) Intensive and extensive reading of moderately difficult Portuguese prose, review of grammar structures, idiomatic expressions, conversation practice based on readings. Students enrolling in this course should have taken POR 102 or equivalent. (Lec. 3) (A3) (C2)

POR 104 Intermediate Portuguese II LEC (3 crs.) Continuation of POR 103. Readings of more difficult texts. Class discussion and reports on supplementary readings. Students enrolling in this course should have taken POR 103 or equivalent. (Lec. 3) (A3) (C2)

POR 205 Portuguese Language and Style I LEC (3 crs.) Continuation of POR 104. Comprehensive upper-intermediate level course focusing on POR language and communication skills. (Lec. 3) Pre: POR 104, or permission of instructor.

POR 206 Portuguese Language and Style II LEC (3 crs.) Continuation of POR 205. Comprehensive upper-intermediate level course focusing on POR language and communication skills. (Lec. 3) Pre: POR 205 or equivalent, or permission of instructor.

POR 335 Topics in the Literature of the Portuguese-Speaking World LEC (3 crs.) Selected topics in the literatures of continental Portugal and the adjacent islands, Brazil, Cape Verde, Angola, Mozambique. (Lec. 3) Pre: POR 206 or equivalent or permission of instructor. POR 205 or 206 may be taken concurrently with permission of instructor. May be repeated for credit as often as topic changes.

POR 497 Directed Study IND (3 crs.) For the advanced student. Individual study and reports on problems of special interest. (Independent Study) Pre: one 300-level course in Portuguese, acceptance of project by faculty member, and approval of chair. Not for graduate credit.

PRS | Public Relations

PRS 100 Introduction to Public Relations LEC (3 crs.) Examine and explore public relations principles, concepts and emerging trends associated with the role of the PR practitioner. Explore career paths, such as investor relations, community relations, public affairs, and event management. (Lec. 3/Online) Pre: Exploring Harrington (AS_EHAR_BA) or declared PR Majors, Minors.

PRS 200 Introduction to Event Management LEC (3 crs.) Explore principles, concepts and emerging trends pertinent to event management, a significant aspect of public relations. Gain an understanding of the synergy that develops between public relations and marketing. (Lec. 3) Pre: PRS100 or permission of instructor.

PRS 300 Social Media Strategies for the PR Professional LEC (4 crs.) Students will explore principles, concepts and emerging trends relative to the pervasiveness of social media. Will focus on effectively branding and messaging to niche markets. (Lec. 3, Practicum) Pre: PRS 100 and majors or minors in Comm Studies, Sports Media, or PR.

PRS 320 Strategic Media Relations LEC (3 crs.) Explore media relations strategies/tactics (crafting releases, pitching to the media, use of social/traditional media, e.g. twitter) to inform/persuade publics about issues. (Lec. 3) Pre: Students admitted to PR Major and WRT 331.

PRS 331 Writing Public Relations LEC (3 crs.) Cross-list as (WRT), PRS 331. Introduces the audiences, situations, and processes typical of public relations writing. Includes practice with genres including news releases, media kits, speeches, and letters. Emphasizes professional behavior and polished writing. (Lec. 3) Pre: any 200-level WRT course; PR and WRT majors only.

PRS 340 Public Relations Strategies LEC (3 crs.) Cross-listed as (PRS), JOR 340. Principles and procedures in public relations: emphasis on role of the public relations practitioner as a specialist in communication; analysis of publications produced as a part of public relations. (Lec. 3/Online) Pre: PRS 100 and declared PR majors or PR minors.

PRS 341 Editing For Publication LEC (3 crs.) Cross-list as (JOR), PRS 341. An introduction to editing for the print media, including newspapers, magazines, and public relations. Focuses on taking work written by others and preparing it for publication. Includes consideration of legal and ethical issues. (Lec. 2, Lab. 2) Pre: junior standing and JOR 220 or WRT 331/PRS 331, and major in journalism or public relations, or permission of instructor.

PRS 360 Strategic Sport Communication & Media LEC (3 crs.) This course introduces effective communication and public relations strategies and techniques within an organizational and professional context for sports. Students will explore various communication careers in sports as well as develop skills in print, online, broadcast and social media for sports. (Lec. 3) Pre: COM 203, PRS 100, PRS 340, or permission of instructor.

PRS 370 Sport Branding in the Digital Age LEC (3 crs.) This course examines digital branding within the context of the sport media industry. It covers foundations of branding while applying lessons to real-life cases in sport. (Lec. 3) Pre: COM100 or PRS100, and COM203 or permission of the instructor.

PRS 441 Public Relations Practices PRA (3 crs.) Cross-listed as (PRS), JOR 441. Practical application of traditional PR methods in solving problems in a variety of markets. Explores fundamental agency operations, client-agency relationships. Combines practical experience with individual projects, programs, and campaigns. (Practicum) Pre: PRS 340. Not for graduate credit. (D1)

PRS 442 Strategic Media Communication LEC (3 crs.) Cross-listed as (PRS), WRT, COM 442, JOR 443. Introduces strategic media relation tactics when responding to the media, specifically crisis communication situations. Students gain practical experience in various writing and speaking opportunities to effectively work with the media. (Lec. 3) Pre: Junior standing; open only to majors in Communication Studies, Public Relations, Journalism, and Writing.

PRS 477 Public Relations Internship PRA (3 or 6 crs.) Supervised experience in public relations. Requires a minimum of 120 hours (3 credits) or 240 hours (6 credits). Weekly class meeting. May be repeated; maximum of 6 credits allowed toward graduation. Pre: public relations majors only; PRS 331, 332, 340. Permission of instructor and application required. Not for graduate credit.

PRS 490 Practicum in Public Relations PRA (3 crs.) Supervised field and PR production lab experience. Entails substantial field and client-based activities in the collaborative drafting, design and production of public relations projects. May be repeated for credit up to a maximum of 6 credits. (Prac.) Pre: Permission of the instructor. Not for graduate credit. S/U credit only.

PSA | Prof Supply Chain & Analytics

PSA 500 Online Learning in the Science of Supply Chain Management ONL (3 crs.) The purpose of this course is to gain a basic overview of the knowledge and skills you need to be a successful online student. (Accelerated Online Program) Pre: Acceptance into the Master of Science in Supply Chain and Applied Analytics Program or permission from the program manager.

PSA 501 Accounting and Finance for Supply Chain Managers ONL (3 crs.) The purpose of this course is to gain a basic overview of the concepts and systems used in finance and accounting for business organizations. (Accelerated Online Program) Pre: PSA 500 or permission from instructor.

PSA 502 Global Supply Chain and Operations Strategy ONL (3 crs.) The purpose of this course is to cover the strategic relationships necessary for supply chain management as well as the tactical activities of logistics, purchasing and operations from a global perspective. (Accelerated Online Program) Pre: PSA 500 or permission of instructor.

PSA 503 International Transportation Management ONL (3 crs.) The purpose of this course is to gain a background for understanding all critical issues in domestic and international transportation. Addresses regulations, modes, carrier selection, transportation system management and design. (Accelerated Online Program) Pre: PSA 500 or permission of instructor.

PSA 504 Supply Chain Analytics and Data Mining ONL (3 crs.) The purpose of this course is to gain a basic overview of supply chain analytics and data mining applications. Key topics include: how can supply chain analytics and data mining be applied, understanding and applying, descriptive analytics, predictive analytics and prescriptive analytics to case problems. (Accelerated Online Program) Pre: PSA 500, PSA 501, or permission from instructor.

PSA 505 Warehousing and Distribution Systems ONL (3 crs.) The purpose of this course is to gain a basic overview of the knowledge and skills you need to manage Warehousing and distribution activities. Practical applications and current practices regarding the global supply chain and the related impacts on warehouse and distribution activities will be covered indepth. (Accelerated Online Program) Pre: PSA 500, PSA 503, or permission from instructor.

PSA 506 Procurement and Supplier Management ONL (3 crs.) The purpose of this course is to provide an overview of the applications, methods and concepts in supplier relationship management/ procurement. (Accelerated Online Program) Pre: PSA 500, PSA 502, or permission from instructor.

PSA 507 Customer Analytics ONL (3 crs.) The purpose of this course is to gain a basic overview of the knowledge and skills you need to manage customer relationship management. (Accelerated Online Program) Pre: PSA 500, PSA 504, or permission from instructor.

PSA 508 Supply Chain Network Design ONL (3 crs.) The purpose of this course is to aid students in modeling existing supply chains. Using software, students will develop optimal sourcing and distribution networks. (Accelerated Online Program) Pre: PSA 500, PSA 503, PSA 504, or permission of instructor.

PSA 509 Lean Six Sigma Innovation Protocols ONL (3 crs.) The purpose of this course is an introduction to Lean Six Sigma Operations and a multitude of techniques that are used in the evaluation and analysis of business processes. (Accelerated Online Program) Pre: PSA 500, PSA 501, PSA 504, or permission of instructor.

PSC | Political Science

PSC 113 Introduction to American Politics LEC (4 crs.) Basic principles of the government of the United States: constitutionalism, separation of powers, federalism, civil liberties; politics; legislative, executive, and judicial organization; functions of government. (Lec. 3, Rec. 1) (A2) (C1)

PSC 116G Introduction to International Politics LEC (4 crs.) Nature of the state system, foundations of national power, means of exercising power. Cooperative interactions between states. Current international problems. (Lec. 3, Rec. 1) (A2) (C2) (GC)

PSC 210 American Politics: Theories and Applications LEC (4 crs.) The core course for political science majors pursuing the American Politics Track. Students identify, apply and criticize the major theories used to interpret American Politics. (Lec. 4)

PSC 211 World Politics: Theories and Applications LEC (4 crs.) The core course for political science majors pursuing the World Politics Track. Students identify, apply, and criticize the major theories used in World Politics. (Lec. 4)

PSC 221 Islam and Its Civilization LEC (4 crs.) Cross-listed as (RLS), PSC 221. Provides the students with the basic foundation to understand Islam (as a religion and a civilization). The course explains Islamic beliefs and ethics, then shows how those ethics shaped Muslim societies socially and politically. (Lec. 4) (A3) (C2)

PSC 221H Honors Section of RLS/PSC 221: Islam and Its Civilization LEC (4 crs.) Honors Section of RLS/PSC 221: Islam and Its Civilization: Cross-listed as (RLS), PSC 221H. Provides the students with the basic foundation to understand Islam (as a religion and a civilization).

The course explains Islamic beliefs and ethics, then shows how those ethics shaped Muslim societies socially and politically. (Lec. 4) Pre: Must have a 3.4 or higher GPA overall to enroll.(A3) (C2)

PSC 274 Criminal Justice System LEC (3 crs.) Cross-listed as (CCJ), PSC 274. The American system of criminal justice, general processing of cases, principal actors, study of theories of criminal law, and pretrial detention and sentencing. (Lec. 3/Online)

PSC 274H Honors Section of CCJ/PSC 274: Criminal Justice System LEC (3 crs.) Honors Section of CCJ/PSC 274: Cross-listed as (CCJ), PSC 274H. The American system of criminal justice, general processing of cases, principal actors, study of theories of criminal law, and pretrial detention and sentencing. (Lec. 3/Online) Pre: 3.40 or higher overall GPA.

PSC 300 Challenge of Nuclear Arms LEC (4 crs.) Nuclear weapons addressed from a range of perspectives. Emphasis on the strategic, political, social, and moral issues and controversies raised by the potential for nuclear war. (Lec. 4/Online) Pre: 3 credits in the social sciences recommended or permission of instructor.

PSC 303 The Politics of the Vietnam War LEC (4 crs.) The politics of the Vietnam War addressed from a range of perspectives. Emphasis on the political, social, strategic, legal, and moral issues raised by the Vietnam War and its aftermath. (Lec. 3, Practicum 2) Pre: PSC 113 or 210 or PSC 116 or 211 or permission of instructor.

PSC 305 Politics In Rhode Island LEC (4 crs.) An exploration of the political process in Rhode Island in an age of New Federalism. Examination of the political development of the state and the character of contemporary politics and policymaking. (Lec. 3, Practicum 2) Pre: PSC 113 or 210.

PSC 306 Education Policy and Public Service Internship-MTI@URI PRA (4 crs.) Cross-listed as (PSC), EDC 306. Internship in a Rhode Island public school accompanied by an introduction to the problems and politics of education policy viewed from an interdisciplinary approach. (Rec. 1, Prac. 1, Online 2) (A2) (C1)

PSC 310 Introduction to Political Science Research LEC (4 crs.) The core scope and methodology course for all political science majors. Topics covered include: history of political science, evaluation of its current character, and the extent to which politics can be studied scientifically. (Lec. 3, Rec. 1)

PSC 312 Topics in Political Science LEC (3-4 crs.) Critical study of selected topics. Subject will vary according to the expertise and availability of instructors. (Lec.3) Pre: PSC 113 or 116 or permission of instructor. May be repeated for a total of 9 credits.

PSC 320 Comparative European Politics LEC (4 crs.) Introduces students to the major political, economic and social systems of Europe through a detailed examination of the United Kingdom, France, Germany, Italy, and Russia. (Lec. 3, Online 1)

PSC 321 Politics and Problems of Israel LEC (4 crs.) Analysis of the evolution of political institutions and the dynamics of public policy in Israel. Emphasis on contemporary political problems. (Lec. 3/Practicum 1) Pre: PSC 116 or 210 or 211 or permission of instructor.

PSC 322 Politics of the Middle East LEC (4 crs.) Designed to foster a rethinking of politics in the Middle East and critically assess current developments in the region and their relationship to global politics. (Lec. 3, Lab. 1) Pre: RLS 221 or PSC 116 or PSC 211.

PSC 325 Political Corruption LEC (4 crs.) Seminar examining the causes, consequences, and cures of political corruption in a variety of geographic contexts. (Lec. 3, Prac. 1) Pre: PSC 113 or PSC 116G or permission of the instructor.

PSC 330 (221) State and Local Government LEC (4 crs.) Examination of the politics, institutions and policy processes of state and local governments. (Lec. 3, Pract. 2) Pre: PSC 113 or 210.

PSC 333 Economics and the Law LEC (4 crs.) Cross-listed as (ECN), PSC 333. Explores the different approaches of the economic analysis of law, and the history of how economics came to influence on the field of law. (Lec. 4) Pre: ECN 201.

PSC 334 Government Powers and the Law LEC (4 crs.) An examination of the constitutional powers of the different branches of government and the American system of federalism through a reading of U.S. Supreme Court opinions. (Lec. 3, Practicum 1) Pre: PSC 113 or permission of the instructor

PSC 341 Political Theory: Plato to Machiavelli LEC (4 crs.) Major political philosophies from Plato to Machiavelli and their influence on such key concepts as justice, equality, and political obligation. (Lec. 3, Practicum 2)

PSC 342 Political Theory: Modern and Contemporary LEC (4 crs.) Continuation of PSC 341. Rousseau to the present. (Lec. 3, Practicum 2) Pre: PSC 113 or 210 and PSC 116 or 211.

PSC 342H Honors Section of PSC 342: Political Theory: Modern and Contemporary LEC (3 crs.) Honors Section of PSC 342: Political Theory: Modern and Contemporary (Lec. 3) Pre: must have a 3.40 overall GPA and PSC 113 or 210, and PSC 116 or 211.

PSC 344 Political Economy of Global Finance LEC (3 crs.) Cross-listed as (ECN), PSC 344. History, theory, and politics of the global financial system. Topics include the foreign exchange market, international banking, macroeconomic problems of open economies, and global financial crises. (Lec. 3) Pre: ECN 100 or 202 or permission of instructor.

PSC 344H Honors Section of ECN/PSC 344H: Political Economy of Global Finance LEC (3 crs.) Honors Section of ECN/PSC 344H: Political Economy of Global Finance. Cross-listed as (ECN), PSC 344. History, theory, and politics of the global financial system. Topics include the foreign exchange market, international banking, macroeconomic problems of open economies, and global financial crises. (Lec. 3) Pre: 3.40 overall GPA, and ECN 100 or 202, or permission of instructor.

PSC 350 From Cold War to Cold Peace LEC (4 crs.) Provides essential political and historical background to understanding the evolution of U.S. and Soviet/Russian relations over the past 60 years. (Lec. 3, Practicum 2) Pre: PSC 116 or 211.

PSC 360 Human Rights LEC (4 crs.) Introduces students to human rights and human rights research. Emphasis on content analysis skills and data collection of human rights across the world. (Lec. 3, Pract. 1) Pre: PSC 113 or PSC 116G or permission of instructor.

PSC 367 American Political Campaigns and Elections LEC (4 crs.) Examines the most recent political science research on American politcal campaigns and elections. Emphasis also on experiencing real world electoral politics. (Lec. 3, Practicum 2) Pre: PSC 113 or 210.

PSC 368 Public Opinion LEC (4 crs.) Examination of public opinion and formative influences upon it. Role and implications of public opinion in governmental process. Focus on the practical analysis of public opinion data. (Lec. 3, Online 1) Pre: PSC 113 or 210.

PSC 369 Legislative Process and Public Policy LEC (4 crs.) Analysis of American legislative bodies, particularly Congress, some attention to comparative legislatures. Structure, organization, functions of Congress analyzed in relation to its role in determining public policy. (Lec. 3, Online 1) Pre: PSC 113 or 210.

PSC 370 Politics and Media LEC (4 crs.) Analysis of the relationship between the mass media in the United States and the political process. Emphasis on the impact of the media on both domestic and foreign policy processes. (Lec. 3, Practicum 2) Pre: PSC 113 or 210 or PSC 116 or 211, or permission of instructor.

PSC 371 The Constitution and the Supreme Court LEC (4 crs.) The historical role of the Constitution and the Supreme Court in American democracy. Analysis of leading constitutional decisions regarding governmental powers and civil rights and liberties. (Lec. 3, Online 1)

PSC 375 Field Experience In Practical Politics PRA (1-3 crs.) Supervised experience in local, state, and national units of government, political organizations, private and public community agencies. Students must have placement description, faculty supervisor, and outline of academic component of experience prior to registration. (Practicum) Pre: 12 credits in the social sciences including 6 credits in political science and permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

PSC 376 Field Experience In Practical Politics PRA (1-3 crs.) Supervised experience in local, state, and national units of government, political organizations, private and public community agencies. Students must have placement description, faculty supervisor, and outline of academic component of experience prior to registration. (Practicum) Pre: 12 credits in the social sciences including 6 credits in political science and permission of instructor. May be repeated for a maximum of 6 credits. S/U credit.

PSC 377 Politics of China LEC (4 crs.) Institutions of the Chinese system including the Communist Party, the state system, the bureaucracy, and the army. Emphasis on China's economic and social progress and relations with other nations. (Lec. 3, Practicum 2) Pre: PSC 116 or 211 or equivalent.

PSC 380 Civil Rights Movement LEC (3 crs.) Cross-listed as (AAF), PSC 380. Major transformations in American life brought about by the civil rights movement in law, in social relations, in the role of government. Focus on the period between 1954 and 1968 in an effort to identify and evaluate the changes in government and civil society that occurred during this period. (Lec. 3)

PSC 388 The American Legal System LEC (4 crs.) Political and social analysis of the American legal system, particularly at trial court and street levels, and roles of participants in that system with court observation. (Lec. 3, Ind. Study 1/Online) Pre: PSC 113 or PSC 210 or PSC 310 or PSC 274 or permission of instructor.

PSC 402 Environmental Policy and Politics LEC (4 crs.) Seminar in the politics and public policy associated with environmental pollution. (Lec. 3, Project 3) Pre: PSC 113 or 210 and junior or senior standing. (D1)

PSC 405 Policy Issues in Health and Aging SEM (4 crs.) Cross-listed as (PSC), HDF 405. Analysis of U.S. social policy and programs related to issues of health and aging. Topics include: health care, long term care, retirement, and social services. (Seminar 4) Pre: PSC 310 or HDF 202 or permission of the instructor. (D1) (B3)

PSC 405H Honors Section of PSC/HDF 405: Policy Issues in Health and Aging SEM (4 crs.) Cross-listed as (PSC), HDF 405H. Honors Section of PSC/HDF 405: Policy Issues in Health and Aging. Analysis of U.S. social policy and programs related to issues of health and aging. Topics include: health care, long term care, retirement, and social services. (Seminar 4) Pre: 3.40 overall GPA and PSC 310 or HDF 202 or permission of the instructor. (D1) (B3)

PSC 408 African Governments and Politics LEC (4 crs.) Cross-listed as (PSC), AAF 408. Political developments in the nations of Africa. Main stress is thematic: challenges to democracy, ethnicity, and identity politics, African political thought, civil conflict, resources, and common developmental problems. (Lec. 4, Practicum) Pre: PSC 113 or 210, and PSC 116 or 211.

PSC 408H Honors Section of PSC/AAF 408 - African Governments and Politics LEC (4 crs.) Cross-listed as (PSC), AAF 408. Honors Section of PSC/AAF 408 - African Government and Politics. (Lec. 4, Practicum) Pre: PSC 113 or 210, and PSC 116 or 211, and 3.40 or better overall GPA.

PSC 410 Issues in African Development SEM (3 crs.) Cross-listed as (AAF), PSC 410. A seminar focusing on the dynamics of African development, including political and social change, economic development, education, urbanization, rural development, environmental management, labor and business, industrialization, and technology transfer. (Seminar) Pre: APG 313 or PSC 201 or HIS 388 or permission of instructor.

PSC 415 Dynamics of Social Change in the Caribbean LEC (3 crs.) Cross-listed as (AAF), PSC, ECN 415. Exploration of the slave trade and the origins of Africans and people of African descent in the Caribbean. Emphasis on political and economic relations with the U.S. and the impact of modernization. (Lec. 3) Not for graduate credit.

PSC 416 Russian Politics and Society LEC (4 crs.) An upper-level introduction to the politics and society of Russia and the Commonwealth of Independent States. (Lec. 3, Project 3) Pre: sophomore standing or permission of instructor. Not for graduate credit. Offered in alternate years. (D1) (C2)

PSC 417 Russian Foreign Policy LEC (4 crs.) An upper-level introduction to the issues of Russian foreign policy, including relations with newly formed states of the CIS. (Lec. 3, Project 3) Pre: Sophomore standing or permission of instructor. Not for graduate credit. Offered in alternate years. (D1) (C2)

PSC 419 Politics in Latin America LEC (4 crs.) Research seminar examining the politics of countries in Latin America. Substantive focus is on theories of democratization, political institutions, electoral politics, and governance. (Lec. 3, Practicum 1) Pre: PSC 210 or PSC 211 or permission of the instructor. (D1)

PSC 421G Secularism and Islamism in the Modern World SEM (4 crs.) Cross-listed as (PSC) PHL 421G. Explore secularism and Islamism through interdisciplinary readings in philosophy, religion and political science. Examine the dynamics of interaction between adherents of both ideologies, both on a state and individual level. (Seminar) Pre: RLS/PSC 221 or PSC 322 or PSC 211 or PSC 310. (A2) (C3) (GC)

PSC 422 International Political Economy LEC (4 crs.) Examines the impact of political and economic influences on interactions between and within states. (Lec. 3, Project 3) Pre: PSC 210 or 211 or 310 or permission of the instructor. (D1) (C2)

PSC 422H Honors Section of PSC 422-International Political Economy LEC (4 crs.) Honors Section of PSC 422: International Political Economy. (Lec. 3, Project 3). Pre: overall GPA 3.40 or better. Not for graduate credit. (D1) (C2)

PSC 431 International Relations LEC (4 crs.) Analysis of the various theories of international relations and study of the major factors influencing the politics of international conflict, trade, organizations, and other interactions between international actors. (Lec. 3, Project 3) Pre: PSC 212 or 310 or permission of instructor. Not for graduate credit. (D1) (C2)

PSC 434 American Foreign Policy LEC (4 crs.) Analysis of the institutions, techniques, and instruments of policy making and the execution of foreign policy. (Lec. 3, Project 3) Pre: PSC 210 or 211 or 310 or permission of instructor. (D1) (C2)

PSC 435 Theories of International Conflict LEC (4 crs.) Analysis of the various theories of international conflict. Topics include interstate war, international disputes, interstate rivalry, and democratic peace theory. (Lec. 3, Project 3) Pre: PSC 212 or 310 or permission of the instructor. Not for graduate credit.

PSC 441 Women and Politics SEM (4 crs.) Cross-listed as (PSC), GWS 441. Explores the role of women in the American political system, as voters, campaign activists, and office holders, and as members of organized groups in the policy making process. (Seminar 3, Project 1) Pre: PSC 113 or PSC 210 or PSC 310 or permission of instructor. (C3) (D1)

PSC 443 Twenty-first Century Political Theory LEC (4 crs.) Important political theorists of this century, particularly as they interpret the basis of political obligation and weigh the question of violent political change. (Lec. 3, Project 3) Pre: PSC 240 or 341 or 342 or any 300-level philosophy course or permission of instructor. Not for graduate credit. Offered every third year.

PSC 455 Directed Study or Research IND (3 crs.) Special work arranged to meet the needs of individual students who desire advanced work in political science. (Independent Study) Pre: permission of chairperson.

PSC 456 Directed Study or Research IND (3 crs.) Special work arranged to meet the needs of individual students who desire advanced work in political science. (Independent Study) Pre: permission of chairperson.

PSC 461 The American Presidency LEC (4 crs.) Presidential leadership and decision making, with emphasis on growth in power and prestige of the presidency, exercise of presidential influence in conduct of government, and presidential initiative in formulating

and developing national policies and priorities. (Lec. 3, Project 3) Pre: PSC 113 or 210 and 212 or 310 or permission of instructor. Not for graduate credit. (D1)

PSC 465 Political Parties in the United States LEC (4 crs.) Analysis of the American political party process. History, organization, functions, methods, problems, and prospects for reform. Focus on the two party system and limits of third parties in the United States. (Lec. 3, Portfolio 1) Pre: PSC 113 or 210. Not for graduate credit. (D1)

PSC 466 Urban Problems LEC (3 crs.) Cross-listed as (PSC), AAF 466. Contemporary and emerging problems of urban affairs. Discussion, reading, and assignments on the interaction among urban change, development of social institutions, and formation of public policy. (Lec. 3/Online) Pre: PSC 113 or 210.

PSC 466H Honors Section of AAF/PSC 466: Urban Problems LEC (3 crs.) Cross-listed as (PSC), AAF 466H. Honors Section of AAF/PSC 466: Urban Problems. (Lec. 3) Pre: PSC 113 or 210, and 3.40 overall GPA.

PSC 472 Civil Liberties LEC (4 crs.) The problem of human freedom examined in the context of the fundamental rights guaranteed to individuals by the American Constitution. Emphasis on religious liberty, freedom of expression, racial equality, fair criminal procedures, and the protection of personality and privacy. (Lec. 3, Project 3) Pre: PSC/SOC 274 or PSC 334 or PSC 371 or PSC 388, or permission of instructor. Not for graduate credit. (D1)

PSC 476 Policy, Crime, and Justice SEM (3 crs.) Cross-listed as (CCJ), PSC 476. Examination of current and proposed criminal justice policies in light of social science theory and research, including capital punishment, community policing, gun control, intermediate sanctions, legalization of drugs, mandatory sentencing, privatization of prisons, restorative justice. (Seminar) Pre: SOC or CCJ major; C or better in CCJ/PSC 274 and SOC/CCJ 230; at least 18 credits in CCJ major (including research course) or permission of instructor. Not for graduate credit. (D1) (B1)

PSC 481 Political Science Seminar SEM (3 crs.) Intensive studies in various important fields in political science. Class discussion of assigned readings and student reports. Emphasis on independent research. (Seminar) Pre: PSC 210 or PSC 211 or PSC 310.

PSC 482 Political Science Seminar SEM (4 crs.) Intensive studies in various important fields in political science. Class discussion of assigned readings and student reports. Emphasis on independent research. (Seminar) Pre: PSC 210 or PSC 211 or PSC 310. May be repeated up to two times for a total of 8 credits with a different topic.

PSC 492 Controversies in Political Science ONL (4 crs.) Significant questions persist in the field of political science. This class brings together conflicting scholarship around debates that drive research in the field: definition, measurement, historical dynamics, causes, and consequences. (Online) Pre: PSC 113 and 116.

PSC 501 Seminar in Public Administration and Policy LEC (3 crs.) Overview of the theoretical and historical evolution of public policy and administration; theories and problems of organization and administrative reform; implementation and policy analysis; and theories of bureaucratic control. (Lec. 3) Pre: Graduate standing or permission of instructor.

PSC 502 Diversity and Inclusion in Public Administration ONL (3 crs.) This course examines issues of diversity, equity, and inclusion as these concepts relate to public management and public policy-making. (Accelerated Online Program) Pre: Graduate Standing or permission of instructor.

PSC 503 Problems In Public Personnel Administration LEC (3 crs.) Cross-listed as (PSC), LHR 503. Development of personnel administration, including problems of recruitment, examination, promotion, and staffing within public service. Emphasis on evaluation of employee performance and collective bargaining in public service. (Lec. 3) Pre: graduate standing or permission of instructor.

PSC 504 Ethics in Public Administration and Policy SEM (3 crs.) This course explores through case studies, class discussion, and readings how ethical deliberation is an essential commitment and skill for public administrators and practitioners of public policy and its analysis. (Seminar) Pre: graduate standing or permission of instructor.

PSC 505 Public Program Evaluation LEC (3 crs.) Cross-listed as (PSC), SOC 505. Research design and methodologies associated with the evaluation of governmental programs and activities. (Lec. 3) Pre: STA 308 or equivalent or permission of instructor.

PSC 506 Seminar In Budgetary Politics SEM (3 crs.) Examination of federal, state, and local fiscal and budgetary processes, focusing on the politics of the budgetary process and models of budgeting, with emphasis on contemporary issues. (Seminar)

PSC 507 Public Finance LEC (3 crs.) Political, administrative, and technical elements of government financial management in public policy settings are examined. Special emphasis is placed on local and state governments and public authorities. (Lec. 3) Pre: graduate standing or permission of instructor.

PSC 508 Policy and Grant Writing ONL (3 crs.) This course is designed to develop the policy and grant writing skills of graduate students seeking careers in public management and public policy-making. (Accelerated Online Program) Pre: Graduate Standing or permission of instructor.

PSC 521 Global Politics of Work and Social Welfare LEC (3 crs.) Cross-listed as (LHR), PSC, ECN 521. International and comparative politics of work and social welfare. Transformation of work due to globalization and family shifts; worker rights, education/training, and social security across countries. (Lec. 3) Pre: graduate standing or permission of instructor.

PSC 524 Seminar in Public Policy Problems SEM (3 crs.) An in-depth exploration of the policy process and public policy problems through the different traditions and approaches of public policy analysis. (Seminar) Pre: graduate standing or permission of the instructor.

PSC 544 Democracy and Its Critics LEC (3 crs.) Seminar examining the roots of modern democracy in the social contract theories and analyzing the quality and limits of self-determination in these theories in the light of contemporary politics. (Lec. 3) Pre: PSC 341, 342, or permission of instructor.

PSC 546 Diplomacy in Practice SEM (3 crs.) Seminar emphasizes the role of diplomacy in conflict resolution and in responding to international crisis. Emphasis includes the scope and role of diplomats as foreign policy actors and state representatives. (Seminar) Pre: graduate standing; undergraduates only with permission of instructor.

PSC 551 Internship in International Relations IND (1-3 crs.) Eligible graduate students may enroll upon receiving an approved internship supporting their program of study. Internships include placement in non-governmental organizations, businesses, institutions of higher education, the public sector. (Independent Study) Pre: ABM program student, graduate standing, or permission of graduate director. May be repeated for up to 3 credits.

PSC 552 Experiential Learning-Practicum in International Relations IND (1-3 crs.) Eligible graduate students may enroll in the course upon receiving approval for an experiential project, training sequence or module, or field based practice. (Independent Study) Pre: ABM program student, graduate standing, or permission of graduate director. Course may be repeated for up to 3 credits.

PSC 553 Scope And Methods Of Political Science SEM (3 crs.) Study of political science as a discipline, its development in relation to other social sciences, and survey of political theories, concepts, and analytic models. (Seminar) Pre: graduate standing.

PSC 555 Directed Study or Research IND (3 crs.) Special work arranged to meet the individual needs of graduate students in political science. (Independent Study) Pre: permission of chairperson.

PSC 556 Directed Study or Research IND (3 crs.) Special work arranged to meet the individual needs of graduate students in political science. (Independent Study) Pre: permission of chairperson.

PSC 573 Administrative Law LEC (3 crs.) Legal aspects of interac-

tion among government agencies, individuals, and public interest groups. Systematic analysis of leading cases, evaluating the courts as an instrument for protecting the individual's rights in administrative action. (Lec. 3) Pre: PSC 113.

PSC 577 International Ocean Law LEC (3 crs.) Cross-listed as (MAF), PSC 577. Principles of international law as they relate to ocean management problems. Jurisdiction in zones, such as territorial seas, exclusive economic zones, and the high seas will be examined, as well as the problems posed by zonal approaches to ocean-use management.

PSC 580 Seminar In International Relations Theory SEM (3 crs.) A critical treatment of major international relations theories beginning with an analysis of core theoretical concepts. (Seminar) Pre: honors seniors with permission of instructor or graduate standing.

PSC 581 Special Topics Seminar SEM (3 crs.) Master's-level seminar on special topics in political science not regularly covered in other courses. (Seminar) Pre: graduate or senior standing in political science or permission of instructor. May be repeated up to five times for a total of 15 credits with different topic.

PSC 582 Special Topics Seminar SEM (3 crs.) Master's-level seminar on special topics in political science not regularly covered in other courses. (Seminar) Pre: graduate or senior standing in political science or permission of instructor. May be repeated up to five times for a total of 15 credits with different topic.

PSC 583 Public Policy Analysis SEM (3 crs.) The historical evolution and study of policy analysis as a subfield of public policy; the different traditions, analytical methods, and concepts that relate to the subfield of policy analysis. (Seminar) Pre: graduate standing or permission of instructor.

PSC 584 Seminar in Comparative International Development SEM (3 crs.) Theoretical constructs, methods, and models in the field of comparative politics emphasizing political, economic, and social changes in local. national and international contexts. (Seminar) Pre: graduate standing; undergraduates only with permission of instructor.

PSC 585 Diplomacy and Statecraft SEM (3 crs.) Seminar examining diplomacy and statecraft in the international system. Topics include studies of political leadership and statesmanship, negotiation, and important diplomatic events. (Sem. 3) Pre: graduate standing or permission of instructor.

PSC 586 Political Violence and Conflict Resolution SEM (3 crs.) Analysis of the research on political violence in the international system and the leading strategies and methods used by the international community to resolve these conflicts. (Sem. 3) Pre: graduate standing or permission of instructor.

PSC 590 Internship in Public Administration and Policy ONL (3-6 crs.) Participation at a public service, non-profit, or policy organization. Planning, policy analysis and formation, personnel management, budgeting and finance, and public service responsibilities that are the hallmark of effective governance. (Practicum) Pre: permission of M.P.A. director. May be taken as one 6-credit unit or two 3-credit units.

PSC 595 Environment and Development Economics LEC (3 crs.) Cross-listed as (EEC), MAF, PSC, SOC 595. Application of economic principles and research methods to understand the economics of environmental and natural resource management and poverty alleviation. (Lec. 3) Pre: EEC 528 or permission of instructor.

PSC 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

PSY | Psychology

PSY 103 Towards Self-Understanding LEC (3 crs.) Individual and social problems of normal persons. Personality development, social behavior, and adjustment reactions with emphasis on increasing awareness of personal and interpersonal functioning. (Lec. 3/Online) (A2) (B1)

PSY 113 General Psychology LEC (3 crs.) Introductory survey course of the major facts and principles of human behavior. Prerequisite for students interested in professional work in psychology or academic fields in which an extended knowledge of psychology is basic. (Lec. 2, Rec. 1) (A2)

PSY 113H Honors Section of PSY 113: General Psychology LEC (3 crs.) Honors Section of PSY 113: General Psychology. (Lec. 2, Rec. 1) Pre: 3.40 overall GPA. (A2)

PSY 130G The Problem of Hunger in the U.S. LEC (3 crs.) Cross-listed as (HSS), PSY 130G. Survey of the problem of hunger in the United States, the causes, effects on individuals and society, and the policies and programs intended to help hungry people. (Lec. 2, Seminar 1) (A2) (C1) (GC)

PSY 200 Quantitative Methods in Psychology LEC (4 crs.) Basic concepts and techniques of quantification in psychology. Emphasis on application of certain descriptive and inferential statistical tools in the analysis of psychological measurement of behavior. Practical applications using computer programs may be undertaken and/or other lab exercises. (Lec. 3, Lab. 2) Pre: PSY 113, at least one college-level mathematics course, and sophomore standing.

PSY 200H Honors Section of PSY 200: Quantitative Methods in Psychology LEC (4 crs.) Honors Section of PSY 200: Quantitative Methods in Psychology. (Lec. 3, Lab. 2) Pre: PSY 113, at least one college-level mathematics course, sophomore standing, and 3.40 overall GPA.

PSY 205G The Challenged Brain LEC (3 crs.) Cross-listed as (BPS), PSY 205G. Equips students with knowledge about ways that central nervous system functioning can be challenged either by disease, injury, or alternate ways of functioning. (Lec. 3) (A1) (B4) (GC)

PSY 232 Developmental Psychology LEC (3 crs.) Comprehensive understanding of human development and growth from birth to senescence. (Lec. 3) Pre: PSY 113. (A2)

PSY 235 Theories of Personality LEC (3 crs.) Critical survey of the major theories of personality. Emphasis will be placed on the "normal" personality. (Lec. 3) Pre: PSY 113.

PSY 254 Behavior Problems and Personality Disorders LEC (3 crs.) Evaluation of the more serious behavioral disorders as found in the major forms of character disorders, psychoneuroses, and psychoses. Theories of causation, development and effects of anxiety and defense mechanisms, and interpretation of symptoms and methods of treatment. (Lec. 3) Pre: PSY 113.

PSY 254H Honors Section of PSY 254: Behavior Problems and Personality Disorders LEC (3 crs.) Honors Section of PSY 254: Behavior Problems and Personality Disorders. (Lec. 3) Pre: PSY 113 and 3.40 or better overall GPA.

PSY 255 Health Psychology LEC (3 crs.) Investigates the relationship between behavior and health; emphasizes the theory and science of health behavior change; explores specific behaviors and behavior change strategies from an individual and public health perspective. (Lec. 3/Online)

PSY 261 The Alcohol-Troubled Person: Introductory Concepts LEC (3 crs.) Introductory and basic concepts in alcohol trouble: prevention, identification, early intervention, treatment, education. (Lec. 3)

PSY 275 Alcohol Use and Misuse LEC (3 crs.) Examination of biological, psychological, and social determinants of alcohol use and misuse. Prevention, early intervention, and treatment approaches also covered. (Lec. 3) Pre: PSY 113.

PSY 301 Research Methods and Design in the Behavioral Sciences LEC (4 crs.) Examination of methodological principles and research design applied to the behavioral sciences. Students will review scientific literature on an approved topic, collect and analyze data, and interpret results to prepare research reports. (Lec.3, Lab. 2) Pre: PSY 200 or 200H and WRT 104 or 106. (D1) (B4)

PSY 305 Field Experience In Psychology PRA (3 crs.) Direct contact with settings and populations served by psychologists. Emphasis on understanding models and theories in relation to practical problems. Topical sections may include: a) pre-clinical, b) community, c) laboratory, and d) organizational applications. (Practicum) Pre: PSY 113 and permission of instructor. May be repeated for a maximum of 6 credits.

PSY 310 History and Systems of Psychology LEC (3 crs.) Origins of psychological inquiry and theories of psychology. Transformations of theories and methods of inquiry through the history of our culture including contemporary systems and models of psychological functioning. (Lec. 3/Online) Pre: PSY 113.

PSY 324 Latina/o Psychology SEM (3 crs.) Examination of the Latina/o experience from a psychological and ecological perspective. The primary course goal is to increase student awareness and knowledge about Latinas/os through critical thinking and self-reflection. (Seminar/Online) Pre: PSY 103 or 113.

PSY 334 Introduction to Clinical Psychology LEC (3 crs.) Emphasis on scope of the field, functions of the clinical psychologist, methods used, and problems encountered, both scientific and professional. (Lec. 3) Pre: PSY 254.

PSY 335 The Psychology of Social Behavior LEC (3 crs.) Conceptual and empirical analyses of individual behavior in social contexts; attention to social motivation, attitude development and change, liking, conformity, aggression, altruism. (Lec. 3) Pre: PSY 113 and junior standing or permission of instructor.

PSY 340 Introduction to School Psychology SEM (3 crs.) Introduces students to the field of school psychology by covering the history of the field, current practices, ethical and legal considerations, and the process of becoming a school psychologist. (Seminar) Pre: PSY 200 and PSY 301 or permission of instructor.

PSY 361 Learning LEC (3 crs.) Learning process in humans and non-humans, focusing on principles and methods. This course features operant-learning and behavior-modification principles and examples from real life. (Lec. 3/Online) Pre: PSY 301 or permission of instructor.

PSY 371 Laboratory in Learning LAB (1 cr.) Laboratory experiments in learning (primarily animal) designed to parallel course materials in 361. (Lab. 2) Pre: 301, credit or concurrent enrollment in 361, or permission of instructor.

PSY 381 Physiological Psychology LEC (3 crs.) Physiological mechanisms operative in human behavior. Sensory, neural, endocrine, and response systems as related to sensation, perception, attention, emotions, motivations, and learning. (Lec. 3) Pre: junior standing.

PSY 382 Research Methods in Physiological Psychology LAB (3 crs.) An introduction to the principles and techniques of experimentation in physiological psychology, such as brain stimulation and lesions, electrophysiology, neuropsychological testing, and pharmacology. (Lab. 6) Pre: 381 and permission of instructor.

PSY 384 Cognitive Psychology LEC (3 crs.) An examination of contemporary research and theories on mental activities. Topics will include perception, pattern recognition, attention, memory, problem solving, language, consciousness, and artificial intelligence. (Lec. 3) Pre: PSY 113 and 301 or equivalent. In alternate years.

PSY 385 Perception LEC (3 crs.) Sensory function, development of perception, perception of space, color, sound, and complex events. (Lec. 3) Pre: PSY 113 and 200, or equivalent. In alternate years.

PSY 385H Honors Section of PSY 385: Perception LEC (3 crs.) Sensory function, development of perception, perception of space, color, sound, and complex events. (Lec. 3) Pre: PSY 113 and 200 or equivalent, and overall GPA of 3.40 or better. In alternate years.

PSY 388 Psych Of Language LEC (3 crs.) Study of language processes in light of contemporary theories and research. Topics include speech production, perception, memory, comprehension, language and the brain, language acquisition, reading, language, and thought. (Lec. 3) Pre: junior standing. In alternate years.

PSY 399 Introduction to Multicultural Psychology LEC (3 crs.) Cross-listed as (PSY), AAF 399. Introductory course focusing on multiculturalism as a major paradigm. Emphasizes the meaning of multiculturalism and associated principles, concepts, and sociocultural factors as related to assessment, intervention, and research. (Lec. 3/Online) Pre: PSY 113 or 103.

PSY 420 Introduction to Human Factors and Ergonomics LEC (3 crs.) Cross-listed with (ISE), PSY 420. A study of human capabilities and their interactions with the systems where they perform their jobs to help engineers and psychologists to optimize design, improve jobs, and enhance system performance. (Lec. 2, Lab. 1) Pre: ISE 311 (411) / MCE 411 or STA 412 or permission of instructor. Not for graduate credit.

PSY 425 Peace Psychology LEC (3 crs.) Cross-listed as (PSY), NVP 425. Peace psychology combines aspects of cognitive, social, clinical and cross-cultural psychology that bear on the prevention of violence and the promotion of constructive nonviolent behavior. (Lec. 3/Online) Pre: Prior coursework in psychology, or permission of instructor. Prior coursework in another social science is recommended.

PSY 430 Intimate Relationships LEC (3 crs.) Cross-listed as (SOC), PSY 430. Examination of the effects of cultural, social, and psychological processes on the development, maintenance, and dissolution of intimate relationships. Emphasis on friendship patterns, dating and marital relationships, intimacy in nontraditional relationships. Emphasis on research. (Lec. 3) Pre: any 100- or 200-level course in sociology or PSY 113 or permission of instructor. Not for graduate credit.

PSY 432 Advanced Developmental Psychology LEC (3 crs.) Major issues in developmental psychology. Emphasis on research in Piaget, Erikson, Bruner, Kagan, and Moss. Includes effects of infant care, sex typing, parental discipline, and developmental aspects of intellectual and perceptual growth. (Lec. 3) Pre: PSY 232.

PSY 434 Psychological Testing LEC (3 crs.) Measurement procedures employed in the measurement of intelligence, aptitudes, abilities, attitudes, interests, and personality. Focus on psychometric principles associated with the various tests. (Lec. 3) Pre: PSY 200 or equivalent.

PSY 435 Applied Methods in Psychological Research LEC (3 crs.) This course will provide a structured training experience addressing data management, statistical analysis, how to handle methodological problems, and interpretation of results for applied psychology research topics. (Lec. 2, Lab. 2) Pre: Grades of C or higher in either STA308 or PSY 200 (previously PSY 300), and in PSY 301, and PSY 434, or permission of the instructor.

PSY 436 Psychotropic Drugs and Therapy LEC (3 crs.) Cross-listed as (BPS), PSY 436. Interaction of drug and non-drug therapy and of physiological and psychological origins of psychopathology. Intended for advanced undergraduate and graduate students interested in clinical psychology. (Lec. 3) Pre: any one of the following--BIO 101, 104B, 113, 121, PSY 381, or permission of instructor. Not for graduate credit.

PSY 442 Psychology of Exceptionality LEC (3 crs.) Survey of the major issues underlying the classification, institutionalization, and treatment of persons with mental, physical, psychological, and educational disabilities. Specific topics include social attitudes toward exceptionalities, past and current legislation, special education services, and transitions into community life and the workplace. (Lec. 3) Pre: junior or senior standing.

PSY 460 The Substance-Troubled Person LEC (3 crs.) Presents theoretical and applied material on alcohol and other mood-altering substances of abuse. Relevant for alcohol and substance abuse counselors, personnel administrators, and other social service workers. (Lec. 3) Offered through the Alan Shawn Feinstein College of Continuing Education.

PSY 464 Humanistic Psychology LEC (3 crs.) Discussion of humanistic approaches to the understanding and direction of behavior. Emphasis on contemporary writers such as Rogers, Maslow, May, Moustakas. Discussions of phenomenology and existentialism. (Lec. 3) Pre: PSY 235 and junior standing. In alternate years.

PSY 465 Introduction to Crisis Intervention LEC (3 crs.) Interventions for various types of emergencies including substance abuse and functional or organic disorders. (Lec. 3) Pre: PSY 254 and permission of instructor.

PSY 466 Child Sexual Abuse LEC (3 crs.) Current theorizing regarding the causes of sexual abuse of children will be presented, as well as the short- and long-term effects of such abuse. Management of problems will be followed, from disclosure through current state-of-the-art practices in treatment. Issues in prevention, court cases, and investigation will be reviewed. (Lec. 3) Pre: senior status and permission of instructor. Not for graduate credit.

PSY 470 Topics In Social Psychology SEM (3 crs.) Empirical and conceptual approaches to a major topic in contemporary social psychology. Topics will vary from semester to semester. (Seminar) Pre: PSY 113 and 335.

PSY 471 Applied Behavioral Analysis and Remediation LEC (3 crs.) Study and application of behavioral approaches used to analyze and remediate behavioral problems of children and adults in educational and human service settings and everyday life. (Lec. 3/Online) Pre: PSY 361 or permission of instructor. Offered through the Alan Shawn Feinstein College of Continuing Education only.

PSY 473 Practicum In Behavioral Psychology PRA (3 crs.) Supervised, on-site field experience in applications of behavioral approaches in an educational or human service setting. (Practicum) Pre: PSY 471 or permission of instructor.

PSY 477 Preparation for Careers in Psychology LEC (1 cr.) Designed to assist students as they explore career options in the field of psychology. Students will prepare materials for job/graduate school applications, and practice interview skills. (Lec. 1) Pre: sophomore standing or above. Not for graduate credit.

PSY 478 Applications of Psychology SEM (1-3 crs.) Applications of psychological research and theory to contemporary problems, with an emphasis on scholarly bases. (Seminar/Online) Some topics may be offered online. May be repeated for a maximum of 12 credits.

PSY 479 Topics in Psychology SEM (1-3 crs.) Central issues in the field of psychology, allowing in-depth study of contemporary or historical topics. (Seminar/Online) Some topics may be offered online. Pre: PSY 113 or permission of instructor. May be repeated with a change in topic for a maximum of 12 credits.

PSY 479H Honors Section of PSY 479: Topics in Psychology SEM (1-3 crs.) Honors Section of PSY 479: Topics in Psychology. (Seminar) Pre: PSY 113 or permission of instructor and 3.40 GPA. May be repeated with a change in topic for a maximum of 12 credits.

PSY 480 Psychology of Women LEC (3 crs.) Discussion of psychological research and theories on the psychology of girls and women from a multicultural perspective. Topics include personality theories, gender similarities and differences, biological aspects of sex and gender, cultural images of women, sexuality, relationships, motherhood, work and achievement, physical and mental health. (Lec. 3/Online) Pre: PSY 113 and at least one 200-level psychology course.

PSY 487 Seminar for Psychology Teaching Assistants SEM (1 cr.) Students will learn pedagogies and engage in activities designed to enhance teaching skills. (Seminar) Pre: junior or senior standing. Not for graduate credit.

PSY 488 Undergraduate Teaching Experience in Psychology PRA (1-3 crs.) Students will acquire experience in psychology working under the supervision of course instructors and/or faculty members. (Practicum) Pre: permission of instructor. May be repeated for a total of 3 credits. Not for graduate credit.

PSY 489 Problems in Psychology IND (3 crs.) Advanced work in psychology. Course will be conducted as seminar or as supervised individual project. (Independent Study) Pre: permission of instructor. May be repeated once.

PSY 499 Psychology Practicum PRA (1-6 crs.) Individual and group projects applying psychology in clinical or laboratory settings. (Practicum) Pre: permission of instructor. May be repeated for a maximum of 12 credits. No more than 6 credits may be take in one semester. Not for major credit in psychology. S/U only.

PSY 500 Theory and Research on Nonviolence and Peace LEC (3 crs.) Cross-listed as (NVP), PSY 500. Surveys selected issues in the interdisciplinary field of Nonviolence and Peace Studies. It focuses on human problem solving in potentially violent situations, and the creation of conditions for peace. (Online)

PSY 505 Community Psychology LEC (3 crs.) Introduction to community psychology; study and change of individual's interaction with community systems; theoretical and empirical models, intervention strategies, and research methods relevant to community psychology. (Lec. 3)

PSY 517 Small N Designs SEM (3 crs.) Cross-listed as (PSY), STA 517. A survey of Small N experimental methodology appropriate for repeated observations on a single unit or individual. Methods include quasi-experimental designs, interrupted time series, and multivariate time series. Applications in applied research, particularly behavioral intervention. (Seminar) Pre: PSY 532 and 533. In alternate years.

PSY 520 Human Factors & Ergonomics LEC (3 crs.) Cross-listed as (ISE), PSY 520. A study of human capabilities, mental and physical, and their interactions within the systems where they perform their jobs to help optimize design, improve jobs, and enhance system performance. (Lec. 2, Lab. 1) Pre: Graduate standing or permission of instructor. This course is not open for the students who have prior credit in the 400-level version (ISE/PSY 420).

PSY 521 Human Systems Engineering LEC (3 crs.) Cross-listed as (ISE), PSY 521. A study of human capabilities via mental processing and decision making models where students will learn to develop, use, and validate models of human cognitive performance for individuals and teams. (Lec. 3) Pre: Graduate standing or permission of instructor.

PSY 527 Language Study for Teachers of Reading SEM (3 crs.) Cross-listed as (EDC) PSY 527. Focuses on English phonology, morphology, syntax, and semantics. Applies concepts to L1/L2 reading and spelling, teaching phoneme awareness, interpreting student errors, and planning instruction. (Seminar/Online) Pre: second semester junior, or graduate standing, or permission of instructor.

PSY 532 Experimental Design LEC (3 crs.) Cross-listed as (STA), PSY, AFS 532. Application of statistical methods to biological and psychological research and experimentation. Experimental situations for which various ANOVA and ANCOVA designs are most suitable. (Lec. 3) Pre: STA 409 or equivalent.

PSY 533 Advanced Quantitative Methods In Psychology LEC (3 crs.) Advanced quantitative methods applied to psychology. Survey of methods such as multiple regression, multivariate analysis of variance, discriminant analysis, canonical correlation, principal component analysis, and factor analysis. Applications involve practice with computer programs. (Lec. 2, Lab. 2) Pre: PSY 532.

PSY 540 Learning Disabilities: Assessment and Intervention LEC (3 crs.) Cross-listed as (PSY), EDC 540. Applications of early screening batteries; remedial programs for various disabilities, including behavioral programs and methods for older children and adolescents. Emphasis on pragmatic application of skills for detection and treatment. (Lec. 3) Pre: permission of instructor. May be repeated for a maximum of 6 credits.

PSY 544 Reading Acquisition and Reading Disability: Research and Implications for Practice LEC (3 crs.) Cross-listed as (PSY), EDC 544. Examination of research on the language, cognitive, and reading characteristics of children who successfully learn to read and of those

who encounter difficulty. Additional focus on the implications and use of the research for assessment and instruction. (Lec. 3) Pre: graduate standing or permission of instructor.

PSY 550 Behavior Analysis and Change LEC (3 crs.) Introduction to the principles of operant conditioning with emphasis on the use of these principles in the analysis and change of behavior in real-life settings such as schools and families. (Lec. 3)

PSY 554 Alternative Therapies LEC (3 crs.) Theory and practice of a variety of individual and group techniques that can be integrated into one's present style of helping. (Lec. 2, Lab. 2) Pre: professional and/or graduate standing.

PSY 581 Psychological Aspects of a Healthy Lifestyle LEC (3 crs.) Cross-listed as (KIN), PSY 581. Considers the psychological processes and behaviors related to exercise participation and the adoption of a healthy lifestyle. Analysis of models and theories used in exercise psychology, associated research, and the implications for practitioners. (Lec. 3) Pre: graduate standing, PSY 113 and 232, or permission of instructor.

PSY 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

PSY 600 Multicultural Issues in Psychology: Theory, Research, and Practice SEM (3 crs.) Focus is on general issues and concepts relevant to a psychology that is concerned with multicultural populations as sources of enrichment for theory, research, and practice. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Seminar) Pre: graduate standing.

PSY 601 Physiological Psychology LEC (3 crs.) Cross-listed as (PSY), NEU 601. An advanced consideration of physiological research on neural, endocrine, and response systems as they relate to attention, motivation, emotion, memory, and psychological disorders. (Lec. 2, Lab. 2) Pre: Counts as a course for graduate study in Psychology and includes an historical perspective with an emphasis on clinical neuroscience. Graduate standing in the PSY or INP programs or permission of the instructor. It is highly recommended that students have taken a graduate level course in methodology/statistics and psychopathology.

PSY 602 Learning and Motivation LEC (3 crs.) Empirical and theoretical analysis of the basic principles of acquisition and loss of habits. Topically organized to deal with respondent and operant conditioning, and their relationship to reinforcement and motivation. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3) Pre: undergraduate learning course.

PSY 603 Development LEC (3 crs.) Theoretical, methodological, and applied issues in life span development, including cognitive, perceptual, psychomotor, affective, and social development. Topically organized. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

PSY 604 Cognitive Psychology LEC (3 crs.) A survey of the theoretical and methodological issues in human cognition. Topics include pattern recognition, attention, memory, language, problem solving. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

PSY 605 Personality LEC (3 crs.) Reading of primary source materials from major personality theorists relevant to a particular topical emphasis. Application and comparative evaluation of the theories studied. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

PSY 606 Social Psychology LEC (3 crs.) Intensive exploration of the methods, theory, and database of contemporary social psychology focusing on salient issues that clarify significant topics in this area. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

PSY 607 Advanced Psychopathology LEC (3 crs.) A review of the multicultural, theoretical, clinical, and empirical literature related to the development, classification, and diagnosis of psychopathology. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

PSY 608 Theories and Systems LEC (3 crs.) An in-depth analysis of the origin and logical structure of major systematic approaches to psychology. Emphasis on significant recurrent controversies. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3) Pre: graduate standing.

PSY 609 Perception LEC (3 crs.) A survey of topics in the psychology of perception, including sensory function; psychophysical models, measurement, and scaling; visual perception; and methods for analyzing perceptually guided behavior. Counts as a "core course" for graduate study in psychology and includes an historical perspective. (Lec. 3)

PSY 610 Parsimony Methods LEC (3 crs.) Cross-listed as (PSY), STA 610. Multivariate procedures designed to reduce the dimensionality and help in the interpretation of complex data sets. Methods include principal components analysis, common factor analysis, and image analysis. Related methods: cluster analysis and multidimensional scaling. Applications involve the use of existing computer programs. (Lec. 3) Pre: PSY 533 or STA 541 or equivalent. In alternate years.

PSY 611 Methods of Psychological Research and Experimental Design LEC (3 crs.) Provides the student of psychology with a knowledge of research methodology and the techniques of experimental designs. It prepares for the development of thesis problems of graduate students in psychology and related disciplines. (Lec. 3) Pre: PSY 532 and 533.

PSY 612 Structural Modeling LEC (3 crs.) Cross-listed as (PSY), STA 612. Theory and methodology of path analysis with latent variables. Discussion of "causation" and correlation, Confirmatory Factor Analysis, Measurement and Structural Equation models. Practical applications using current computer programs (e.g. EQS). (Lec. 3) Pre: PSY 533 or 610.

PSY 613 Qualitative Research and Analysis in Psychology LEC (3 crs.) Introduction to qualitative methods and analyses with a focus on interviews, focus groups and visual data methods. Counts as a core methodology course for graduate study in psychology and includes historical and contemporary perspectives in psychology. (Lec. 2, Lab 2) In alternate years. Pre: graduate standing

PSY 614 Evaluation Research Seminar SEM (3 crs.) Introduction to application of research and consultation methods to program and policy evaluation; emphasizes quantitative methods and utilization focus. Assumes background in social science research methods. (Seminar) Pre: graduate standing.

PSY 615 Collaborative Research In Psychology SEM (1-3 crs.) Collaborative approaches to methods of psychological inquiry. Special emphasis on topics that can involve students at varying levels of research skill. Format includes weekly seminars and colloquia. (Seminar) May be repeated for a maximum of 24 credits. S/U credit.

PSY 625 Seminar: Social Psychology SEM (3 crs.) Emphasis on a major area in contemporary social psychology. Empirical studies analyzed for their relevance to theoretical and applied issues; students will design an original investigation. (Seminar) Pre: graduate standing or permission of instructor. May be repeated for a maximum of 12 credits with different topic.

PSY 626 Psychology of Sex and Gender LEC (3 crs.) Examines theory and research relevant to sex and gender from social psychological, multicultural and interdisciplinary perspectives. Focuses on topics relevant to men, women, transgendered people, transsexuals and intersexuals. In alternate years. (Lec. 3)

PSY 635 Transtheoretical Model Applied to Health Psychology SEM (3 crs.) The transtheoretical model is an influential comprehensive model of behavior change that has been extensively employed in health psychology. Applications include smoking cessation, exercise, diet, dress, and medication adherence. (Seminar 3) Pre: Graduate standing

PSY 641 Introduction to Psychotherapy LEC (3 crs.) An analysis

of the major systems of psychotherapy. Developing an integrative, eclectic model through identifying the processes of change that are the core of effective therapy. (Lec. 3)

PSY 643 Multicultural Mental Health LEC (3 crs.) This course aims to familiarize students with interdisciplinary perspectives on multicultural psychology and mental health in order to facilitate the development of cultural competence in clinical practice. Pre: PSY 672.

PSY 644 Family Therapy LEC (3 crs.) Introduction to theories and techniques of family assessment and family therapy. Seminar format with videotape illustrations, case presentation and discussion, lecture, and selected experiential exercises. (Lec. 3) Pre: permission of instructor. Not offered every year.

PSY 647 Child Therapy LEC (3 crs.) Seminar discusses issues, techniques, and research related to behavior changes in children and their families. Aspects of therapy, the role of behavioral approaches, and the participation of parents will be explored. Direct, supervised experience is included in this course. (Lec. 3) Pre: participation in the Psychological Consultation Center.

PSY 660 Clinical Assessment and Decision Making LEC (3 crs.) Covers basic principles and methods for decreasing error and increasing accuracy in applied clinical work, such as clinical versus actuarial judgment and use of base rates. (Lec. 3) Pre: course in psychological testing.

PSY 661 Psychological Services I: Administration and Interpretation of Cognitive Tests LEC (3 crs.) Instruction and practice in administration and interpretation of contemporary cognitive tests; individual intelligence tests of both general and specific abilities. Rationale, research evidence, clinical applications. (Lec. 3) Pre: PSY 660.

PSY 662 Psychological Services II: Administration and Interpretation of Personality Tests LEC (3 crs.) Instruction and practice in the administration and interpretation of instruments used in the assessment of personality. Emphasis on tests such as the MMPI, Rorschach, TAT. Rationale, research evidence, and clinical application. (Lec. 2, Lab. 2) Pre: PSY 661.

PSY 663 Child and Adolescent Personality Assessment and Intervention LEC (3 crs.) Psychological assessment and intervention with children and adolescents, focused on personality functioning, behavioral, social, and emotional problems. Emphasis on assessment theory and methods as linked to empirically supported intervention approaches. (Lec. 2, Lab. 2) Pre: graduate standing in psychology and PSY 665 and 661 or permission of instructor.

PSY 665 Developmental Psychopathology LEC (3 crs.) Child and adolescent psychological disorders are conceptualized through a developmental perspective, and contemporary research on etiology, diagnosis, course, prognosis, and treatment/management is examined. (Lec. 3) Pre: PSY 603 or equivalent.

PSY 666 Seminar: Ethical and Legal Issues in Psychology SEM (3 crs.) Ethical, legal, and professional issues as they relate to the provision of psychological services and psychological research. Emphasis is on the study of ethical issues and the examination of the development of professional standards as they relate to the areas of clinical psychology practice, school psychology practice, and applied research practice. (Seminar)

PSY 668 School Psychological Consultation LEC (3 crs.) Historical and contemporary perspectives on consultation are reviewed. Theory, research, and practice are discussed from various consultation models including mental-health, behavioral, and organizational. The focus is on content and process of consultation in various clinical and educational settings. (Lec. 3) Pre: PSY 661 and 663 or equivalent.

PSY 670 Field Experience In Psychological Services PRA (1-12 crs.) Practicum placements and internships are available in a variety of agencies clinical and school settings under supervision. (Practicum) S/U credit.

PSY 672 Individual Clinical Practicum PRA (3-9 crs.) Introductory experience in dealing with clinical problems in a variety of clinical settings under supervision. (Practicum) Pre: PSY 661, 662. May be repeated for a maximum of 9 credits. S/U credit.

PSY 681 Ethical, Historical, Legal, and Professional Issues in School Psychology SEM (3-9 crs.) Introduction to school psychology with focus on ethical, historical, legal, and professional issues. Roles and functions of school psychologists in schools and other settings will be explored. (Seminar) May be repeated for a maximum of 9 credits.

PSY 683 Psychology of the Exceptional Child LEC (3 crs.) Cross-listed as (PSY), EDC 683. Social, psychological, and educational factors that constitute the matrix of concerns with the exceptional individual in the school and community. Recent innovations in public and private education and rehabilitation. Research issues and legislation discussed evolve into student studies. (Lec. 3)

PSY 690 Seminar: Contemporary Issues In Psychology SEM (3-12 crs.) Recent developments and current issues. Rigorous exploration of experimental, applied, and theoretical literature. (Seminar) May be repeated for a maximum of 12 credits.

PSY 692 Directed Readings and Research Problems IND (3-12 crs.) Directed readings and advanced research work under the supervision of a faculty member arranged to suit the individual requirements of the students. (Independent Study)

PSY 693 Directed Readings and Research Problems IND (3-12 crs.) Directed readings and advanced research work under the supervision of a faculty member arranged to suit the individual requirements of the students. (Independent Study)

PSY 695 Seminar: Teaching Psychology SEM (3 crs.) Primarily a seminar in the teaching of psychology at the undergraduate level. Includes a consideration of general issues in college teaching, preparation of a course proposal, and sample presentation. (Seminar)

PSY 696 Practicum: Teaching Psychology PRA (1-3 crs.) Practicum for students teaching a college-level psychology course. Supervision of course preparation, presentation, and evaluation. (Practicum) S/U credit. Pre: PSY 695 or permission of the Department. May be repeated for a total of 6 credits with permission of the Department.

PSY 698 Internship in Professional Psychology PRA (1 cr.) Internship in professional psychology for graduate students matriculating in either Clinical or School Psychology. A required, full-time, off campus, culminating pre-professional practice experience, designed to prepare interns for licensure/certification. (Practicum) Pre: PSY 670 and permission of the Program Director. S/U only

PSY 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

RDE | Resource Development Education

RDE 486 Internship in Agricultural and Extension Education PRA (1-6 crs.) Provides experiential learning opportunities related to agricultural education and/or Cooperative Extension education. (Practicum) May be repeated for a maximum of 6 credits. Not for graduate credit.

RIC | Joint PHD program with Rhode Island College

RIC 000 Joint PhD Program with Rhode Island College PRA Joint PhD Program with Rhode Island College. Students should consult with their advisor and register for the number of credits that coincide with Rhode Island College registered credits for the semester.

RLS | Religious Studies

RLS 111 Judaism, Christianity, and Islam LEC (3 crs.) Comparative study of the teachings, the histories, and the practices of the three religions of Abraham; emphasis on their teachings. (Lec. 3) (A3) (C2)

RLS 125 Biblical Thought LEC (3 crs.) Selected portions of the Old and New Testaments with emphasis on their positive contribution to the philosophy of the Jewish and Christian religions. (Lec. 3) (A3)

RLS 131 Introduction to Asian Philosophies and Religions LEC (3 crs.) Introductory study of the main philosophical and religious ideas in Asia, with emphasis on Hinduism, Buddhism, Confucianism, and Taoism. (Lec. 3) (A3)

RLS 221 Islam and Its Civilization LEC (4 crs.) Cross-listed as (RLS), PSC 221. Provides the students with the basic foundation to understand Islam (as a religion and a civilization). The course explains Islamic beliefs and ethics, then shows how those ethics shaped Muslim societies socially and politically. (Lec. 4) (A3) (C2)

RLS 221H Honors Section of RLS/PSC 221: Islam and Its Civilization LEC (4 crs.) Honors Section of RLS/PSC 221: Islam and Its Civilization: Cross-listed as (RLS), PSC 221H. Provides the students with the basic foundation to understand Islam (as a religion and a civilization). The course explains Islamic beliefs and ethics, then shows how those ethics shaped Muslim societies socially and politically. (Lec. 4) Pre: Must have a 3.4 or higher GPA overall to enroll.(A3) (C2)

RLS 226 The Development of Christian Thought LEC (3 crs.) Non-sectarian study of the teachings and historical development of various Christian groups, including Eastern Orthodoxy, Roman Catholicism, the major Protestant denominations, and liberal Christianity. (Lec. 3) (A3) (B4)

RLS 295 Religion in African American Thought & Culture LEC (3 crs.) Cross-listed as (AAF) RLS 295. Religion in African American Thought & Culture is an exploration of the role religion has played in African American cultural formation. (Lec. 3)

RUS | Russian

RUS 101 Beginning Russian I LEC (3 crs.) Introduction to fundamentals of grammar; exercises in speaking, reading, and writing. Emphasis on pronunciation, intonation, and aural comprehension of contemporary spoken Russian. Language laboratory required. (Lec. 3) Pre: no prior Russian is required. Will not count toward the language requirement if the student has studied Russian for more than one year within the last six years. (A3) (C2)

RUS 102 Beginning Russian II LEC (3 crs.) Continuation of RUS 101. Students enrolling in this course should have taken RUS 101 or equivalent. (Lec. 3) (A3) (C2)

RUS 103 Intermediate Russian I LEC (3 crs.) Completion of fundamentals of grammar; exercises in speaking and writing, reading of contemporary texts; emphasis on distinction between spoken and written language. Language laboratory required. Students enrolling in this course should have taken RUS 102 or equivalent. (Lec. 3)

RUS 104 Intermediate Russian II LEC (3 crs.) Continuation of RUS 103. Students enrolling in this course should have taken RUS 103 or equivalent. (Lec. 3)

RUS 391 Masterpieces of Russian Literature LEC (3 crs.) Prose, poetry, and drama from late 18th through 20th centuries in translation. Emphasis on literary movements through textual analysis. Authors range from Pushkin to Pasternak, including Dostoevsky and Tolstoy. (Lec. 3)

RUS 392 Masterpieces of Russian Literature LEC (3 crs.) Prose, poetry, and drama from late 18th through 20th centuries in translation. Emphasis on literary movements through textual analysis. Authors range from Pushkin to Pasternak, including Dostoevsky and Tolstoy. (Lec. 3)

SAF | Sustainable Agriculture and Food Systems

SAF 400G Reimagining Food Systems Through Agroecology LEC (3 crs.) Critical exploration of all facets of local to global food systems through lectures, readings, field trips, and hands-on learning. Culminates in an interdisciplinary assessment of a local community food system. (Lec. 3) Pre: junior standing. Not for graduate credit. (D1) (GC)

SAF 404 Food Systems, Sustainability and Health LEC (3 crs.) Cross-listed as (AVS), NFS, SAF 404. Scientific analysis of animal and human health and nutrition in various food systems. Interdisciplinary discussion on food systems and sustainability. (Lec. 3) Pre: Senior in good standing or permission of instructor. Not for graduate credit. (D1) (B4)

SCA | Supply Chain Management

SCA 255 (BUS) Operations and Supply Chain Management LEC (3 crs.) Operations management problems in global and domestic environments. Operations strategy, service, and manufacturing; forecasting; inventory management; production and material requirements planning; scheduling; just-in-time; and quality management. (Lec. 3/ Online) Pre: BAI (BUS) 113 or BAI (BUS) 111 or CSC 101 and BAI (BUS) 210 or STA 308, or permission of instructor.

SCA 359 (BUS) Management Systems Analysis LEC (3 crs.) Examination of processes in Business environments to lead to improvements in costs, time and customer satisfaction using techniques found in Six Sigma, Lean and other methods. Students complete a team project and are eligible to apply for awarded a Lean/Six Sigma Yellow belt certification upon successful completion with a C- or higher. (Lec. 3) Pre: BUS (BAI) 210; and BUS (SCA) 255; or ISE 240, or ISE 261G or permission of instructor.

SCA 360 (BUS) Introduction to Transportation & Logistics LEC (3 crs.) Introduces the basic concepts in the design, operation, and control of global transportation and logistics systems. Specifically introducing Transportation Management, Warehouse Management, and Order Management systems. (Lec. 3) Pre: SCA 255 (BUS 355).

SCA 361 (BUS) International Transportation LEC (3 crs.) Background for understanding all critical issues in domestic and international transportation. Addresses regulations, key financial indicators, modes, carrier selection, transportation system management and design. (Lec. 3) Pre: SCA 255 (BUS 355) or permission from instructor.

SCA 390 Junior Career Passport Program ONL (1 cr.) Exploration of career options. Develop personal and professional goals, and personal job searching tools. (Online) S/U only.

SCA 410 (BUS) Lean Six Sigma Green Belt Practicum LEC (3 crs.) Covers the required concepts and project to complete the Six Sigma Green Belt certification. (Lec. 3) Pre: SCA (BUS) 359 including completion of Yellow Belt designation. S/U only. Not for graduate credit.

SCA 415 (BUS) Project Management LEC (3 crs.) Students who take this course will obtain knowledge in the following areas of project management: project integration, scope, time management, cost management, project control, human resource management, risk management, quality management, procurement management, communications management, professional responsibility. (Lec. 3) Pre: BAI (BUS) 110 or CSC 101 and BAI (BUS) 210 or STA 308 or ISE 311. Not for graduate credit.

SCA 459 (BUS) Management of Quality Control and Improvement LEC (3 crs.) Principles of quality management including control charts, process management, and other techniques, with emphasis on the effect of these principles on decision making in various organizations. (Lec. 3) Pre: BAI (BUS) 113, and BAI (BUS) 211 or BAI (BUS) 212 or permission of instructor.

SCA 460 (BUS) Global Supply Chain Management LEC (3 crs.) Examines factors that impact the design and management of global supply chains. Through cases, lectures and research projects, explores and includes topics related to strategy and change management, sourcing, making, delivery, and technology enablement. (Lec. 3) Pre: SCA 255 (BUS 355). Not for graduate credit.

SCA 462 (BUS) Supply Chain Network Modeling and Optimization LEC (3 crs.) Strategic and change management practices necessary for planning/modeling/designing demand-driven value networks through the use of contemporary technologies. (Lec. 3) Pre: SCA (BUS) 360 and SCA (BUS) 460.

SCA 463 (BUS) Global Warehousing and Distribution Systems (WMS/OMS) LEC (3 crs.) Advanced concepts, practical applications and current practices regarding a global supply chain and the related impacts on the design, operation, and control of global warehousing and distribution systems. This class will also address sustainability, resource optimization, and the regulatory practices governing contemporary transportation & logistics. (Lec. 3) Pre: SCA (BUS) 360 or MBA 560. For graduate credit.

SCA 464 (BUS) Supplier Relationship Management LEC (3 crs.) Examines the management and technological practices a firm deploys to develop supplier relationships including: plan, source, make, and deliver. (Lec. 3/Online) Pre: SCA 255 (BUS 355) and SCA (BUS) 460 or permission of instructor.

SCA 491 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

SCA 492 Directed Study IND (1-3 crs.) Independent study supervised by college faculty. Seminar meetings concerned with specific business topics. (Independent Study) Pre: must be a student in the College of Business with more than 75 credits and permission of instructor. Not for graduate credit.

SCA 493 Internship in Supply Chain Management PRA (3 or 6 crs.) Approved, supervised work experience with participation in management and problem solving related to the student's major field. College of Business internships for 3 credits require approximately 120 hours of field experience and 20 hours of class work. Internships for 6 credits require approximately double this amount of work. May be offered online. (Practicum/Online) Pre: admission into internship program, and permission of instructor. Limited to 6 credits. Not for graduate credit. S/U only.

SCA 609 (BUS) Doctoral Research Seminar SEM (3 crs.) Provides a rigorous analysis of current research questions and the research techniques used to address those questions in the management science discipline. Recent developments and current issues addressed. (Seminar) Pre: enrollment in Phase II of the Ph.D. program in business administration. May be repeated.

SCA 691 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

SCA 692 Directed Study in Business IND (3 crs.) Advanced doctoral level work under the supervision of a faculty member arranged to suit the individual requirements of the student. (Independent Study) Pre: permission of instructor.

SCA 699 Doctoral Dissertation Research IND (1-12 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) Pre: enrollment in Phase III of the Ph.D. program in business administration. S/U credit. May be repeated.

SCM | School of Communication and Media

SCM 101 Introduction to Communication and Media LEC (3 crs.) Contemporary trends in communication and media, including how each branch of media--print, video, audio--relates to and influences the others so that old and new media converge. (Lec. 3) (B4) (C2)

SCM 105 Production/Presentation Fundamentals LEC (3 crs.) Introduction to both production and presentation skills. The course address the basic processes of creating media content and the factors contributing to a successful presentation. (Lec. 3)

SCM 201 Introduction to Broadcast Studio Production STU (4 crs.) Introduction to production skills in the television broadcast studio, video camera operations, recording audio and video, newsroom production, lighting, sets, shooting interviews, pre-production, editing, and directing for television. (Studio)

SCM 312 Introduction to Video Games: Design and Development LEC (4 crs.) Cross-listed as (SCM), ART, COM, FLM 312. Introduces video game development through the perspective of artistic design and production. Projects include pitches, storyboards and mock-ups, narratives and scripts, and prototypes. Entails substantial collaborative work. (Lec. 3, Studio 2) Pre: sophomore standing.

SCM 477 Harrington Field Experience PRA (0 crs.) Undergraduate URI students completing approved Off Campus Experience. Fall, Spring, or Summer Semester. Registration is by permission number only. (Practicum) Pre: permission number required.

SMC | Sports Media and Communication

SMC 220 Sports Media LEC (3 crs.) Focuses on fundamental skills and knowledge to produce sports media reporting for traditional print, multi-media; includes principles of journalism, standards of reporting, story structure, style rules, and grammar. (Lec. 3) Pre: COM 100.

SMC 303 Sport, Culture, and Media LEC (3 crs.) Examines cultural assumptions about sport and the historical significance of sports culture and media; surveys American sport history and applies historical and critical methodologies in the analysis of sports. (Lec. 3) Pre: COM 203.

SMC 477 Internship in Sports Media and Communication PRA (1-6 crs.) Provides the student with direct supervised participation in a variety of communication situations and occupations. May be repeated; maximum of 6 credits allowed toward graduation. (Practicum) Pre: 60 credits, 2.50 GPA; junior standing in a degree-granting college and permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit. S/U grades only.

SOC | Sociology

SOC 100 Introduction to the Sociological Perspective LEC (3 crs.) Sociological approaches to inequality and contemporary social issues regarding race, ethnicity, class, gender. Exploration of group norms, values, and dynamics; intergroup relations; multicultural diversity; social justice and change; social institutions. (Lec. 3/Online) (A2)

SOC 200 Topics in Sociology LEC (3 crs.) Critical study of selected topics from a sociological perspective. Subject will vary according to the expertise of instructor. (Lec. 3) May be repeated with a different topic for a total of 6 credits.

SOC 204 Social Psychology LEC (3 crs.) Examination of the social basis of self and behavior; emphasis on identity, motivation, attitude, social role, and the symbolic in social life. (Lec. 3)

SOC 212 Sociology of the Family LEC (3 crs.) Examines the role of families in maintaining and changing society. Emphasis on demographic and historical changes in families, diversity of family structures and connections between the family and other institutions. (Lec. 3/Online) (A2)

SOC 224 Health, Illness, and Medical Care LEC (3 crs.) Introduction to social factors in the occurrence, distribution, and treatment of illness in society; critical analysis of the social organization of medicine in contemporary American society. (Lec. 3) (A2) (C3)

SOC 224H Honors Section of SOC 224: Health, Illness, and Medical Care LEC (3 crs.) Honors Section of SOC 224: Health, Illness, and Medical Care. Introduction to social factors in the occurrence, distribution, and treatment of illness in society; critical analysis of the social organization of medicine in contemporary American society. (Lec. 3) (A2) (C3)

SOC 230 Crime and Delinquency LEC (3 crs.) Cross-listed as (SOC), CCJ 230. Survey of the extent, distribution, trends and costs of delinquency and crime in the United States; examination of selected types of crime and delinquency; policy implications. (Lec. 3/Online) (A2)

SOC 230H Honors Section of SOC/CCJ 230: Crime and Delinquency LEC (3 crs.) Honors Section of SOC/CCJ 230: Crime and Delinquency. Cross-listed as (SOC), CCJ 230. Survey of the extent, distribution, trends and costs of delinquency and crime in the United States; examination of selected types of crime and delinquency; policy implications. (Lec. 3/Online) (A2)

SOC 240 Race and Ethnicity LEC (3 crs.) Cross-listed as (SOC), AAF 240. Relations among the various ethnic, religious, racial, and political minorities and majorities, with special reference to the United States. (Lec. 3) (C3) (A2)

SOC 242 Sex and Gender LEC (3 crs.) Explores sex and gender through a critical lens focused on social construction and institutions. Critically analyzes how gender organizes and impacts everyday life in the US. (Lec. 3/Online) (A2) (C3)

SOC 250 Social Movements and Change LEC (3 crs.) A foundational course that examines theoretical and empirical explanations for social change through social movements, collective action and policy. Focus is on contemporary and historical inequalities and social justice. (Lec. 3/Online) Pre: SOC 100.

SOC 303 Immersion in Juvenile Social and Legal Justice PRA (3 crs.) Experiential J-term course explores social and legal justice for juveniles in RI. Practice applying sociological concepts to analyze agency goals and programming efforts, exploration of career and internship opportunities. (Practicum) Pre: SOC 100 and permission of instructor.

SOC 308 Sustainable Agriculture and Food Cultures LEC (3 crs.) Cross-listed as (APG), SOC, GWS 308. Comparative study of sustainable food systems and cultures focusing on the sociocultural dynamics of production, distribution, and consumption. Areas include comparative food systems, indigenous food cultures, gender and food, food equity, and food movements. (Lec. 3) Pre: sophomore standing.

SOC 308H Honors Section of APG/SOC/GWS 308: Sustainable Agriculture and Food Cultures LEC (3 crs.) Honors Section of APG/SOC/GWS 308: Sustainable Agriculture and Food Cultures. (Lec. 3) Pre: 3.40 overall gpa and sophomore standing.

SOC 329 Contemporary Mexican Society LEC (3 crs.) Cross-listed as (SOC), APG 329. Examines the social, political, economic, and cultural dimensions of contemporary Mexico. Demographic composition, economic and political development, civil society and women's political participation, indigenous issues and rights, U.S.-Mexico relations and bilateral issues, and human rights. (Lec. 3) Pre: SOC course at the 200-level or APG 203.

SOC 336 Social Inequality LEC (3 crs.) Cross-listed as (SOC), AAF 336. Dimensions and dynamics of inequality in society; concepts of class, status, race, ethnicity and gender; foundational theories of inequality; intersecting systems of inequality, including race, class, gender, citizenship and sexuality. (Lec. 3) Pre: one 100- or 200-level sociology course.

SOC 340 Environmental Sociology LEC (3 crs.) Cross-listed as (MAF) SOC 340. Introduction to environmental sociology, which studies the human-nature relationship and underlying causes of environmental problems. Particular attention given to applications of theory to marine and coastal issues. (Lec. 3) Pre: SOC 100 or MAF 100.

SOC 350 Work and Family Life LEC (3 crs.) Linkages between economic and family institutions. Effects of work on family and of family on work. Historical development of the linkages. Contemporary effects due to men's decreasing and women's increasing labor force participation. (Lec. 3) Pre: 3 credits in SOC or HDF.

SOC 377 Undergraduate Teaching Experience in Anthropology/Sociology PRA (1-3 crs.) Cross-listed as (APG), SOC 377. Introduces students to various aspects of college level teaching while working under the supervision of course instructors and/or faculty members in Anthropology or Sociology. (Practicum 1-3) Pre: Permission of instructor. Not for major credit. S/U only.

SOC 395 (401) History of Sociological Thought LEC (3 crs.) Examination of the basic questions and issues that have been the focus of sociological thought; critical analysis of theoretical sociology with an emphasis on the contributions of sociological theory to understanding the structures and problems of modern society. (Lec. 3) Pre: SOC 100 and 6 credits in sociology. Open only to sociology majors.

SOC 400 (300) Advanced Topics In Sociology LEC (3 crs.) Critical study of advanced selected topics. Subject varies according to the expertise of instructor. (Lec. 3) Pre: minimum 12 credits in sociology including SOC 395 and 440 or permission of instructor. May be repeated for credit with different topic.

SOC 413 Gender Inequality SEM (3 crs.) Development of gender inequality. Critique of various theories explaining inequality. Sociological interpretation of theories of gender. (Seminar) Pre: SOC 242 or permission of instructor.

SOC 415 Migration in the Americas LEC (3 crs.) Cross-listed as (APG), SOC 415. Contemporary trends in migration in the Americas with a focus on migratory flows from Latin America to the United States. Migration theories, unauthorized migration, anti-immigration discourses, inter-migration in Latin America, gender dynamics, transnationalism, refugees and the internally displaced, and immigration policies in the Americas. (Lec. 3) Pre: open only to juniors, seniors, and graduate students.

SOC 420 Family Violence SEM (3 crs.) Surveys the extent, distribution, trends, and costs of physical, emotional, and economic forms of family violence at individual, dyadic, and cultural levels. (Seminar) Pre: SOC or CCJ major, junior or senior standing or permission of instructor. Approved for graduate credit.

SOC 428 Institutional Racism SEM (3 crs.) Cross-listed as (SOC), AAF 428. Critically examines the origin, nature, and consequences of institutional racism in the US. (Seminar) Pre: one 300-level sociology course or permission of instructor.

SOC 430 Intimate Relationships LEC (3 crs.) Cross-listed as (SOC), PSY 430. Examination of the effects of cultural, social, and psychological processes on the development, maintenance, and dissolution of intimate relationships. Emphasis on friendship patterns, dating and marital relationships, intimacy in nontraditional relationships. Emphasis on research. (Lec. 3) Pre: any 100- or 200-level course in sociology or PSY 113 or permission of instructor. Not for graduate credit.

SOC 431 Families and Aging LEC (3 crs.) Cross-listed as (HDF), SOC 431. An analysis of families and interpersonal relationships of older adults. With attention to social, psychological, cultural, economic, and political factors. (Lec. 3) Pre: HDF 202 or SOC 440.

SOC 432 Work, Employment, and Society LEC (3 crs.) Cross-listed as (SOC), LHR 432. Explores the workplace and employment relations from a sociological perspective. Topics include work systems, worker alienation and organization, occupational identity, and the impacts of immigration, diversity, and globalization on the workplace. (Lec. 3) Pre: SOC 100 or permission of instructor.

SOC 437 Law and Families in the United States SEM (3 crs.) Cross-listed as (HDF), SOC 437. Seminar to investigate family roles, relationships, rights, and responsibilities as defined by the law. Emphasis on explicit and implicit family policy revealed in the various branches of law. (Seminar) Pre: HDF 200 and 230 or SOC 212.

SOC 438 Aging In Society LEC (3 crs.) Analysis of the use of age in assigning roles, age changes over the life course, and the implications of demographic changes for societies. Emphasis upon theories of aging, the status and power of the aged, and relations between age groups. (Lec. 3) Pre: 6 credits in sociology or permission of instructor.

SOC 440 Sociological Research Methods LEC (3 crs.) Scientific method in sociological research; emphasis on the development of the ability to construct and evaluate data-based arguments; topics include the nature of evidence, research design, principles and techniques of sampling, data collection and interpretation. (Lec. 3) Pre: 9 credits in SOC. Open only to SOC or CCJ majors with junior or senior standing, or permission of instructor.

SOC 452 Class and Power LEC (3 crs.) Critically analyzes class-based identities and inequalities in contemporary societies. (Lec. 3) Pre: 6 credits in SOC.

SOC 460 Quantitative Methods in Sociology SEM (3 crs.) Introduces students to the basic of quantitative methods in sociology ¿ techniques that sociologists and other social scientists use to summarize quantitative data obtained from empirical research. (Seminar) Pre: sociology major; 9 credits in Sociology. Not for graduate credit.

SOC 475G Global Perspectives on Reproduction SEM (3 crs.) Cross-list with (SOC), APG, GWS 475G. Explores the impact of inequalities of race, class, age, gender and sexuality on global variations in contraception, fertility, childbirth, and parenthood, and the ethical issues and social forces affecting reproduction. (Seminar) Pre: 300-level coursework in sociology, anthropology, gender and women's studies, or health studies; or permission of the instructor. Not for graduate credit. (A2) (C2)

SOC 477 Field Experience in Sociology PRA (3-6 crs.) Field experience in an approved government agency or non-profit organization; practice in applying sociological concepts and methods to the analysis of problems faced by the agency and/or its clients, exploration of career opportunities. (Practicum) Service Learning. Pre: Junior or senior standing and 6 credits in SOC beyond 100. Open only to SOC or CCJ majors and permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit.

SOC 495 Capstone in Sociology SEM (3 crs.) Integration and application of students' sociological knowledge and skills by examining their education from a sociological perspective. Reflexive analyses of higher education and students' preparation for participation in work and democracy. (Seminar) Pre: senior standing; open only to sociology majors. Not for graduate credit. (D1)

SOC 498 Independent Study IND (3 crs.) Areas of special research not covered in other courses. May be taken as honors courses. (Independent Study) Pre: one 300-level sociology course and permission of instructor.

SOC 499 Independent Study IND (3 crs.) Areas of special research not covered in other courses. May be taken as honors courses. (Independent Study) Pre: one 300-level sociology course and permission of instructor.

SOC 505 Public Program Evaluation LEC (3 crs.) Cross-listed as (PSC), SOC 505. Research design and methodologies associated with the evaluation of governmental programs and activities. (Lec. 3) Pre: STA 308 or equivalent or permission of instructor.

SOC 595 Environment and Development Economics LEC (3 crs.) Cross-listed as (EEC), MAF, PSC, SOC 595. Application of economic principles and research methods to understand the economics of environmental and natural resource management and poverty alleviation. (Lec. 3) Pre: EEC 528 or permission of instructor.

SPA | Spanish

SPA 100 (111) Accelerated Elementary Spanish LEC (6 crs.) Accelerated elementary Spanish equivalent to 101 and 102. Develops basic communication skills in Spanish. Explores the products, practices and perspectives of Hispanic culture. (Lec. 6) (C2) (A3)

SPA 101 Beginning Spanish I LEC (3 crs.) Introductory Spanish for beginners. Development of basic communication skills in Spanish and exploration of products, practices and perspectives of diverse Hispanic cultures. (Lec. 3) re: no prior Spanish is required. Not open to students who have studied Spanish for more than one year within the last five years. Not open to heritage speakers of Spanish (people who grew up speaking Spanish at home, but completed formal schooling in a language other than Spanish). Not open to native speakers of Spanish (people who grew up speaking Spanish and also completed formal schooling in Spanish-speaking countries). (C2) (A3)

SPA 102 Beginning Spanish II LEC (3 crs.) Continuation of SPA 101. Development of basic communication skills in Spanish and exploration of products, practices and perspectives of diverse Hispanic cultures. (Lec. 3) Pre: Students enrolling in this course should have taken SPA 101 or equivalent. Not open to students who have studied Spanish for more than two years within the last five years. Not open to heritage speakers of Spanish (people who grew up speaking Spanish at home, but completed formal schooling in a language other than Spanish). Not open to native speakers of Spanish (people who grew up speaking Spanish and also completed formal schooling in Spanish-speaking countries). (C2) (A3)

SPA 103 Intermediate Spanish I LEC (3 crs.) Development of intermediate-level communication skills in Spanish and exploration of products, practices and perspectives of diverse Hispanic cultures.(Lec. 3) Pre: Students enrolling in this course should have taken SPA 102 or equivalent. Not open to heritage speakers of Spanish (people who grew up speaking Spanish at home, but completed formal schooling in a language other than Spanish). Not open to native speakers of Spanish (people who grew up speaking Spanish and also completed formal schooling in Spanish-speaking countries). (A3) (C2)

SPA 104 Intermediate Spanish II LEC (3 crs.) Continuation of SPA 103. Development of intermediate-level communication skills in Spanish and exploration of products, practices and perspectives of diverse Hispanic cultures. (Lec. 3) Pre: Students enrolling in this course should have taken SPA 103 or equivalent. Not open to heritage speakers of Spanish (people who grew up speaking Spanish at home, but completed formal schooling in a language other than Spanish). Not open to native speakers of Spanish (people who grew up speaking Spanish and also completed formal schooling in Spanish-speaking countries). (C2) (A3)

SPA 110 Spanish for Heritage Speakers I LEC (3 crs.) Intermediate-level review of Spanish grammar, spelling and writing, designed to address the needs of heritage speakers with some high school Spanish instruction. (Lec.3) Open only to heritage speakers of Spanish. (A3) (C2)

SPA 113 Accelerated Intermediate Spanish LEC (6 crs.) Accelerated intermediate Spanish equivalent to 103 and 104. Develops intermediate communication skills in Spanish. Explores the products, practices and perspectives of Hispanic culture. (Lec. 6) Pre: SPA 102 or 111 or permission of instructor.

SPA 205 Spanish Language and Style I LEC (3 crs.) Advanced-intermediate course focused on development and refinement of all Spanish language skills, with emphasis on writing, through structured practice using Hispanic cultural and literary material.(Lec. 3/Online) Pre: Students enrolling in this course should have taken SPA 104 or equivalent. Not open to native speakers of Spanish (people who grew up speaking Spanish and also completed formal schooling in Spanish-speaking countries). (A3) (C2)

SPA 206 Spanish Language and Style II LEC (3 crs.) Continuation of SPA 205. Advanced-intermediate course focused on development and refinement of all Spanish language skills, with emphasis on writing,

through structured practice using Hispanic cultural and literary material. (Lec. 3) Pre: Students enrolling in this course should have taken SPA 205 or equivalent. Not open to native speakers of Spanish (people who grew up speaking Spanish and also completed formal schooling in Spanish-speaking countries). (C2) (A3)

SPA 207 Oral Expression in Spanish LEC (3 crs.) Development of oral skills in Spanish through discussion, interpretation, and reports on topics of personal, practical, and cultural interest. Students enrolling in this course should have taken SPA 205 or equivalent. (Lec. 3) May be taken concurrently with SPA 206. Note: Not open to native speakers of Spanish. (C2) (A3)

SPA 210 Spanish for Heritage Speakers LEC (3 crs.) Language and cultural studies focused on unique interests and competencies of heritage speakers (people who grew up speaking Spanish, but completed formal schooling in a language other than Spanish). (Lec. 3) Pre: Open only to heritage speakers of Spanish (people who grew up speaking Spanish at home, but completed most or all of their formal schooling in a language other than Spanish). (A3) (C3)

SPA 305 Early Spanish-American Literature and Culture LEC (3 crs.) Study of the early development of Spanish-American culture through its literature, from Conquest to Independence. (Lec. 3) Pre: SPA 206 or SPA 210, or permission of instructor.

SPA 306 Modern Spanish-American Literature and Culture LEC (3 crs.) Significant figures and developments in literature, the arts, and society, from Independence to the present. (Lec. 3) Pre: SPA 206 or SPA 210, or permission of instructor.

SPA 307 Hispanic Culture Through the 17th Century LEC (3 crs.) Significant contributions in literature and the arts, from the unique period of coexistence of Christians, Jews, and Muslims through the Golden Age of the 16th and 17th centuries. (Lec. 3) Pre: SPA 206 or SPA 210, or permission of instructor.

SPA 308 Literature and Culture of Modern Spain LEC (3 crs.) Major figures and developments in Spanish literature, the arts, and society from the 18th century to the present. (Lec. 3) Pre: SPA 206 or SPA 210, or permission of instructor.

SPA 310 Field Workshop WRK (1-6 crs.) Cultural visit to Spain or Hispanic America. Significant monuments and places of interest to the student of literature and civilization will be studied. Lectures supplemented by assigned readings. (Workshop) Pre: SPA 104 or permission of instructor.

SPA 312 Advanced Spanish LEC (3 crs.) Problematic aspects of Spanish grammar; proper syntax and word usage in speaking, translation, and writing at sophisticated levels; correct reproduction of sounds and intonation patterns. (Lec. 3) Pre: SPA 206 or SPA 210, or permission of instructor.

SPA 313 Introduction to Spanish Linguistics LEC (3 crs.) Introduction to Spanish linguistics with focus on what human languages are and how they are used. Analysis of Spanish phonetics, phonology, morphology, and syntax, along with issues of language variation and bilingualism in Spanish speaking communities. (Lec. 3) Pre: SPA 312.

SPA 316 Spanish Internship Abroad IND (3-6 crs.) Supervised work experience in Spanish-speaking country for advanced language students. (Independent Study) Pre: SPA 321. For credit for the B.A. in Spanish only for students also completing a B.S. in engineering.

SPA 317 Spanish Internship Abroad IND (3-6 crs.) Supervised work experience in Spanish-speaking country for advanced language students. (Independent Study) Pre: SPA 321. For credit for the B.A. in Spanish only for students also completing a B.S. in engineering.

SPA 320 Critical Studies in Spanish Cinema LEC (3 crs.) Study of major Spanish film genres and of prominent Spanish film directors. Emphasis will vary. Course taught in English. Students counting the course for a major or minor in Spanish are required to do all written work in Spanish and must have credit for SPA 206 or SPA 210. (Lec. 3) FLM 101 or equivalent recommended. May be repeated with different topics for a total of 6 credits.

SPA 321 Spanish for Business and Technology LEC (3 crs.) Study of the concepts and terminology of the Spanish language common to the realm of international business and engineering. (Lec. 3). SPA degree credit only for B.S. Business or B.S. Engineering students also completing B.A. in Spanish. Pre: SPA 206 or SPA 210, or permission of instructor. (D1) (B2)

SPA 325 Introduction to Literary Genres LEC (3 crs.) Presentation of the novel, poetry, drama, and essay as literary genres. Textual commentary and methods of criticism. (Lec. 3) Pre: SPA 206 or permission of instructor. Required for Spanish majors.

SPA 401 Oral and Dramatic Presentation of Hispanic Literature LEC (3 crs.) Practice in effective oral communication in Spanish and appreciation of Hispanic literature through analysis and class presentation of drama, poetry, and prose. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 412 Advanced Technical Spanish SEM (3 crs.) Cross-listed as (EGR), SPA 412. Seminar on advanced scientific and engineering topics in an international context. All reading, writing and discussion will be conducted in Spanish. (Seminar) Pre: any 400-level course in Spanish and senior standing in an approved engineering program. Not for graduate credit.

SPA 413 Spanish Sociolinguistics and Pragmatics LEC (3 crs.) Study of Spanish sociolinguistics and pragmatics. Analysis of speech variants or dialects and the factors that determine them. Examination of the use of language in context and the ways in which speakers interpret discourse. (Lec. 3) Pre: any 300-level SPA course or permission of the instructor.

SPA 421 Business Spanish LEC (3 crs.) Study of concepts and terminology in the Spanish-speaking business world. (Lec.3) Not for graduate credit in Spanish. SPA degree credit only for B.S. Business or B.S. Engineering students also completing B.A. in Spanish. Pre: credit or concurrent enrollment in a 300-level Spanish course.

SPA 430 Castilian Prose of the 16th and 17th Centuries LEC (3 crs.) Literary significance of the Renaissance and Baroque periods and an analysis and critical examination of the prose works of the principal writers of this Golden Age of Castilian Literature. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 431 Drama and Poetry of the 16th and 17th Centuries LEC (3 crs.) Spanish poetry and drama from the early Renaissance through the Baroque. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 471 Topics in Latin American Literature and Culture SEM (3 crs.) Latin American topics or author not emphasized in other courses. (Seminar) Pre: SPA 325 or permission of instructor. May be repeated with a change in topic for a maximum of 6 credits.

SPA 472 Topics in Hispanic Linguistics SEM (3 crs.) Topics in Hispanic linguistics not emphasized in other courses. (Seminar) Pre: SPA 325 or permission of instructor. May be repeated with a change in topic for a maximum of 6 credits.

SPA 473 Topics in Spanish LIterature and Culture SEM (3 crs.) Spanish topics or authors not emphasized in other courses. (Seminar) Pre: SPA 325 or permission of instructor. May be repeated with a change in topic for a maximum of 6 credits.

SPA 481 Don Quijote LEC (3 crs.) Life and times of Miguel de Cervantes Saavedra and the reading and critical interpretation of his work. El ingenioso hildalgo Don Quijote de la Mancha. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 485 Modern Spanish Narrative LEC (3 crs.) Representative narrative works by Spain's major authors from the Generation of 1898 to the present. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 488 Spanish-American Poetry and Drama LEC (3 crs.) Traces the development of poetic expression and drama from the 17th century to modern times as a reflection of the evolution of Spanish-American identity. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 489 The Spanish-American Narrative LEC (3 crs.) Traces the development of fictional prose in Spanish America from the colonial

period to modern times as a reflection of cultural and societal changes. (Lec. 3) Pre: SPA 325 or permission of instructor.

SPA 497 Directed Study IND (1-3 crs.) For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: SPA 325, acceptance of project by faculty member, and approval of section head.

SPA 498 Directed Study IND (1-3 crs.) For the advanced student. Individual research and reports on problems of special interest. (Independent Study) Pre: SPA 325, acceptance of project by faculty member, and approval of section head.

SPA 510 Contemporary Spanish Workshop WRK (3-6 crs.) New developments in all areas of Hispanic studies including pedagogical matters and classroom techniques. (Workshop) Pre: graduate standing or permission of instructor.

SPA 511 The Spanish of the Americas SEM (3 crs.) Examines linguistic dialect variation within Spanish and the factors that determine it. Individual and social bilingualism and its educational implications are also discussed. (Seminar) Pre: graduate standing or permission of instructor.

SPA 513 Bilingualism in Spanish-speaking Communities LEC (3 crs.) Study of bilingualism from perspective of psycholinguistics. Study of different bilingual educational models and programs in the Spanish-speaking world and in the U.S.

SPA 561 Seminar In Medieval Poetry And Prose SEM (3 crs.) Examination and analysis of the epic, lyrical, and narrative medieval literature of Spain and its impact on subsequent literature. (Seminar) Pre: graduate standing or permission of instructor.

SPA 570 Topics In Hispanic Literature And Culture SEM (3 crs.) Special topics or authors not emphasized in other courses. (Seminar) Pre: graduate standing or permission of instructor.

SPA 572 Evolution of Spanish-American Culture and Thought LEC (3 crs.) Development of Spanish-American thought and cultural trends, as portrayed in major works of artists and thinkers. (Lec. 3) Pre: graduate standing or permission of instructor.

SPA 574 Interpretations Of Modern Spanish-american Thought SEM (3 crs.) Topics of interest in the development of modern Spanish-American thought as represented in the essay from the period of independence to the present. (Seminar) Pre: graduate standing or permission of instructor.

SPA 580 Seminar in 19th-Century Spanish Literature SEM (3 crs.) Selected authors and topics from the Spanish Romantic movement through realism and naturalism. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic and permission of instructor.

SPA 584 Interpretations of Modern Spain LEC (3 crs.) Development of Spanish thought particularly with respect to sociological and cultural problems from the 18th century to the contemporary period as seen through the writings of significant essayists. (Lec. 3) Pre: graduate standing or permission of instructor. In alternate years.

SPA 585 Seminar in 20th and 21st Century Spanish Literature SEM (3 crs.) Topics of aesthetic, cultural, and linguistic concern in 20th century and 21st century peninsular literature. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic and permission of instructor.

SPA 587 Seminar In Renaissance And Baroque Literature SEM (3 crs.) Aesthetic analysis of works representative of the period and their influence on subsequent literatures. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic and permission of instructor.

SPA 588 Seminar in Colonial Spanish-American Literature SEM (3 crs.) Topics of interest dealing with the development of Spanish-American cultural identity and literature from the period of discovery and colonization to independence. (Seminar) Pre: graduate standing or permission of the instructor. May be repeated with different topic and permission of instructor.

SPA 589 Seminar in Modern Spanish-American Literature and Culture SEM (3 crs.) Topics of interest dealing with the development of Spanish-American literature and culture from the period of independence to the present. (Seminar) Pre: graduate standing or permission of instructor. May be repeated with different topic.

SPA 590 The Hispanic Presence in the United States LEC (3 crs.) A study of the establishment of the Hispanic presence and its heritage in the art, folklore, and language of the United States, and an analysis of the literature of the Spanish-speaking peoples. (Lec. 3) Pre: graduate standing or permission of instructor. In alternate years.

SPA 597 Directed Study IND (3 crs.) Individual research and reports on problems of special interest. (Independent Study) Pre: graduate standing and approval of the director of graduate studies. May be repeated with different topic.

SPA 598 Directed Study IND (3 crs.) Individual research and reports on problems of special interest. (Independent Study) Pre: graduate standing and approval of the director of graduate studies. May be repeated with different topic.

SPA 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

SPC | School of Professional and Continuing Studies

SPC 201 Introduction to Professional Leadership Studies LEC (3 crs.) Introduction to leadership theories and practices, critical thinking and leadership in the community, civic and diverse workplaces. (Lec. 3)

SPC 207 Planning and Analysis for Professional Leaders LEC (3 crs.) Examines the components of leadership that have been used and effective in various settings within the workplace. Emphasizes using decision making models to analyze behaviors, align organizational goals, determine consequences and make recommendations for actions leaders can take to solve problems. (Lec. 3) Pre: SPC 201 or permission of instructor.

SPC 210 History of Organizational Theory for Nonprofit Institutions LEC (3 crs.) Planning and evaluation of organizational changes are explored, with emphasis on behavioral practices, contemporary concepts, terminology, models, methods and interventions of organizational development for nonprofit institutions. (Lec. 3)

SPC 221 (383) Finance and Budgeting for Professional Leaders LEC (3 crs.) Introduction to language, purposes, uses of finance and budgeting for professional leaders. Includes procedures for generating, analyzing, interpreting issues related to finance and budgeting practices, and analysis for professional workplaces. (Lec. 3) Pre: SPC 201.

SPC 285 Non-Profit Governance LEC (3 crs.) Exploration of the principles and practices of not-for-profit boards. Emphasis on the contemporary concepts, terminology, and models of not for profit boards. (Lec. 3) Pre: SPC 210 or permission of instructor.

SPC 305 Learning and Career Principles for Adult Students SEM (3 crs.) Cross-listed as (SPC), UCS 305. For adult learners, focused on the development of strategies and skills for academic and career success. Emphasis on major and career pathways, time management, learning strategies and professional skills development. (Seminar/Online) Pre: PBA (Performance Based Admission) student, newly admitted veteran student or permission of instructor; not open for students with credits in ITR 300, USC 160, UCS 270, or EDC 278.

SPC 315 Technology and Social Media in the Workplace LEC (3 crs.) Explore how technology and social media influence our lives and change our society. Examine the impact of various media including social media, film, television, the Internet, advertising and news media on the workplace environment. (Lec. 3) Pre: SPC 201 or permission of instructor.

SPC 319G Negotiating Difference: Diversity & Inclusion in America's Narrative LEC (3 crs.) Examination of contemporary and past differences of culture, race, gender, class, and ideology of diverse groups in America who struggled for inclusion, equality, and social justice. (Lec. 3) (B1) (C3) (GC)

SPC 320 Non-Profit Administration LEC (3 crs.) Non-profit administration as a field of study is explored. Emphasis on history and aspects of governing boards, executive leadership, strategic planning, accountability, monitoring performance, managing staff, and social entrepreneurship.(Lec. 3) Pre: SPC 210 or permission of instructor.

SPC 321 (285) Non-Profit Governance LEC (3 crs.) Exploration of the principles and practices of not-for-profit boards. Emphasis on the contemporary concepts, terminology, and models of not for profit boards. (Lec. 3) Pre: SPC 210 or permission of instructor.

SPC 322 (210) History of Organizational Theory for Nonprofit Institutions LEC (3 crs.) Planning and evaluation of organizational changes are explored, with emphasis on behavioral practices, contemporary concepts, terminology, models, methods and interventions of organizational development for nonprofit institutions. (Lec. 3)

SPC 325 Leadership, Power, and Oppression SEM (3 crs.) Explore the culturally relevant leadership learning (CRLL) model. The CRLL is a framework for addressing the experiences of marginalized populations and utilizing leadership to counter systemic injustice and oppression. (Seminar) Pre: SPC 201 or approval from instructor.

SPC 335 (207) Planning and Analysis for Professional Leaders LEC (3 crs.) Examines the components of leadership that have been used and effective in various settings within the workplace. Emphasizes using decision making models to analyze behaviors, align organizational goals, determine consequences and make recommendations for actions leaders can take to solve problems. (Lec. 3) Pre: SPC 201 or permission of instructor.

SPC 383 Finance and Budgeting Policy for Nonprofits LEC (3 crs.) Introduction to language, purposes, uses of nonprofit finance and budgeting research; framing, designing research studies; procedures for generating, analyzing, interpreting issues related to nonprofit finance and budgeting practices, and analysis. (Lec. 3) Pre: SPC 201 or 210 or permission of instructor.

SPC 401 Policy Development Across Professional Sectors LEC (3 crs.) Designed to provide students with the skills and competencies necessary to understand policy problems, evaluate institutional context, devise and assess alternatives, and implement change. There are three general areas of competency covered: policy development, policy and organizational environments, and economic and policy analysis. (Lec. 3) Pre: SPC 201 or permission of instructor. (Lec. 3) Pre: SPC 201 or permission of instructor.

SPC 403 Positioning Nonprofits: Mission-based Marketing LEC (3 crs.) Theoretical and practical applications that show novices how to lead not-for-profit organizations to successes in a competitive world. (Lec. 3) Pre: SPC 210 or permission of instructor.

SPC 420 Facilitating Leadership Development SEM (3 crs.) Students explore ways professional leaders can effectively develop the leadership capacities of others in their workplaces. Students will examine leadership as a developmental relationship and leadership training/facilitation skills. (Seminar) Pre: SPC 201 or permission of instructor.

SPC 425 Non-Profit Fundraising LEC (3 crs.) Introduction to theory, practical knowledge, principles, concepts and techniques in non-profit fundraising. (Lec. 3) Pre: SPC 210 or permission of instructor.

SPC 450 Leading Through Change LEC (3 crs.) Explore the social, political, economic and cultural realities of change and leadership through multiple interdisciplinary frameworks. Emphasis is placed on reexamination of values and assumptions in both character and leadership and skills required to make complex ethical decisions. (Lec. 3) Pre: SPC 201 or permission of instructor. Not for graduate credit.

SPC 479 Social Innovation in the Nonprofit Sector LEC (3 crs.) Analysis of comparative case studies of innovative non-profit organizations. Emphasis on social entrepreneur practices and long standing social problems in both the US and abroad. (Lec. 3) Pre: SPC 210 or permission of instructor.

SPC 480 Supervised Professional Leadership Experience SEM (6 crs.) Supervised professional leadership experience approved by instructor and student's advisor. In-depth examination of leadership experiences (Pract. 4, Sem. 2) Pre: SPC 201 and senior standing, or permission on instructor. For students with full-time professional positions, a Prior Learning Assessment (PLA) option may be developed. Not for graduate credit. S/U only.

SPC 490 Independent Study IND (3 crs.) Independent themes in professional studies conducted as a supervised individual projects for students to learn specialized material, gain research experience, and explore their interest in professional studies in a deeper more meaningful way. (Independent Study) Pre: SPC 201 or permission by instructor.

SPC 491 Supervised Internship Nonprofit Organization PRA (6 crs.) Supervised internship in an approved public agency or nonprofit organization, providing students the opportunity to integrate and extend classroom learning with practice. (Practicum) Pre: SPC 210, senior standing, or permission of instructor. For students with full-time professional positions, a Prior Learning Assessment (PLA) option may be developed. Not for graduate credit. S/U only. (D1)

SPC 495 Special Topics in Professional Studies SEM (3 crs.) Selected contemporary topics with particular relevance for leading in professional workplaces. (Seminar) Pre: SPC 201 or permission by instructor.

SPC 499 Senior Seminar SEM (3 crs.) Students work in close conjunction with a faculty member on a mutually-agreeable topic that integrates knowledge and skills from coursework and related experiences to demonstrate the relationships among subject matter, theory and practice. (Seminar) Pre: SPC 201 and senior standing or permission of the instructor. Not for graduate credit. (D1)

STA | Statistics

STA 220 Statistics In Modern Society LEC (3 crs.) Introductory statistics exploring and understanding data, relationships between variables, randomness and probability. (Lec. 2, Rec. 1) (B3)

STA 305 Introduction to Statistical Computing with R LEC (4 crs.) Introduction to statistical computing using R. This course will have two components. In the first part of the course you will learn how to write efficient and transparent programs in R. In the second part of the course, you will learn about packages and functions that are used for statistical analyses, techniques for managing data, and using graphs to visualize data. (Lec. 3, Lab. 1) Pre: (MTH 103 or MTH 111 or MTH 131 or MTH 141) and (STA 220 or STA 307 or STA 308 or STA 409) or permission of instructor.

STA 307 Introductory Biostatistics LEC (4 crs.) Statistical methods applicable to health sciences. Data presentation. Vital statistics and life tables. Fitting models to health data. Testing, estimation, analysis of cross-classifications, regression, correlation. (Lec. 3, Rec. 1) Pre: MTH 107 or 108 or 131 or 141 or permission. Not open to students with credit in 308 or 409.

STA 308 Introductory Statistics LEC (4 crs.) Descriptive statistics, presentation of data, averages, measures of variation. Elementary probability, binomial and normal distributions. Sampling distributions. Statistical inference, estimation, confidence intervals, testing hypotheses, linear regression, and correlation. (Lec. 3, Rec. 1) Pre: MTH 107 or 110 or 111 or 131 or 141 or BAI (BUS) 111 or permission of instructor. Not open to students with credit in STA 307 or 409.

STA 400 Introduction to the Analysis of Missing Data LEC (4 crs.) Upper-level undergraduate course in missing data analysis. Covered topics will include missing data methods in experiments, deletion methods, single imputation methods, and multiple imputations. (Lec. 3, Rec. 1) Pre: STA 307, or STA 308, or STA 409, or permission of the instructor.

STA 409 Statistical Methods in Research I LEC (3 crs.) Same as STA 308, but is for students who have better mathematical preparation. (Lec. 3) Pre: MTH 131 or 141. Not open to students with credit in STA 307 or 308.

STA 411 Biostatistics II LEC (4 crs.) Cross-listed as (STA), PHP, BPS 411. An overview of statistical methods with applications to health-related studies. Chi-square tests, effect measures, analysis of variances, multiple comparison procedures, linear and logistic regression, some nonparametric and survival tests. (Lec. 3, Rec. 1) Pre: STA 307, or 308, or 409, or permission of instructor.

STA 412 Statistical Methods in Research II LEC (4 crs.) Analysis of variance (one and two ways) and multiple comparison methods. Simple and multiple linear regression, correlation analysis, and model selection methods. (Lec. 3, Rec. 1) Pre: STA 307 or 308 or 409.

STA 414 Measurement of Health Outcomes LEC (3 crs.) Cross-listed as (PHP), STA 414. This course introduces classical psychometric theories and helps students understand methods to measure important health outcomes of medication use, including clinical, humanistic, and economic outcomes. (Lec. 3) Pre: PHP 405, STA 411 or equivalent; graduate student standing or permission of the instructor.

STA 441 Introduction to Multivariate Statistical Learning LEC (4 crs.) Cross-list as (STA), DSP 441. Multivariate data organization and visualization, multinomial and multivariate normal distribution, tests of hypotheses on mean vectors, multivariate regression and classification, principal component analysis, clustering, cross-validation and bootstrapping. (Lec. 3., Lab. 1) Pre: MTH 215; and STA 409, or STA 411, or STA 412; or permission of instructor.

STA 460 Introduction to Time Series Analysis LEC (4 crs.) Modeling, estimation, inference, and forecasting methods are illustrated with applications from different fields. (Lec. 3, Lab. 1) Pre: STA 307 or STA 308, or equivalent, or permission of instructor. Not for graduate credit.

STA 490 Statistics in Practice LEC (4 crs.) Cross-listed as (STA), DSP 490. Practical experience in statistical consulting through various projects. Apply statistical methods to the challenges imposed by real data, and communicate findings effectively. (Lec. 2, Practicum 2) Pre: (STA 411 or 412) and STA 441, or permission of the instructor. Not for graduate credit.

STA 491 Directed Study in Statistics IND (1-3 crs.) Advanced work in statistics. Conducted as supervised individual projects. (Independent Study) Pre: permission of chairperson. S/U credit.

STA 492 Special Topics in Statistics LEC (3 crs.) Advanced topics of current interest in statistics. (Lec. 3) Pre: permission of chairperson.

STA 500 Analysis of Missing Data LEC (4 crs.) Designed as a graduate course in missing data theory. Covered topics include Full Information Maximum Likelihood, Expectation-Maximization algorithm, Multiple Imputation, and nonignorable missing data models. (Lec 3, Rec. 1) Pre: STA 501, or STA 502, or STA 576, or permission of instructor.

STA 501 Analysis of Variance and Variance Components LEC (3 crs.) Analysis of variance and covariance, experimental design models, factorial experiments, random and mixed models, estimation of variance components, unbalanced data. (Lec. 3) Pre: STA 412.

STA 502 Applied Regression Analysis LEC (3 crs.) Topics in regression analysis including subset selection, biased estimation, ridge regression, and nonlinear estimation. (Lec. 3) Pre: STA 412.

STA 513 Quality Systems LEC (3 crs.) Cross-listed as (ISE), STA 513. Topics in statistical quality control systems. Single, multiple, and sequential sampling. Design and analysis of a wide variety of statistical control systems used in conjunction with discrete and continuous data, for several kinds of data emission. (Lec. 3) Pre: ISE 311 (411) or equivalent.

STA 515 Spatial Data Analysis LEC (3 crs.) Analysis of point patterns: visualizing, exploring, and modeling, space time clustering, correcting for spatial variation, clustering around a specific point source. Analysis of spatially continuous data: variogram analysis and Kriging methods. (Lec. 3) Pre: STA 412 or permission of instructor.

STA 517 Small N Designs SEM (3 crs.) Cross-listed as (PSY), STA 517. A survey of Small N experimental methodology appropriate for repeated observations on a single unit or individual. Methods include quasi-experimental designs, interrupted time series, and multivariate time series. Applications in applied research, particularly behavioral intervention. (Seminar) Pre: PSY 532 and 533. In alternate years.

STA 520 Fundamentals of Sampling and Applications LEC (3 crs.) Simple random sampling; properties of estimates, confidence limits. Sample size. Stratified random sampling; optimum allocation, effects of errors, and quota sampling. Regression and ratio estimates; systematic and multistage sampling. (Lec. 3) Pre: STA 308 or 409.

STA 522 Bioinformatics I LEC (3-4 crs.) Cross-listed as (CSC), STA, CMB 522, BPS 542. Integrates computing, statistical, and biological sciences, algorithms, and data analysis/management. Multidisciplinary student research teams. Modeling dynamic biological processes. Extra project work for 4 credits. (Lec. 3, Project 3) Pre: major in a computing, statistical, or biological science or permission of instructor.

STA 525 Programming and Data Management in SAS LEC (4 crs.) Data managing and programming in SAS: data input, formatting and labeling, conditional processing, iterative processing, numeric and character functions, customized reports, data visualization, and basic statistical analysis. (Lec. 3, Rec. 1) Pre: STA 307 or STA 308 or STA 409 or permission from instructor.

STA 532 Experimental Design LEC (3 crs.) Cross-listed as (STA), PSY, AFS 532. Application of statistical methods to biological and psychological research and experimentation. Experimental situations for which various ANOVA and ANCOVA designs are most suitable. (Lec. 3) Pre: STA 409 or equivalent.

STA 535 Statistical Methodology in Clinical Trials LEC (3 crs.) Bioavailability, dose response models, crossover and parallel designs, group sequential designs, survival analysis, meta analysis. (Lec. 3) Pre: STA 409, 411, or 412 or permission of instructor.

STA 536 Applied Longitudinal Analysis LEC (3 crs.) Longitudinal Data, Linear Mixed Effects Models, Repeated Measures ANOVA, Generalized Linear Models for Correlated Data. (Lec. 3) Pre: STA 411 or STA 412 or permission of instructor.

STA 541 Multivariate Statistical Methods LEC (3 crs.) Review of matrix analysis. Multivariate normal distribution. Tests of hypotheses on means, Hotelling's T2, discriminate functions. Multivariate regression analysis. Canonical correlations. Principal components. Factor analysis. (Lec. 3) Pre: STA 412.

STA 542 Categorical Data Analysis Methods LEC (3 crs.) Analysis of multidimensional categorical data by use of log-linear and logit models. Discussion of methods to estimate and select models followed by examples from several areas. (Lec. 3) Pre: STA 412.

STA 545 Bayesian Statistics LEC (3 crs.) Introduces Bayesian methods for a variety of statistical problems. Topics include Bayesian inference, model selection, Bayesian computation, hierarchical models and Gibbs sampling. Open-source software will be utilized for Bayesian data analyses. (Lec. 3) Pre: STA 411 or STA 412 or permission of instructor.

STA 550 Ecological Statistics LEC (3 crs.) Application of statistical methodology to the following topics: population growth, interactions of populations, sampling and modeling of ecological populations, spatial patterns, species abundance relations, and ecological diversity and measurement. (Lec. 3) Pre: STA 409 or permission of instructor.

STA 560 Time Series Analysis LEC (4 crs.) Designed as a graduate course in modern time series analysis. Modeling, estimation, inference, and forecasting methods are illustrated with applications from different fields. (Lec., Lab.) Pre: STA 409 or equivalent, or permission from instructor.

STA 575 Causal Inference for Biomedical Research LEC (3 crs.) Cross-listed as (PHP), STA 575. Using a potential outcomes framework, this course will present methodologies for drawing causal inference in a variety of settings. Examples will be drawn from epidemiologic and medical studies. (Lec. 3) Pre: STA 411 or 412 or permission of instructor.

STA 576 Econometrics LEC (4 crs.) Cross-listed as (EEC), ECN, STA 576. Application of statistics and mathematics to economic analysis. Implication of assumption required by statistical methods for testing economic hypotheses. Current econometric methods examined and discussed. (Lec. 3, Lab. 2) Pre: ECN 575 or equivalent, STA 308 or equivalent, or permission of instructor.

STA 584 Pattern Recognition LEC (3 crs.) Cross-listed as (ELE), STA 584. Random variables, vectors, transformations, hypothesis testing, and errors. Classifier design: linear, nonparametric, approximation procedures. Feature selection and extraction: dimensionality reduction, linear and nonlinear mappings, clustering, and unsupervised classification. (Lec. 3) Pre: ELE 509 or introductory probability and statistics, and knowledge of computer programming.

STA 585 Statistical Analysis of Network Data LEC (4 crs.) Cross-listed as (STA), CSC 585. Foundation of the statistical analysis of network data: visualization, node and edge characterization, inference, and sampling, mathematical and statistical network modeling and inference, modeling of static and dynamic network processes. (Lec. 3, Rec. 1) Pre: MTH 215; STA 411, or STA 412, or STA 441; or permission of instructor.

STA 591 Directed Study in Statistics IND (1-3 crs.) Advanced work in experimental statistics conducted as supervised individual projects. (Independent Study) Pre: permission of chairperson. S/U credit.

STA 592 Special Topics in Statistics LEC (3 crs.) Advanced topics of current interest in statistics. (Lec. 3) Pre: permission of chairperson. May be taken more than once.

STA 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

STA 610 Parsimony Methods LEC (3 crs.) Cross-listed as (PSY), STA 610. Multivariate procedures designed to reduce the dimensionality and help in the interpretation of complex data sets. Methods include principal components analysis, common factor analysis, and image analysis. Related methods: cluster analysis and multidimensional scaling. Applications involve the use of existing computer programs. (Lec. 3) Pre: PSY 533 or STA 541 or equivalent. In alternate years.

STA 612 Structural Modeling LEC (3 crs.) Cross-listed as (PSY), STA 612. Theory and methodology of path analysis with latent variables. Discussion of "causation" and correlation, Confirmatory Factor Analysis, Measurement and Structural Equation models. Practical applications using current computer programs (e.g. EQS). (Lec. 3) Pre: PSY 533 or 610.

SUS | Sustainability

SUS 108G Spaceship Earth: An Introduction to Systems LEC (4 crs.) Cross-listed as (COM), SUS 108G. Through in-depth study of films, readings and web sites, students will explore the economic and ecological principles of sustainability and the rhetorical strands linking scientific evidence, public policies and individual behavior. (Lec. 3, Rec. 1/Online) (B4) (C1) (GC)

SUS 261G Waste Not, Want Not: Sustainable Lean Production LEC (3 crs.) Cross-listed as (ISE), SUS 261G. Students will learn about sustainability and the science and impact of decisions regarding the design, production, and consumption of goods. Product life cycle analysis including remanufacturing and recycling. (Lec. 3) (A1) (B4) (GC)

SUS 306 Sustainability & Service Leadership ONL (3 crs.) Cross-listed as (CSV), SUS 306. Students will learn to identify and examine critical sustainability issues and develop communication skills, campaigns, and peer education events that lead to behavior change and a shift in campus culture. (Online) Pre: Junior Standing.

SUS 315 Environmental Dimensions of Communication LEC (3 crs.) Cross-listed as (COM), SUS 315. Investigation of individual and mediated sustainability messages, impact of communication on environmental knowledge, attitudes and behavior; design of communication campaigns to affect resource use, community engagement and ecological responsibility. (Lec. 3/Online) Pre: COM 100, junior standing in a degree-granting college or permission of instructor. (D1) (C1)

SUS 460 Environmental Communication: Local & Global LEC (3 crs.) Cross-listed as (COM) SUS 460. Address local and global environmental issues through communication. Target key audiences and move them towards sustainable change and active involvement, improved environmental conditions and quality of life. (Lec. 1, Seminar 2/Online) Pre: junior standing. (C1) (B4)

SUS 461G Solar Energy Systems LEC (3 crs.) Cross-listed as (ISE) SUS 461. The study of renewables via solar energy systems. Methods, economic criteria, and background for assessing the systems of solar energy conversion technologies both in local and international settings. (Lec. 3) Pre: (junior standing, PHY 204, and MTH 142), or permission of instructor. (C2) (A1) (GC)

THE | Theatre

THE 100 Introduction To Theatre LEC (3 crs.) Designed to provide students with a theoretical and practical understanding of the theatrical process as well as to develop critical standards and increase the enjoyment of theatre as an art. (Lec. 2, Lab. 4) Not open to theatre majors. (A4) (B2)

THE 111 Introduction To Acting STU (3 crs.) Designed to initiate students to theatre as a collaborative art through systematic exposure to the principles and techniques of acting. (Studio 6)

THE 112 Introduction to Acting II LEC (3 crs.) To expand the work of THE 111 (exercise for relaxation, concentration, imagination) with character work on a monologue and scene complemented by intense work on voice, text and movement, (Lec. 2, Lab. 2) Pre: THE 111.

THE 161 Introduction to Stagecraft LEC Stage carpentry, rigging, properties, scene painting, and lighting mechanics with practical experience working on productions. (Lec. 2, Lab. 2)

THE 181 Script Analysis LEC (3 crs.) Analysis of plays from varying perspectives of the actor, director, and designer. Course emphasizes theatre terminology and develops a working vocabulary. (Lec. 3)

THE 211 Basic Acting I STU (3 crs.) Introduction to the theory and basic techniques of acting. Includes moment-to-moment improvisation, the reality of doing, fantasy work, and voice and movement. (Studio 6) Pre: THE 111, 117, or permission of instructor; concurrent enrollment in THE 213.

THE 212 Basic Acting II STU (3 crs.) Continuation of 211. Introduction to the theory and basic techniques of acting. Includes moment-to-moment improvisation, the reality of doing, fantasy work, and voice and movement. (Studio 6) Pre: THE 211 and permission of instructor; concurrent enrollment in THE 214.

THE 213 Acting Workshop STU (1 cr.) A voice-movement workshop to be taken concurrently with THE 211. (Studio 2) Pre: concurrent enrollment in THE 211.

THE 214 Acting Workshop STU (1 cr.) A voice-movement workshop to be taken concurrently with THE 212. (Studio 2) Pre: concurrent enrollment in THE 212.

THE 217 The Role Of Music In Theatre STU (3 crs.) Perspectives on music and its relationship and application to the theatre for theatre students. Musical vocabulary, performance techniques, and conventions related to the theatre. Emphasis on relationship of music and musical performance to all aspects of theatrical production. (Studio 6) Pre: permission of instructor. May be repeated for a maximum of 6 credits with permission of instructor.

THE 221 Stage Management LEC (3 crs.) Theoretical and practical study of the basic methods and procedures of the production with emphasis on the director-stage manager relationship and the role of each. Participation in productions required. (Lec. 2, Lab. 2)

THE 227 Dance For Musical Theatre STU (3 crs.) Orientation and in-

struction in beginning dance for the musical stage. Dance vocabulary in jazz, ballet, tap; performance techniques and conventions related to the American musical. (Studio 6) Pre: theatre major or permission of instructor. May be repeated once with permission of instructor.

THE 237 Stage Combat STU (3 crs.) Fundamental principles of safety, form, choreographic conception and execution. Unarmed combat included. Eventual application in a performance environment geared to beginning and advanced students. (Studio) Pre: permission of instructor.

THE 250 Costume Laboratory LEC (3 crs.) Practical experience in the principles of costuming including construction and finishing techniques, and experience working on a theatrical production. (Lec. 1, Lab. 4)

THE 261 Introduction To Theatre Design LEC (3 crs.) Introduction to theatre production design with emphasis on development of capabilities for expression in conceptual and graphic terms. Projects in stage scenery, costumes, and lighting. (Lec. 2, Lab. 2)

THE 291 Production Laboratory IND (1 cr.) Orientation and instruction in theatre through tutored participation in crews and production assignments or projects for departmental productions. (Independent Study) May be repeated for credit.

THE 300 Individual Problems in Theatre Studies IND (1-3 crs.) Individual theatre work on an approved project under supervision of a faculty member. (Independent Study) Pre: permission of staff. May be repeated for a maximum of 6 credits.

THE 301 Special Group Studies IND (1-3 crs.) Group theatre work in approved production projects under supervision of a faculty member. (Independent Study) Pre: permission of staff. May be repeated for a maximum of 6 credits.

THE 307 Creative Dramatics LEC (3 crs.) Explores purposes, techniques and benefits of drama in the K-12 classroom. Theory and practice of creative dramatics, methodologies and activities. Teaching practicum in and out of the class to develop utilization of creative drama to teach a variety of skills. (Lec. 2, Lab. 2)

THE 311 Intermediate Acting I STU (3 crs.) Continuation of Basic Acting with emphasis on approaches to characterization through improvisation and through the analysis and performance of assigned scenes. (Studio 6) Pre: THE 212; concurrent enrollment in THE 313.

THE 312 Intermediate Acting II STU (3 crs.) Continuation of THE 311. Continuation of Basic Acting with emphasis on approaches to characterization through improvisation and through the analysis and performance of assigned scenes. (Studio 6) Pre: THE 311 and concurrent enrollment in THE 314.

THE 313 Acting Workshop STU (1 cr.) A voice-movement workshop to be taken concurrently with THE 311. (Studio 2) Pre: concurrent enrollment in THE 311.

THE 314 Acting Workshop STU (1 cr.) A voice-movement workshop to be taken concurrently with THE 312. (Studio 2) Pre: concurrent enrollment in THE 312.

THE 321 Orientation To Play Direction LEC (3 crs.) Director's role in the process of theatre production. Emphasis on development of production concepts and rehearsal techniques. (Lec. 2, Lab. 2)

THE 322 Play Direction PRA (3 crs.) Practical course in play direction. Class functions as a production unit and mounts a season of one-act plays. (Practicum: minimum of 6 hours per week) Pre: THE 321 and permission of instructor.

THE 331 Playwriting LEC (3 crs.) Analysis and evaluation of written material supplemented by play readings and workshop tryouts of students' plays. (Lec. 2, Lab. 2)

THE 338G Ethical Dilemmas in Contemporary Theatre LAB (3 crs.) Exploration of ethical dilemmas raised by contemporary dramatic works and the history of theatre as a tool for social activism. (Lab., Seminar/Online) (C1) (D1) (GC)

THE 341 Theatre Management LEC (3 crs.) Principles, terminology, and practical technique of theatre administration. Assignments will be made to departmental productions. (Lec. 2, Lab. 2)

THE 350 Makeup STU (1 cr.) Principles and techniques of stage makeup. Practical experience in application through a number of projects in developing character makeups with prosthetics, wigs, and facial hair. (Studio 2) Open to senior theatre majors only. Others by permission of instructor.

THE 351 Principles and Theories of Theatrical Costuming I LEC (3 crs.) Analytical study of fashions, modes, and manners in Western civilization as required for modern theatrical production; Greek through the Renaissance. (Lec. 3) (A4) (B4)

THE 352 Principles and Theories of Theatrical Costuming II LEC (3 crs.) Analytical study of fashions, modes, and manners in Western civilization as required for modern theatrical production; the Renaissance to the present. (Lec. 3) (A4) (B4)

THE 355 Stage Costume Design STU (3 crs.) Costume design theories and techniques for modern and period plays in a wide variety of styles. (Studio 6) Pre: THE 261 and 351 or 352 or permission of instructor.

THE 362 Scene Painting STU (3 crs.) Problems in scene painting, including use of color, basic techniques in scenic art such as texturing, trompe l'oeil, work from design elevations, carving, and some work in plastics. (Studio 3)

THE 365 Scene Design STU (3 crs.) Theories and techniques of scenic design, emphasizing conceptualization and development of stage setting through project designs for various stage forms, production styles, and periods. (Studio 6) Pre: THE 261 or permission of instructor.

THE 371 Stage Lighting LEC (3 crs.) Theories and techniques of lighting for the stage. A series of design projects and lab work introduces students to script analysis and conceptualization for lighting, instrumentation, and the use of color in stage lighting. (Lec. 2, Lab. 2)

THE 381 History of Theatre to 1642 LEC (3 crs.) General history of the theatre from its origins through the Renaissance. Introduction to non-Western drama of the period. Course focuses on the actor, staging, and the audience as they have influenced the development of the theatre and dramatic literature. (Lec. 3) (A3) (B1)

THE 382 History of Theatre: Neoclassical Through the 19th Century LEC (3 crs.) General history of the theatre from the Neoclassical to the 19th century. Introduction to non-Western drama of the period. Course is a continuation of THE381. (Lec. 3)

THE 383 History of the Modern Theatre LEC (3 crs.) Modern theatre and drama from 1880 to the present. Course includes new European stagecraft and its influence on the development of modernist and post-modernist drama, and contemporary non-Western drama. (Lec. 3) (A3) (B1)

THE 384 American Theatre History LEC (3 crs.) Origins and development of American theatre from the wilderness to the contemporary Broadway and off-Broadway stage, including the evolution of the musical play. Analysis of special contributions made by the grassroots movement, the university theatres, the Federal Theatre Project, and the regional theatre movement. (Lec. 3)

THE 391 Advanced Production Laboratory IND (1-2 crs.) Advanced instruction in theatre through tutored participation in crews and production assignments or projects for departmental productions. (Independent Study) May be repeated for credit.

THE 400 Advanced Individual Problems in Theatre Studies IND (1-3 crs.) Advanced individual theatre work on an approved project under supervision of a faculty member. (Independent Study) Pre: permission of staff. May be repeated for a maximum of 6 credits. Not for graduate credit.

THE 401 Advanced Special Group Studies IND (1-3 crs.) Advanced group theatre work in approved production projects under supervision of a faculty member. (Independent Study) Pre: permission of staff. May be repeated for a maximum of 6 credits. Not for graduate credit.

THE 411 Scene Study STU (3 crs.) Emphasis on the analysis and interpretation of assigned scenes representative of the major theatrical genres and styles. (Studio 6) Pre: for THE 411, 311, 312, and permission of instructor and concurrent enrollment in THE 417. Not for graduate credit.

THE 412 Scene Study STU (3 crs.) Emphasis on the analysis and interpretation of assigned scenes representative of the major theatrical genres and styles. (Studio 6) Pre: THE 411 and permission of instructor and concurrent enrollment in THE 418. Not for graduate credit.

THE 413 Special Workshop In Acting STU (3 crs.) Techniques related to a specific aspect or style of performance; e.g., masks, puppetry, verse-speaking, and improvisation. The study is normally related to a departmental production or special project. (Studio 6) Pre: permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit.

THE 417 Acting Workshop STU (1 cr.) A voice-movement workshop to be taken concurrently with THE 411. (Studio 2) Pre: concurrent enrollment in THE 411. Not for graduate credit.

THE 418 Acting Workshop STU (1 cr.) A voice-movement workshop to be taken concurrently with THE 412. (Studio 2) Pre: concurrent enrollment in THE 412. Not for graduate credit.

THE 420 Advanced Directing Practice IND (1-3 crs.) Special projects for the advanced directing student. Student directors will assume production responsibilities for all aspects of their projects, including a critical analysis upon completion. Weekly tutorial required. (Independent Study) Pre: THE 321, 322, or equivalent and permission of instructor. Not for graduate credit.

THE 441 Advanced Theatre Management PRA (3 crs.) Individual projects of theatre management in a major departmental production or project. (Practicum) Pre: THE 341. Not for graduate credit.

THE 451 Stage Costume Technology STU (3-6 crs.) Construction methods and techniques appropriate to stage costuming with emphasis on major theatrical periods and productions. (Studio 6) Pre: THE 351 or 352 or permission of instructor. May be repeated for a maximum of 6 credits. Not for graduate credit.

THE 455 Advanced Costuming IND (1-3 crs.) Individual projects in costume design for studio or major productions. Styles and theory related to projects; costume sketches and construction. (Independent Study) Pre: THE 355 or permission of instructor. Not for graduate credit.

THE 463 Special Workshop in Design and Technical Theatre LAB (3 crs.) Techniques related to a specific aspect or style of production; e.g., masks, puppetry, wig making, sound effects, projections, properties. Normally related to a departmental production or special project. (Lab. 6) May be repeated for a maximum of 6 credits. Not for graduate credit.

THE 465 Advanced Scene Design STU (1-3 crs.) Individual projects in designing scenery for studio and major productions. (Studio 2-6) Pre: THE 365 and permission of instructor. Not for graduate credit.

THE 475 Advanced Stage Lighting STU (1-3 crs.) Individual projects in lighting design and control for studio and major productions. (Studio 2-6) Pre: THE 371 and permission of instructor. Not for graduate credit.

THE 477 Professional Internship PRA (3-12 crs.) Designed for junior and first-semester senior theatre majors who desire a professional experience. This program provides instruction and practical experience in cooperation with a faculty advisor and a professional theatre. (Practicum) Pre: permission of chairperson. Not for graduate credit.

THE 481 Topics In Theatre SEM (3 crs.) Selected topics in theatre. (Seminar) May be repeated for credit with different topic.

THE 484 Special Research Project IND (3 crs.) An in-depth study of a single critical or historical aspect of theatre. The subject is normally related to a departmental production. (Independent Study) Pre: upper-division standing. May be repeated for a maximum of 6 credits. Not for graduate credit.

THE 499 Senior Seminar SEM (1 cr.) A capstone seminar for the graduating Theatre major. Content will be developed to assist in the transition from the educational realm to the professional world with Portfolio development and assessment as integral experience. (Seminar) Pre: senior standing and major or minor in theater.

THN | Thanatology

THN 260 (360) Impact of Death on Behavior LEC (3 crs.) Cross-listed as (NUR), THN 260. Seminar to explore the human experience of dying and the issue of quality of life. Group discussion focuses on the effect that individual and social values and medical and social structures have on one's grief response and bereavement process. (Lec. 3/Online) (A2) (C3)

THN 260H Honors Sectionof NUR/THN 260 (360): Impact of Death on Behavior LEC (3 crs.) Cross-listed as (NUR), THN 260H. Honors Section of NUR/THN 260 (360). Impact of Death on Behavior. (Lec. 3/Online) Pre: must have a 3.40 overall GPA. (A2) (C3)

THN 270 Loss Across the Lifespan LEC (3 crs.) Cross-listed as (THN), NUR 270 (426). Exploration of losses that occur across the lifespan, caused both by situational crisis and through development. Emphasis on individual grief responses and the impact these may have on one's future social and psychological growth. (Lec. 3) (A2) (B2)

THN 364G Understanding Suicide LEC (3 crs.) Cross-listed as (THN), NUR 364G. Investigates the complex phenomenon of suicide from ideation through grief experiences. Lecture and group discussion explore historical and contemporary theories and attitudes about suicide across multiple disciplines. Focus on civic responsibility. (Lec. 3) Pre: One prior Thanatology course or permission of instructor. (A2) (C1) (GC)

THN 365G Losses of Addiction in American Culture LEC (3 crs.) Cross-listed as (THN), NUR 365G. Interdisciplinary study of addiction, effects, and cultural reception and responses. Focus on biopsychosocial and grieving experiences of diverse populations suffering from addiction and their loved ones, helping professionals, and communities. (Lec. 3) Pre: One prior Thanatology course or permission of instructor. (B4) (C3) (GC)

THN 390 Directed Study IND (1-3 crs.) Cross-listed as (NUR), THN 390. Research study or individual scholarly project relating to the nursing major. Faculty guidance in problem delineation and in development, implementation, and evaluation of the project. (Independent Study) Pre: admission to the College of Nursing and prior faculty approval. S/U credit.

THN 421 Death, Dying, and Bereavement LEC (3 crs.) Cross-listed as (HDF), THN 421. Exploration of human death, dying and bereavement. Focus on biomedical, psychological, social and multicultural dimensions. Implications for social policy. (Lec. 3) Pre: junior standing or above.

THN 422 AIDS in America SEM (3 crs.) Intensive interdisciplinary examination of the epidemic of HIV/AIDS in America from its emergence in 1981 to today. Interrogates the lived experiences, grieving processes, and cultural and political implications of AIDS. (Seminar 3) Pre: One prior Thanatology course or permission of instructor. (B2) (C1)

THN 425 Spirituality of Loss and Death SEM (3 crs.) Cross-listed as (THN), NUR 425. Examination of major belief systems and spirituality during loss, death and grief. Emphasis on spiritual issues and ethnic, cultural, gender, and age differences, as well as the role of professional helpers. (Seminar 3) Pre: one prior thanatology course or permission of instructor.

THN 429 Special Topics in Thanatology LEC (1-3 crs.) Cross-listed as (THN), NUR 429. Selected areas of study related to loss, grief, dying, and bereavement. May be repeated for credit with a change in topic. (Lec. 1-3) Pre: One prior thanatology course or permission of the instructor. Not for graduate credit.

THN 471 Responding to Grief LEC (3 crs.) Cross-listed as (HDF), THN 471. Examines conceptual, psychosocial, somatic and pragmatic is-

sues faced when grieving and how to cope or assist others accommodating imminent or realized loss due to death. (Lec. 3) Pre: HDF 421, or prior thanatology course, or permission of instructor.

THN 523 Contemporary Thanatology SEM (3 crs.) Interdisciplinary approach to trends, problems, theories, and strategies in thanatology. Explores effects of professional's personal beliefs and attitudes on care provided to dying clients across the life span and their families. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

THN 524 Exploring Loss Through Creative Arts Therapy SEM (3 crs.) Cross-listed as (NUR), THN 524. Exploration and assessment of the merits of incorporating creative arts processes (imagery, story, metaphor, music, and movement) with individuals who are experiencing loss, grief and dying. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

THN 525 Spirituality of Loss and Death for the Helping Professions SEM (3 crs.) Examination of major belief systems and spirituality during loss, death and grief. Emphasis on spiritual issues and ethnicity, culture, gender and developmental stage. Role of professional dealing with spiritual concerns. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

THN 529 Special Topics in Thanatology SEM (1-3 crs.) Selected areas of study pertinent to loss, dying and grief. Instruction may be offered in class seminar or clinical settings according to specific needs and purposes. May be repeated for credit with a change in topic. (Seminar) Pre: baccalaureate degree or senior standing with permission of instructor.

TMD | Textiles, Fashion Merchandising and Design

TMD 103G Textiles, Fashion, and Sustainability LEC (3 crs.) The textile/fashion supply chain, from designer to store, through use and disposal, raises issues of sustainability (environmental, economic and ethical). These are examined at the personal and global levels. (Lec. 3) (C2) (GC)

TMD 103GH Honors Section of TMD 103G: Textiles, Fashion, and Sustainability LEC (3 crs.) Honors Section of TMD 103G: Textiles, Fashion, and Sustainability: The textile/fashion supply chain, from designer to store, through use and disposal, raises issues of sustainability (environmental, economic and ethical). These are examined at the personal and global levels. (Lec. 3) Pre: Must have a 3.4 overall GPA or higher to enroll. (C2) (GC)

TMD 113 Color Science LEC (3 crs.) The science of color: light and its interaction with objects and color vision. Color explained, mixed, measured, described, and reproduced (paints, dyes, photography, TV). Color in the natural world. (Lec. 3) (A1)

TMD 113H Honors Section of TMD 113: Color Science LEC (3 crs.) Honors Section of TMD 113: Color Science. (Lec. 3) Pre: 3.40 overall gpa. (A1)

TMD 126 Introduction to Design LEC (3 crs.) Elements and principles of design as applied to textiles, apparel, and interiors. Overview of historical design movements. Design vocabulary. (Lec. 3/Online) (A4) (B2)

TMD 222 Apparel Production LEC (3 crs.) Analysis of apparel construction and production; current industrial and technological developments. Discussion of sizing and quality standards with emphasis on identification of fabrics, garment styles, findings, and trims. (Lec. 3/Online) Pre: TMD 103G.

TMD 224 Culture, Dress, and Appearance LEC (3 crs.) Analysis of social, psychological and cultural factors in the creation, maintenance and use of human appearance. Focus on dress and appearance as a communication system from cross-cultural and international perspectives. (Lec. 3)

TMD 224H Honors Section of TMD 224: Culture, Dress, and Appearance LEC (3 crs.) Honors Section of TMD 224: Culture, Dress, and Appearance. (Lec. 3) Pre: overall GPA of 3.40 or above.

TMD 225 Apparel I LEC (4 crs.) Principles of garment production as related to construction, fit, performance, quality, and cost. Construction techniques, sizing, material evaluation and assembly management. Quality analysis and introduction to computer-aided design. (Lec. 2, Lab. 4) Pre: TMD 103G.

TMD 226 Interior Design LEC (3 crs.) Fundamentals of interior design: color, lighting and design of residential and commercial spaces. (Lec. 3) Pre: ART 101 or 207 or ART 120 or ART 251 or ART 252, TMD 103G and 126.

TMD 232 Fashion Retailing LEC (3 crs.) A comprehensive study of fashion retailing as an operating system. Examination of the strategies and the organizational structure that support the fashion retail system. (Lec. 3/Online)

TMD 240 Development of Contemporary Fashion LEC (3 crs.) History of contemporary fashion from the beginning of the 20th century to the present. Influence of designers, buyers, consumers, and technology on fashion in the marketplace. (Lec. 3/Online) Pre: TMD 103G, 126, and sophomore standing. (A4) (B1)

TMD 303 Textile Science LEC (3 crs.) The primary textile industry: fiber to finished fabric. Textile fibers and their properties; yarns, fabric construction, dyeing, finishing, and printing. (Lec. 3) Pre: TM or TMD majors admitted to the College of Business and credit in CHM 105. TMD 313 must be taken concurrently.

TMD 313 Textile Science Laboratory LAB (1 cr.) Laboratory exercises in fiber indentification, fabric analysis and fabric performance testing, dyeing and finishing. (Lab.2) Pre: Students must be admitted to the degree-granting college of BUS as TM or TM majors, and concurrent enrollment in TMD 303.

TMD 326G What is Good Design LEC (3 crs.) Understanding the concept "good design," from philosophical, cultural and historical viewpoints. Consideration of aesthetics, practicality, creativity, and human needs. Multiple cultural and historical perspectives in critiquing textile and apparel designs. (Lec. 3) Pre: TMD126 or ARH120. (A3) (C2) (GC)

TMD 327 Apparel Design LEC (3 crs.) Design principles as applied to contemporary clothing with emphasis on various age groups and special populations. Laboratory experiences concentrate on the creative process and development of illustrative techniques. (Lec. 2, Lab. 2) Pre: ART 101 or ART 207 or ART 120 or ART 251 or ART 252, and TMD 126, and TMD 222 or 225.

TMD 332 Fashion Merchandise Buying LEC (3 crs.) The theory of fashion merchandising and its application to basic retailing procedures, the responsibility of the buyer, and procedures used to determine consumer demand, merchandise selection, and pricing. (Lec. 3) Pre: TMD 103G and 232.

TMD 333 Fashion E-Commerce LEC (3 crs.) A comprehensive study of E-commerce and its influence in the Fashion Industry. (Lec. 3) Pre: TMD 232.

TMD 335 Apparel II LEC (3 crs.) Application of flat pattern design. Special emphasis on sloper development and pattern drafting. Creative laboratory processes from design to finished product. (Lec. 2, Lab. 2) Pre: TMD 225 or permission of instructor.

TMD 342 Fashion Study Tour PRA (1-3 cr.) Study the apparel and/or interiors markets in domestic or foreign fashion markets during intersession, spring break, or summer. Lectures/tours by designers, manufacturers, and retailers. Travel costs are extra. May be repeated, up to 6 credits, with different destinations. (Practicum) Pre: TMD 126 and permission of the instructor.

TMD 345 CAD Apparel Design LEC (3 crs.) Application of flat pattern design using computer-aided design techniques as related to sloper development, sizing, and pattern manipulation. Creative laboratory processes from design to finished product. (Lec. 2, Lab. 2) Pre: TMD 335 or permission of instructor.

TMD 346 Computer-Aided Textile and Apparel Design LEC (3 crs.) Development and production of textile and apparel designs and patterns using selected computer software packages. Implications for use in the apparel industry. (Lec. 1, Lab 4/Online) Pre: Pre: TMD 126 or permission of instructor.

TMD 355 Draping for Apparel LEC (3 crs.) Application of draping techniques for apparel pattern making and design. Includes sloper development and draping in fashion fabric. Creative laboratory processes from design to finished product. (Lec. 3, Lab. 2) Pre: TMD 335 or permission of instructor.

TMD 358 Weaving LEC (3 crs.) Introduction to hand weaving including on-loom and off-loom techniques. Designing, drafting, warping, and finishing of various types of weaves. Students complete samplers and projects. (Lec. 1, Lab. 4)

TMD 361 Special Problems IND (1-4 crs.) Open to qualified juniors and seniors who wish to do advanced work. (Independent Study) Pre: approval of application by instructor and chairperson. May be repeated for a maximum of 6 credits.

TMD 362 Special Problems IND (1-4 crs.) Open to qualified juniors and seniors who wish to do advanced work. (Independent Study) Pre: approval of application by instructor and chairperson. May be repeated for a maximum of 6 credits.

TMD 365 Knit Apparel Development LEC (3 crs.) Principles of cut & sew knit garment design and production. Knit garment design, pattern development and garment construction, including the management of fit, performance, and quality. (Lec. 2, Lab. 2) Pre: TMD 225 and TMD 335 or permission of instructor.

TMD 402 Seminar in Textiles and Clothing LEC (1-2 crs.) Recent developments in manufacturing, marketing, and retailing of textile products. Discussion of fashion issues and impact on consumer. Lectures by speakers from business, industry, and government. (Lec. 1-2) Pre: TM or TMD majors admitted to the College of Business with junior or senior standing, or permission of instructor. May be repeated once.

TMD 403 Textile Performance LEC (3 crs.) Analysis of textiles using test methods and standards adopted by government, industry, and buyers to insure consumer satisfaction. Interpretation of test data in relation to consumer expectations and performance claims. (Lec. 2, Lab. 2) Pre: TMD 103G and 303 or permission of instructor.

TMD 413 Dyeing And Finishing Of Textiles LEC (3 crs.) Study of chemical and physical interactions of dyes and finishes with textile fiber/fabric systems. Evaluation of application techniques. Detection and evaluation of problems resulting from dyeing and finishing. (Lec. 2, Lab. 2) Pre: TMD 303 or permission of instructor.

TMD 424 Fashion Theory and Analysis LEC (3 crs.) Principles, theories, and recent investigations of the fashion process are presented to develop analytical skills for evaluating consumer behavior, as related to clothing and adornment. Application to contemporary trends. (Lec. 3) Pre: senior or graduate standing.

TMD 426 Historic And Contemporary Furniture LEC (3 crs.) Review of major historical styles of furniture and their influence on contemporary furniture design. Materials, styles, and construction of contemporary furniture. In-depth study of upholstery fabrics. (Lec. 3) Pre: TMD 103G, 226.

TMD 427 Portfolios and Presentations LEC (3 crs.) Students create design portfolios using traditional media and digital techniques. Development of original ideas in sketches and technical flats. (Lec. 2, Lab. 2) Pre: TMD 327 or permission of instructor. Not for graduate credit.

TMD 432 Fashion Retail Supply Chain Management LEC (3 crs.) Comprehensive understanding and analysis of fashion retail organization management including financial merchandising management, product development and supply chain management in the fashion industry. Emphasis on implications for retail organization management. (Lec. 3) Pre: TMD 232.

TMD 433 Textile Markets LEC (3 crs.) Study of social, economic, and political issues that affect the development, production, and marketing of textile products. Study of the textile needs of the apparel, home furnishings, industrial, and medical industries. (Lec. 3/Online) Pre: TMD 303 and ECN 201 and 202. (D1)

TMD 434 Branding in Fashion Industry LEC (3 crs.) Understand, apply and evaluate basic as well as advanced knowledge of fashion branding principles. Divided into modules designed to provide students with required knowledge and skills required to progress through the fashion brand building, management and evaluation process. (Lec. 3) Pre: TMD 332 or permission or instructor.

TMD 440 Historic Textiles LEC (3 crs.) Chronological study of textiles, emphasizing socioeconomic, religious, and political influences. Contribution of designers, inventors, trade groups, and industrialists. (Lec. 3)

TMD 441 History of Western Dress LEC (3 crs.) Study of western dress from earliest civilizations to early 20th century and factors that affect design, production and use; material culture analysis of a pre-20th century garment or accessory. (Lec. 3)

TMD 442 Fashion Promotion LEC (3 crs.) Emphasis on understanding and applying the principles of fashion retailing communication. Evaluation and application of effective promotional activities such as visual merchandising and fashion shows to trade and retail levels of fashion merchandising. (Lec. 3) Pre: TMD 126, 232 and 332 or permission of instructor.

TMD 452 Consumer Behavior In Fashion Retailing LEC (3 crs.) Use by fashion retailing management of explanatory and predictive models of consumer behavior relating to fashion merchandising in establishing retail policy and strategy. (Lec. 3) Pre: TMD 232 and 332 or permission of instructor.

TMD 461 Internship PRA (1-6 crs.) Structured internship in textiles, apparel, or interior design supervised by a faculty advisor. Juniors and seniors work in business, industry, or other agencies under supervision of qualified personnel. (Minimum of 45 hours per semester per credit) May be repeated for a maximum of 12 credits. Pre: completion of 60 credits, minimum GPA of 2.50, and permission of instructor and chairperson. Not for graduate credit.

TMD 462 Internship PRA (1-6 crs.) Structured internship in textiles, apparel, or interior design supervised by a faculty advisor. Juniors and seniors work in business, industry, or other agencies under supervision of qualified personnel. (Minimum of 45 hours per semester per credit) May be repeated for a maximum of 12 credits. Pre: completion of 60 credits, minimum GPA of 2.50, and permission of instructor and chairperson. Not for graduate credit.

TMD 500 Ethnic Dress and Textiles LEC (3 crs.) Survey of regional styles of dress and textiles from all areas of the world, excluding fashionable dress. Influence of social, economic, technological, and aesthetic factors. (Lec. 3) Pre: TMD 224 or equivalent, TMD 440, or permission of instructor. In alternate years.

TMD 510 Research Methods in Textiles LEC (3 crs.) Application of research methodology to the study of textiles and clothing. Approach is multidisciplinary in that experimental, social science, and historic methods are covered. (Lec. 3) Pre: graduate standing or permission of instructor.

TMD 511 Survey of Research Design and Methods in Textiles SEM (3 crs.) Overview of ethical principles and challenges, theory development, scientific inquiry, introduction to techniques and research approaches used within the context of textiles and clothing. (Seminar) Pre: graduate standing or seniors with the permission of instructor.

TMD 512 Research Methods in Textiles II LEC (3 crs.) Applies and evaluates research methodology appropriate for the study of textiles, dress, and related topics. Both methods of inquiry, qualitative and quantitative are discussed to provide students applied skills and knowledge of research design, data collection, data analyses and interpretation within the textiles and clothing discipline. (Lec. 3) Pre: TMD 511 or instructor's permission.

TMD 513 Detergency LEC (3 crs.) Study of composition and function of surfactants and additives in laundry detergents for home,

industrial, and institutional applications; effect of fabric, water, and soil on cleaning; evaluation of laundry products. (Lec. 2, Lab. 2) Pre: graduate standing, TMD 303 or equivalent, or permission of instructor. In alternate years.

TMD 518 Introduction To Textile Conservation LEC (3 crs.) Survey of methods used to analyze, clean, repair, store, and exhibit historic textiles and apparel. Laboratory experience in conservation practices. (Lec. 2, Lab. 2) Pre: a textile science course and historic textiles or costume course, or permission of instructor.

TMD 524 Cultural Aspects of Dress SEM (3 crs.) Seminar in social, psychological, and cultural aspects of dress. Symbolic interaction and other dress-relevant theories concerning individual motivation and group interaction. (Seminar) Pre: TMD 224 or permission of instructor.

TMD 528 Cleaning Historic Textiles LAB (1 cr.) Application of aqueous and solvent cleaning treatments used by textile conservators on historic and ethnographic textiles and apparel. (Lab. 2) Pre: TMD 518 and concurrent enrollment in 513, or permission of instructor. In alternate years

TMD 530 Graduate Internship PRA (1-4 crs.) Supervised internship designed to introduce students to the professional requirements of their intended field. Students work under supervision of qualified personnel. Minimum of sixty internship hours per credit. (Practicum) Pre: TMD graduate standing; completion of a minimum of twelve credits in 400 or 500 level courses; approval of advisor and graduate director. May be repeated once for a maximum of 6 credits.

TMD 538 Repair and Stabilization LEC (3 crs.) Study of repair and stabilization practices used by textile conservators; evaluation of materials and techniques for treating damaged objects. (Lec. 2, Lab. 2) Pre: TMD 518, experience in textile conservation, or permission of instructor. In alternate years.

TMD 540 Special Problems in Textiles and Clothing IND (3 crs.) Supervised independent study in specific areas of textiles and clothing. (Independent Study) Pre: permission of chairperson. May be repeated once.

TMD 548 Exhibition and Storage of Historic Textiles LEC (3 crs.) Study of how light, temperature, humidity, and stress affect textiles and apparel; review of exhibition and storage techniques and materials; preparation of an exhibition for the Textile Gallery. (Lec. 2, Lab. 2) Pre: TMD 518, experience in textile conservation and exhibition, or permission of instructor. In alternate years.

TMD 568 Special Problems in Textile Conservation IND (1-3 crs.) Supervised independent studies on specific textile conservation projects or research. (Independent Study) Pre: TMD 518 or experience in textile conservation, and permission of instructor. May be repeated for a maximum of 6 credits.

TMD 570 Topics in Textiles and/or Dress LEC (3 crs.) Advanced study in a particular area of textile science, fashion merchandising, textile and apparel marketing, historic or cultural aspects of dress, or textile conservation. May be repeated with different topics. (Lec. 3) Pre: TMD graduate standing or permission of instructor

TMD 599 Master's Thesis Research IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. (Independent Study) S/U credit.

UCS | University College for Academic Success

UCS 160 Success in HigherEd Learning Environments SEM (1 cr.) Analyze learning and studying in college settings; Assess college learning needs, apply effective study and work management strategies to academics, and improve metacognitive awareness and academic skills. (Seminar 1/Online) Pre: permission of instructor.

UCS 270 Academic and Career Decisions SEM (1 cr.) Development of skills and knowledge necessary to make educational and career decisions; utilize self-assessment inventories to identify aptitudes, values, and interests as they relate to majors and careers. (Seminar 1/Online) Pre: Not for students with more than 75 credits.

UCS 305 Learning and Career Principles for Adult Students SEM (3 crs.) Cross-listed as (SPC), UCS 305. For adult learners, focused on the development of strategies and skills for academic and career success. Emphasis on major and career pathways, time management, learning strategies and professional skills development. (Seminar/Online) Pre: PBA (Performance Based Admission) student, newly admitted veteran student or permission of instructor; not open for students with credits in ITR 300, USC 160, UCS 270, or EDC 278.

URB | Urban Affairs

URB 310 Urbanization LEC (3 crs.) Processes and outcomes of urbanization. Origin and growth of cities; urban systems, urban development and morphology, neighborhood change, segregation, public policy, and urban problems. Theoretical emphasis on advanced capitalist countries. (Lec. 3)

URB 392 Field Experience in Urban Studies IND (1-3 crs.) Individual or group experiential work requiring substantial urban studies knowledge and done with faculty supervision. May be repeated for a maximum of six credits. (Independent Study) Pre: permission of instructor.

URB 494 Topics in Urban Studies SEM (3 crs.) Advanced study of topics of special interest in urban studies. This course is primarily for juniors, seniors, and graduate students. Some topics may be offered online. May be repeated with a different topic. (Seminar) Pre: one course in urban studies or related subject recognized by the Urban Studies program, or permission of the instructor.

URI | University of Rhode Island Freshman Seminar

URI 101 Planning for Academic Success SEM (1 cr.) Introductory seminar for incoming students, intended to assist in the transition to college, from academic planning to use of resources and programs for academic success. Required of all new freshmen and new transfer students with less than 24 credits. (Seminar) May not be repeated for credit.

WRT | Writing

WRT 100 Introduction to College Writing LEC (2 crs.) Practice in topic development, research techniques, documentation and attribution, and process-based writing. Focuses on thesis statements, topic sentences, paragraphing, coherence, and syntax. (Lec. 2) Pre: Admission to Talent Development's Prematriculation Program.

WRT 104 Writing to Inform and Explain LEC (3 crs.) Writing emphasizing the sharing of information. Varieties and strategies of expository writing for differing audiences and situations. Genres may include reports, proposals, letters, reviews, websites, academic essays. (Lec. 3) Not open to students with credit in WRT 106. (B1) (B4)

WRT 104H Honors Section of WRT 104: Writing to Inform and Explain LEC (3 crs.) Honors Section of WRT 104: Writing to Inform and Explain. (Lec. 3) Pre: must have a 3.40 overall GPA. (B1) (B4)

WRT 106 Introduction to Research Writing LEC (3 crs.) Introduction to working with sources and the research process. Guided help in conducting interviews, observations and database searches. All assignments contribute to a major research report. (Lec. 3) Not open to students with credit in WRT 104. (B1) (B4)

WRT 106H Honors Section of WRT 106: Introduction to Research Writing LEC (3 crs.) Honors Section of WRT 106: Introduction to Research Writing. (Lec. 3) Pre: Overall GPA of 3.40 or better. Not open to students with credit in WRT 104. (B1) (B4)

WRT 201 Writing Arguments LEC (3 crs.) Invent and craft arguments to become a more effective, influential writer. Analyze and critique textual and visual arguments. Identify and use credible evidence. Practice rhetorical strategies. (Lec. 3) (B1) (B4)

WRT 227 Business Communications LEC (3 crs.) Basic business communications forms, group reports and presentations, effective use of electronic mail systems, and design of graphic aids for successful visual communication. (Lec. 3/Online) Pre: Open to Business majors with sophomore or higher standing. Open to a limited number of writing majors with sophomore or higher standing. (B1) (B2)

WRT 235 Digital Writing and Rhetoric SEM (4 crs.) Create digital, visual, and multimedia content. Critically explore identity, usability, design, and rhetoric in contemporary publication. Begin a collection of digital artifacts for the capstone course, WRT495. (Seminar 3, Practicum 2/Online)

WRT 270 Writing Our Selves: Writing in the Expressivist Tradition SEM (3 crs.) Focuses on the expressivist tradition of writing, including memoirs, medical narratives, nature meditations and informal essays. (Seminar)

WRT 270H Honors Section of WRT 270: Writing Our Selves: Writing in the Expressivist Tradition SEM (3 crs.) Honors Section of WRT 270: Writing Our Selves: Writing in the Expressivist Tradition. Focuses on the expressivist tradition of writing, including memoirs, medical narratives, nature meditations and informal essays. (Seminar) Pre: 3.40 overall gpa.

WRT 302 Writing Culture SEM (4 crs.) Experience with writings that sustain or reshape culture. May include profiles, reviews, food and fashion writing, liner and exhibition notes. Requires sustained fieldwork and out-of-class technology practice. (Seminar 3, Practicum 2/Online)

WRT 303 Public Writing SEM (4 crs.) Writing in the public sphere, emphasizing civic literacy, democratic discourse, and writing for change. May include letters, public documents, activist publications, and legislative texts. Requires sustained fieldwork. (Seminar 3, Practicum 2/Online)

WRT 305 Travel Writing SEM (4 crs.) Writing about places both new and familiar. Emphasizes descriptive techniques, the use of facts, and different cultural perspectives. May include travel essays, place journals, guide-books, query letters. Requires sustained fieldwork. (Seminar 3, Practicum 2/Online)

WRT 305H Honors Section of WRT 305: Travel Writing LEC (4 crs.) Honors Section of WRT 305: Travel Writing. Writing about places both new and familiar. Emphasizes descriptive techniques, the use of facts, and different cultural perspectives. May include travel essays, place journals, guide-books, query letters. Requires sustained fieldwork. (Seminar 3, Practicum 2/Online) Pre: 3.40 overall gpa.

WRT 306 Writing Health and Disability LEC (3 crs.) Explores the ways we experience, label, and politicize health and disability in our culture. Writing may include narratives, cultural critiques, persuasive essays, and policy proposals. (Lec. 3/Online)

WRT 321G Writing Disaster: The Ethics of Representation SEM (4 crs.) Explore how representations of disasters shape public perception and action; write real-world documents that prompt social and political change. (Sem. 3, Prac. 1) (B1) (C1) (GC)

WRT 331 Writing Public Relations LEC (3 crs.) Cross-list as (WRT), PRS 331. Introduces the audiences, situations, and processes typical of public relations writing. Includes practice with genres including news releases, media kits, speeches, and letters. Emphasizes professional behavior and polished writing. (Lec. 3) Pre: any 200-level WRT course; PR and WRT majors only.

WRT 332 Technical Writing LEC (3 crs.) Communication strategies for technical fields and for professional/general audiences. (Lec. 3) (B1) (B2)

WRT 334 Science Writing LEC (3 crs.) Scientific principles, ethics, and best practices for communicating science to public audiences. (Lec. 3) Competence in basic writing skills expected. (B1) (B2)

WRT 353 Issues and Methods in Writing Consultancy SEM (4 crs.) Practice and theory of one-to-one instruction emphasizing varied situations and multiple learning styles. Covers approaches to collaboration, learning, writing and responding. Requires sustained fieldwork. (Seminar 3, Practicum 2) Pre: permission of instructor or B or better in two WRT courses.

WRT 360 Rhetoric for Writing Majors LEC (3 crs.) Learn multiple rhetorical traditions from ancient Greece to contemporary digital environments. Practice collaborative inquiry into writing and rhetoric. Use rhetoric to communicate within local and global communities and cultures. (Lec. 3) Pre: WRT 201 and another WRT course at the 200-level or above.

WRT 383 Field Experience in Writing Consultancy FLD (1-3 crs.) Supervised field experience, tutoring in the Writing Center or in the undergraduate peer consultants program. (Field Exp.) Pre: WRT 353 and permission of instructor. May be repeated for a maximum of 9 credits.

WRT 385 Field Experience with Writing Rhode Island PRA (1-4 crs.) Supervised field experience in the Writing Rhode Island Production Lab. Entails substantial field-based and/or qualitative research, collaborative drafting, document design, and client interaction. Requires final project and reflection. (Practicum) Pre: writing and rhetoric major with a minimum of 12 credits in WRT courses and permission of supervisor.

WRT 388 Proposal Writing for Clients LEC (3 crs.) Experiential learning course focused on writing proposal and grant applications to meet RFPs. Authentic workplace writing; teamwork required. Requires sustained field work. (Lec. 3)

WRT 391 Independent Study in Writing and Rhetoric IND (1-3 crs.) Intensive study and practice of an approved topic in writing and rhetoric under the supervision of a faculty member. (Independent Study) Pre: permission of director.

WRT 392 Independent Study in Writing and Rhetoric IND (1-3 crs.) Intensive study and practice of an approved topic in writing and rhetoric under the supervision of a faculty member. (Independent Study) Pre: permission of director.

WRT 404 (304) Writing with Community Partners SEM (4 crs.) Study and practice of writing with community partners. Involves community service outside class, research, writing, and design. May include grant proposals, brochures, websites, or reports. Requires sustained fieldwork. (Seminar 3, Practicum 2) Pre: WRT 201. Not for graduate credit.

WRT 415 Perspectives On Reporting SEM (3 crs.) Cross-listed as (JOR), WRT 415. Critical assessment of reporting through the reading and analysis of book-length works of journalism and magazine and newspaper series of articles. (Seminar) Pre: JOR 110 or 115 and junior standing. Not for graduate credit.

WRT 435 The Teaching of Composition SEM (3 crs.) Cross-listed as (WRT), EDC 435. Philosophy, materials, and methods underlying the teaching of writing with emphasis on current approaches including the application of linguistics. Offers practice in writing workshop techniques, marking, constructing assignment sequences, and individualized instruction. (Seminar) Pre: junior standing or permission of instructor.

WRT 442 Strategic Media Communication LEC (3 crs.) Cross-listed as (PRS), WRT, COM 442, JOR 443. Introduces strategic media relation tactics when responding to the media, specifically crisis communication situations. Students gain practical experience in various writing and speaking opportunities to effectively work with the media. (Lec. 3) Pre: Junior standing; open only to majors in Communication Studies, Public Relations, Journalism, and Writing.

WRT 477 (484) Internship in Writing and Rhetoric PRA (1-3 crs.) Practice and direct supervision in workplace writing. Placement options include community based, governmental, technological, health services, military, educational and non-profit organizations. (Practicum) Pre: 60 credits with a minimum of 12 in WRT, 2.50 GPA, and permission of faculty advisor. May be repeated for a maximum of 6 credits. Not for graduate credit. S/U only.

WRT 490 Topics in Writing and Rhetoric LEC (1-4 crs.) Advanced topics in writing and rhetoric. May be repeated for credit if the topic

changes. (Lec. 1-4) Pre: Any 200-level or higher WRT course. Not for graduate credit.

WRT 492 Crossing Borders: Writers Writing Their Lives SEM (3 crs.) Cross-listed as (GWS), ENG, WRT 492. This advanced creative nonfiction seminar combines a rigorous commitment to the craft of writing with an investigation of how "crossing borders" functions as a thematic, structural, and feminist framework for helping writers access and create personal essays. (Seminar) Pre: Junior or senior standing or permission of the instructor. (D1) (B1)

WRT 495 Advanced Digital Writing and Rhetoric SEM (4 crs.) Capstone for WRT majors. Create a substantive and reflective digital collection of writings for multiple readerships. Requires a public showcase and out-of-class technology practice. (Seminar 3, Studio 2) Pre: Senior standing in the WRT major or permission of instructor. Not for graduate credit.

WRT 524 Histories And Theories Of Writing Instruction LEC (3 crs.) Traces the origins and influences on current writing instruction, beginning with composition treatises of the 19th century and concluding with an analysis of contemporary practices. May include archival research. (Lec. 3) Pre: graduate standing or permission of instructor.

WRT 533 Seminar in Graduate Writing in the Life Sciences LEC (3 crs.) Seminar in graduate writing in life sciences; analyzing and writing journal articles, proposals, popular press; rhetorical analysis of scientific writing. (Seminar) Pre: WRT 104 or 106 or equivalent, or permission of instructor; graduate standing or senior status.

WRT 599 Master's Thesis Research in Rhetoric SEM (1-6 crs.) Number of credits is determined each semester in consultation with major professor or program committee. Pre: permission of graduate director in writing and rhetoric. S/U credit.

WRT 645 Seminar In Rhetoric And Composition SEM (3 crs.) Critical and theoretical conceptions of rhetoric and rhetoricality with varying historical periods and/or connections to cultural studies, literature, and composition studies. (Seminar)

WRT 646 Seminar in Writing Studies SEM (3 crs.) Advanced study in special topics related to writing pedagogy. May include histories and theories of contemporary composition studies, interrogations of widespread practices, and/or relevant current topics in the field. May be repeated for credit. (Seminar) Pre: Graduate standing or permission of the instructor.

WRT 647 Seminar in Research Methods: Rhetoric and Composition Studies SEM (3 crs.) Advanced practice in the theory and design of research projects, emphasizing qualitative and quantitative studies. May include archival research, teacher-research, ethnographies, case studies, interviews, surveys, experiments, and discourse analyses. (Seminar) Pre: graduate standing or permission of instructor.

WRT 691 Independent Study in Rhetoric IND (1-3 crs.) Advanced study of an approved topic in Rhetoric and Writing Studies under the supervision of a graduate faculty member. Pre: permission of WRT graduate director. May be repeated for a maximum of six credits.

WRT 699 Doctoral Dissertation Research in Rhetoric IND (1-6 crs.) Number of credits is determined each semester in consultation with the major professor or program committee. Pre: permission of graduate director in writing and rhetoric. S/U credit.

WRT 999 Methods of Teaching College Writing SEM (0 crs.) Materials and multiple methods of teaching writing on the college level. Required of teaching assistants who will teach in the Writing and Rhetoric Program unless waived by the director of English graduate studies, the supervisor of teaching assistants, and the director of the Writing and Rhetoric Program. (Seminar)

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