

# **UConn**

**UNIVERSITY OF CONNECTICUT**

**Undergraduate Catalog**

**2016-2017**

# University of Connecticut Undergraduate Catalog 2016-17

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# University of Connecticut

The University of Connecticut reserves the right to revise, amend, or change items set forth in the Undergraduate Catalog. Accordingly, readers of the Undergraduate Catalog should inquire as to whether any revisions, amendments, or changes have been made since the date of publication. The University of Connecticut reserves the right to alter or cancel course offerings. Students must satisfy all requirements of their department, school or college, and the University of Connecticut whether or not they are listed in the Undergraduate Catalog.

## **University Accreditation**

The University of Connecticut is accredited by the New England Association of Schools and Colleges.

## **Non-Discrimination Policy**

The University of Connecticut complies with all applicable federal and state laws regarding non-discrimination, equal opportunity and affirmative action. The University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of legally protected characteristics in employment, education, the provision of services and all other programs and activities. In Connecticut, legally protected characteristics include: race; color; religion; ethnicity; age; sex; marital status; national origin; ancestry; sexual orientation; gender identity or expression; genetic information; veteran status; disability; and workplace hazards to reproductive systems. Employees, students, visitors and applicants with disabilities may request reasonable accommodations to address limitations resulting from a disability. The University engages in an interactive process with each person making a request for accommodations and reviews the requests on an individualized, case-by-case basis.

# Academic Calendar

Summer Session 2016 ([summersession.uconn.edu](http://summersession.uconn.edu))

## Fall Semester 2016

Mon. Aug. 29	Fall semester begins
Mon. Sept. 5	Labor Day – No classes
Tues. Sept. 6	Last day to file petitions for course credit by examination
Mon. Sept. 12	Courses dropped after this date will have a “W” for withdrawal recorded on the academic record Last day to add or drop courses without additional signatures (See Adding/Dropping Courses) Add/Drop via Student Administration System closes Last day to place courses on Pass/Fail
Mon. Sept. 19	Last day for students to make up Incomplete or Absence grades
Tues.-Mon., Sept. 20-26	Examinations for course credit by examination
Tues. Sept. 27	Dean’s signature required to add courses
Fri. Oct. 7	Mid-semester progress reports due students from faculty
Mon. Oct. 24	Registration for Spring 2017 semester via Student Administration System begins
Mon. Oct. 31	Last day to drop a course Last day to convert courses on Pass/Fail option to letter grade
Sun.-Sat., Nov. 20-26	Thanksgiving recess
Fri. Dec. 9	Last day of fall semester classes
Mon.-Sun., Dec. 12-18	Final examinations

Winter Session 2017 ([wintersession.uconn.edu](http://wintersession.uconn.edu))

## Spring Semester 2017

Tues. Jan. 17	Spring semester begins
Mon. Jan. 23	Last day to file petitions for course credit by examination
Mon. Jan. 30	Courses dropped after this date will have a “W” for withdrawal recorded on the academic record Last day to add or drop courses without additional signatures (See Adding/Dropping Courses) Add/Drop via Student Administration System closes Last day to place courses on Pass/Fail
Mon. Feb. 6	Last day for students to make up Incomplete or Absence grades
Tues.-Mon., Feb. 7-13	Examinations for course credit by examination
Tues. Feb. 14	Dean’s signature required to add courses
Fri. Feb. 24	Mid-semester progress reports due students from faculty
Sun.-Sat., Mar. 12-18	Spring recess
Mon. Mar. 20	Registration for Fall 2017 semester via Student Administration System begins
Sat. Mar. 25	Emergency closing class make up date
Mon. Mar. 27	Last day to drop a course Last day to convert courses on Pass/Fail option to letter grade
Fri. Apr 28	Last day of spring semester classes
Mon.-Sat., May 1-6	Final examinations
Sat.-Sun., May 6-7	Undergraduate commencement ceremonies

*Faculty are urged to try not to schedule exams on significant religious holidays, such as Rosh Hashanah, Yom Kippur, Eid Al-fitr, Eid Al-adha.*

# Academic Degree Programs

## Degrees

Bachelor of Arts  
 Bachelor of Fine Arts  
 Bachelor of General Studies  
 Bachelor of Music

Bachelor of Science  
 Bachelor of Science in Engineering  
 Associate of Applied Science<sup>1</sup>

## Majors

### College of Agriculture, Health and Natural Resources

Agriculture and Natural Resources  
 Allied Health Sciences  
 Animal Science  
 Applied and Resource Economics  
 Athletic Training  
 Diagnostic Genetic Sciences  
 Dietetics  
 Environmental Sciences<sup>2</sup>  
 Environmental Studies<sup>2</sup>  
 Exercise Science  
 Individualized Major  
 Landscape Architecture  
 Medical Laboratory Sciences  
 Natural Resources  
 Nutritional Sciences  
 Pathobiology  
 Sustainable Plant and Soil Systems

### School of Business

Accounting  
 Business Administration  
 Business Data Analytics  
 Digital Marketing & Analytics  
 Finance  
 Financial Management  
 Health Care Management  
 Management  
 Management and Engineering for Manufacturing<sup>3</sup>  
 Management Information Systems  
 Marketing  
 Real Estate/Urban Economics

### Continuing Education

General Studies

### School of Engineering

Biomedical Engineering  
 Chemical Engineering  
 Civil Engineering  
 Computer Engineering  
 Computer Science  
 Computer Science and Engineering  
 Electrical Engineering  
 Engineering Physics  
 Environmental Engineering  
 Management and Engineering for Manufacturing<sup>3</sup>  
 Materials Science and Engineering  
 Mechanical Engineering

<sup>1</sup> Awarded for successful completion of two-year program in Ratcliffe Hicks School of Agriculture.

<sup>2</sup> The Environmental Studies and Environmental Sciences majors are offered jointly by the College of Agriculture, Health and Natural Resources and the College of Liberal Arts and Sciences.

<sup>3</sup> The Management and Engineering for Manufacturing major is offered jointly by the School of Business and the School of Engineering, and leads to a Bachelor of Science degree.

### School of Fine Arts

Acting  
 Art  
 Art History  
 Design and Technical Theatre  
 Digital Media and Design  
 General Program in Music  
 Music  
 Puppetry  
 Theatre Studies

### College of Liberal Arts and Sciences

Africana Studies  
 American Studies  
 Anthropology  
 Applied Mathematical Sciences  
 Biological Sciences  
 Chemistry  
 Chinese  
 Classics and Ancient Mediterranean Studies  
 Cognitive Science  
 Communication  
 Ecology and Evolutionary Biology  
 Economics  
 Engineering Physics  
 English  
 Environmental Sciences<sup>2</sup>  
 Environmental Studies<sup>2</sup>  
 French  
 Geography  
 Geoscience  
 German  
 History  
 Human Development and Family Studies  
 Human Rights  
 Individualized Major  
 Italian Literary and Cultural Studies  
 Journalism  
 Judaic Studies  
 Latino and Latin American Studies  
 Linguistics/Philosophy  
 Linguistics/Psychology  
 Marine Sciences  
 Maritime Studies  
 Mathematics  
 Mathematics/Actuarial Science  
 Mathematics/Actuarial Science/Finance  
 Mathematics/Physics  
 Mathematics/Statistics  
 Molecular and Cell Biology  
 Philosophy  
 Physics  
 Physiology and Neurobiology  
 Political Science  
 Psychological Sciences  
 Sociology  
 Spanish  
 Speech, Language and Hearing Sciences  
 Statistics  
 Structural Biology and Biophysics

Urban and Community Studies  
 Women's, Gender, and Sexuality Studies

### **Neag School of Education**

Agricultural Education  
 Biology Education  
 Chemistry Education  
 Earth Science Education  
 Elementary Education  
 English Education  
 French Language Education  
 General Science Education  
 German Language Education  
 History/Social Studies Education  
 Mathematics Education  
 Music Education  
 Physics Education

African Studies  
 Africana Studies  
 Agribusiness Management  
 Agricultural Biotechnology  
 American Sign Language  
 American Studies  
 Animal Science  
 Anthropology  
 Art History  
 Asian American Studies  
 Bioinformatics  
 Biological Sciences  
 Biomedical Engineering  
 Business Fundamentals  
 Chemistry  
 Chinese  
 Classics and Ancient Mediterranean Studies  
 Cognitive Science  
 Communication  
 Computer Science  
 Creativity, Innovation, and Entrepreneurship  
 Criminal Justice  
 Dairy Management  
 Digital Arts  
 Digital Humanities  
 Digital Marketing & Analytics  
 Diversity Studies in American Culture  
 Dramatic Arts  
 Ecology and Evolutionary Biology  
 Economics  
 Electronics and Systems  
 Engineering Management – Business  
 Engineering Management – Business – Construction  
 Engineering Management - Engineering  
 English  
 Entrepreneurship  
 Environmental Economics and Policy  
 Environmental Engineering  
 Environmental Studies  
 Equine Business Management  
 European Studies  
 Film Studies  
 Food Science  
 French  
 Geographic Information Science  
 Geography  
 Geoscience  
 German  
 Gerontology  
 Global Music and Culture  
 Healthcare Management and Insurance Studies

Spanish Language Education  
 Special Education  
 Sport Management

### **School of Nursing**

Nursing

### **School of Pharmacy**

Doctor of Pharmacy  
 Pharmacy Studies

### **Ratcliffe Hicks School of Agriculture**

Animal Science  
 Ornamental Horticulture and Turfgrass Management

### **Minors**

History  
 Human Rights  
 India Studies  
 Information Assurance  
 Information Technology  
 Integrated Pest Management  
 International Studies  
 Interpreting between American Sign Language and English  
 Italian Literary and Cultural Studies  
 Judaic Studies  
 Latin American Studies  
 Latino Studies  
 Linguistics  
 Management  
 Manufacturing  
 Marine Biology  
 Maritime Archaeology  
 Materials Science and Engineering  
 Mathematics  
 Medieval Studies  
 Middle Eastern Studies  
 Molecular and Cell Biology  
 Music  
 Nanomaterials  
 Nanotechnology  
 Native American and Indigenous Studies  
 Neuroscience  
 Nutrition for Exercise and Sport  
 Oceanography  
 Ornamental Horticulture  
 Philosophy  
 Physics  
 Physiology and Neurobiology  
 Political Science  
 Professional Sales Leadership  
 Psychological Sciences  
 Public Policy  
 Real Estate  
 Religion  
 Sociology  
 Spanish  
 Statistics  
 Studio Art  
 Sustainable Food Crop Production  
 Therapeutic Horsemanship Education  
 Turfgrass Management  
 Urban and Community Studies  
 Wildlife Conservation  
 Women's, Gender, and Sexuality Studies

# Admission

Address all inquiries regarding admission to the Office of Undergraduate Admissions, 2131 Hillside Road, Unit 3088, University of Connecticut, Storrs, CT 06269-3088, phone: (860) 486-3137, website: admissions.uconn.edu, e-mail: beahusky@uconn.edu.

**Nathan Fuerst**, *Assistant Vice President of Enrollment and Director of Undergraduate Admissions*

The University of Connecticut subscribes to the Statement of Principles of Good Practice of the National Association for College Admission Counseling. It supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of its applicants for admission. The University does not enter into any quid pro quo contracts, either explicit or implicit, with admitted students. Services expected shall not be a consideration in admission.

## Freshman Admission

A freshman applicant to the University of Connecticut must meet the following requirements:

- Be a graduate of an approved secondary school;
- Have completed at least sixteen units of work, of which fifteen must be college preparatory in nature;
- Be in the upper range of their high school graduating class;
- Have achieved a competitive score on the SAT or the ACT

Several schools and colleges of the University have additional special requirements. See individual school and college sections of this publication for further information.

Applications for freshman admission must include:

- Official high school transcript or official GED;
- Official SAT or ACT scores;
- Personal essay;
- Application fee (non-refundable)

Please refer to the current application for admission at admissions.uconn.edu, for detailed information regarding requirements and application deadlines.

## Admission with Advanced Standing

### Advanced Placement and Credit (AP)

See “Academic Regulations” section of this Catalog.

### University of Connecticut Early College Experience

UConn Early College Experience (UConn ECE) provides academically motivated students with the opportunity to take UConn courses while in high school. These challenging courses allow students to preview college work, build confidence in their readiness for college, and earn college credits that provide both an academic and a financial head-start on a college degree. There are over 175 Connecticut high schools that offer UConn courses through this concurrent enrollment agreement with the University of Connecticut.

UConn ECE instructors are high school teachers certified as adjunct professors by the University. UConn ECE courses are overseen by University faculty members from participating departments, in accordance with national accreditation standards established by the National Alliance of Concurrent Enrollment Partnerships (NAPEP).

UConn ECE students are non-degree students with official University transcripts. UConn ECE students must successfully complete the course with a grade of “C” or above in order to receive University credit. Credits are transferable to many other institutions. Students attending UConn have the choice to move credits earned through UConn ECE from their non-degree transcript to their degree transcript. A final determination must be made before the start of the student’s second semester as a matriculated student at the University of Connecticut. For further information please contact: UConn Early College Experience, 368 Fairfield Way Unit-

4171, Storrs, CT 06269-4171, phone: 860-486-1045, fax: 860-486-0042, website: ece.uconn.edu.

## Transfer Admission

A transfer student is one who has enrolled at an accredited postsecondary institution following high school graduation and has completed a minimum of twelve credits. To evaluate applications for transfer admission, primary consideration is given to the applicant’s cumulative grade point average, quality of courses taken, and intended program of study at the University.

The completed application should include:

- Official transcripts from each college attended sent directly from each institution, whether or not credit is desired
- Official high school transcript with date of graduation or official GED
- SAT or ACT scores (waived if student is 21 or older; or if, at the time of application, two full-time semesters have been completed as a postsecondary student)
- Personal essay
- Application fee (non-refundable)

Please refer to the Undergraduate Admission website, admissions.uconn.edu, for detailed information. Priority admission to the Storrs Campus is given to students who have completed two years of college prior to enrolling at the University. Students with fewer than two years are evaluated on a combination of high school and college work; i.e., high school average and class rank, SAT or ACT scores, and college performance (to date). Students must also be in good standing and eligible to return to the last institution of higher learning which they attended.

Transfer students deficient in any of the minimum admission requirements (see Freshman Admission) will be eligible for consideration at a freshman or sophomore level only if the following conditions are met:

- a. 24 full-time transferable semester hours in challenging, academic course work completed;
- b. a minimum of 2.7 cumulative grade point average (4.0 scale), for unrestricted programs only.

Prospective transfer students are advised that only a limited number of transfer students will be admitted to the majors of the Schools of Business, Education, Engineering, Nursing, and Pharmacy. Students interested in one of these fields should consider other majors as alternatives; even if admitted to an alternate program, however, students cannot be guaranteed subsequent admission to their first choice of major. Prospective transfer students are also advised that they must fulfill all graduation requirements of their major at the University. Questions about these requirements may be directed to the Dean of their School or College after admission.

The University welcomes transfers from the Connecticut community colleges and offers programs that will facilitate transfer to designated majors within the University. Up-to-date information about these programs is available at admissions.uconn.edu.

## Transfer Credit

Course credits are transferred when (1) the course has been taken at a regionally accredited, degree-granting institution, (2) the grade earned is no lower than a “C,” and (3) a similar course is offered by the University. College-level work given in or under the direction of an accredited college or university as part of the armed services program will be accepted for credit on the same basis as other transfer work. In addition, the University will consider for transfer courses completed at foreign universities and in study abroad programs sponsored by accredited American universities.

The number of transfer credits students receive depends upon the character, quantity, and quality of the work they have completed. Grades do not transfer; the grade point average of transfer students is computed only on the work taken at the University of Connecticut. The student’s major department advisor and dean will determine whether transferred course work may be used to satisfy University of Connecticut degree requirements.

Complete transcripts of all work taken at other institutions must be submitted as a part of the admission procedure whether or not credit for such work is desired or expected. Official transcripts for any course work

completed after admission to this University must be submitted as soon as this work is concluded. Students who fail to acknowledge attendance at any college in which they have been registered automatically waive the right to have that work considered for transfer credit and may be subject to denial of admission, loss of course credit and/or suspension.

Consideration for transfer of course work is made according to the Transfer Guidelines for Evaluation adopted by the University Senate.

## Admission of Diverse Populations

### Underrepresented Students

The University recognizes the importance of intercultural understanding in education. To this end, the University has developed initiatives to encourage African American, Puerto Rican, Hispanic, Asian, Native American and other underrepresented students to attend this institution. Questions should be directed to the Office of Undergraduate Admissions, 2131 Hillside Road, Unit 3088, Storrs, CT 06269-3088 or e-mail [beahusky@uconn.edu](mailto:beahusky@uconn.edu).

The H. Fred Simons African American Cultural Center, Asian American Cultural Center, Puerto Rican/Latin American Cultural Center, and the International Center are available to all students interested in developing and promoting an understanding of various cultures.

### International Students

The University of Connecticut provides educational opportunities of the highest quality to all students. It makes a contribution to international education by encouraging the enrollment of students from all parts of the world. It selects, however, only those applicants who are academically and linguistically prepared for university work in this country.

Prospective international students should begin application procedures one year before intended matriculation. International students who are interested in transferring from another college or university can only apply for the fall semester. Prospective students may submit correspondence to University of Connecticut, Office of Undergraduate Admissions, 2131 Hillside Road, Unit 3088, Storrs, CT 06269-3088 U.S.A. or e-mail [beahusky@uconn.edu](mailto:beahusky@uconn.edu). More information about admissions-required documents can be found at [admissions.uconn.edu](http://admissions.uconn.edu).

### Students with Disabilities

The University of Connecticut is committed to achieving equal educational opportunities and full participation for persons with disabilities. It is the University's policy that no qualified person be excluded from participating in any University program or activity, be denied the benefits of any University program or activity, or otherwise be subjected to discrimination with regard to any University program or activity. This policy derives from the University's commitment to non-discrimination for all persons in employment, access to facilities, student programs, activities, and services.

For complete information regarding the University's Policies and Procedures Regarding Students with Disabilities, please refer to the website of the Center for Students with Disabilities at [csd.uconn.edu](http://csd.uconn.edu).

### Services for Students with Disabilities

Through the integration of teaching, research and service, it is the mission of the University of Connecticut to provide an outstanding educational experience for each student. The mission of the Center for Students with Disabilities (CSD) is to enhance this experience for students with disabilities. Our goal is to ensure a comprehensively accessible university experience where individuals with disabilities have the same access to programs, opportunities, and activities as all others. The Center is also committed to promoting access and awareness as a resource to all members of the community. While complying with the letter of the law, the CSD also embraces its spirit by providing services to all students with permanent or temporary disabilities to ensure that all University programs and activities are accessible. Accommodations are determined on an individualized basis and may include:

- Alternate media for printed materials
- Assistive listening devices
- Assistive technology
- Computer-assisted real time translation (CART)
- Laboratory assistants
- Note taking assistance
- Oral and sign language interpreters
- Priority registration
- Reduced course loads
- Testing accommodations
- Housing accommodations

Additional services may include:

- Academic advising and registration assistance
- Academic skills counseling
- Accessibility assessments regarding campus access
- Accessible van service
- Beyond Access - individualized learning strategies instruction (fee-for-service program)
- Peer education
- Personal assistant referral and training
- Pre-admission counseling and new student orientation
- Referral and liaison services to agencies such as the Commission on the Deaf and Hearing Impaired, Bureau of Rehabilitation Services, Board of Education Services for the blind, as well as Recordings for the Blind and Dyslexic
- Technical assistance and training to all University entities

For more information, see [csd.uconn.edu](http://csd.uconn.edu) or email [csd@uconn.edu](mailto:csd@uconn.edu); or contact Donna M. Korbel, Director, CSD, Room 204, Wilbur Cross Building, Unit 4174, Storrs, Connecticut 06269-4174; phone (860) 486-2020, TDD (860) 486-2077, fax (860) 486-4412.

### Adult Students

The University especially encourages applications from adults who wish to earn a baccalaureate for personal enrichment, employment opportunity, and/or skill development. Adult students apply as freshmen or transfers and enroll on either a part-time or full-time basis at any of the five University campuses. Because the educational history, motivation, and present interests of adult students differ widely from those of the average applicant, the University may waive the SAT or ACT scores for admission purposes.

Adults may enroll at the main campus in Storrs or at a regional campus located in Groton (Avery Point), Hartford, Stamford, or Waterbury. The regional campuses offer evening courses at all locations are within easy commuting distance, and provide a quality UConn education at a reasonable cost.

## New England Regional Student Program

The University of Connecticut participates in a regional cooperative program administered by the New England Board of Higher Education (NEBHE). This program, known as the New England Regional Student Program, permits qualified residents of the New England states to study with reduced tuition in certain programs at any of the state universities and the public two-year colleges and technical institutes.

For a list of approved majors and information on the current Regional Student Program tuition rate, visit [admissions.uconn.edu](http://admissions.uconn.edu). Regional Student Program information is also available on the NEBHE website at [www.nebhe.org](http://www.nebhe.org). NEBHE may also be contacted directly via telephone at (617) 357-9620 or e-mail at [info@nebhe.org](mailto:info@nebhe.org).

## Continuing Education

### Bachelor of General Studies

Applicants to the Bachelor of General Studies (BGS) program must have earned an associate's degree or completed 60 credits at a regionally accredited degree granting institution. In addition, applicants must have an individual interview with a BGS Counselor and complete the BGS application.



## University of Connecticut Programs Available to New England Residents at Reduced Tuition

Programs	Eligible Residents
<b>College of Agriculture, Health and Natural Resources</b>	
Allied Health	MA, RI, VT
Diagnostic Genetic Sciences*	ME, MA, NH, RI, VT
Dietetics*	ME
Landscape Architecture	ME, NH, VT
Pathobiology	ME, MA, RI, VT
Turfgrass and Soil Science	ME, NH, VT
<b>College of Liberal Arts and Sciences</b>	
Actuarial Science	ME, MA, NH, RI, VT
Classics and Ancient Mediterranean Studies	ME
Cognitive Science	ME, MA, RI, VT
Human Development and Family Studies	MA
Human Rights**	ME, MA, NH, RI, VT
Italian Literary and Cultural Studies	ME, NH
Latin American Studies	ME, NH
Marine Sciences	ME, MA, NH, RI, VT
Maritime Studies	ME, MA, NH, RI, VT
Physiology and Neurobiology	ME, MA, NH, RI,
Statistics	MA, RI
Structural Biology and Biophysics	MA, RI, VT
<b>Neag School of Education</b>	
Agricultural Education*	ME, MA, RI, VT
School of Business	
Health Care Management*	ME, MA, RI, VT
Management and Engineering for Manufacturing	ME, MA, NH, RI
Real Estate and Urban Economic Studies*	ME, MA, RI, VT
School of Engineering	
Biomedical Engineering	ME, MA, NH, VT
Chemical Engineering	VT
Engineering Physics	NH, RI, VT
Management and Engineering for Manufacturing	ME, MA, NH, RI
Materials Science and Engineering	ME, MA, NH, RI, VT
<b>School of Fine Arts</b>	
Acting	ME, MA, NH, VT
Digital Media and Design	MA, NH, VT
Puppetry	ME, MA, NH, RI, VT
Technical Theater	ME, NH, VT
<b>School of Pharmacy*</b>	
Pharmacy	ME, MA, NH, VT
* Students enrolled in Agricultural Education, Diagnostic Genetic Sciences, Dietetics, Health Care Management, Real Estate and Urban Economics and School of Pharmacy will not be awarded the reduced tuition (or "Tuition Break") until their junior or senior year. Freshman and sophomore years are not offered at reduced tuition.	
** Students majoring in Human Rights are required to maintain an additional major offered in the College of Liberal Arts and Sciences or an additional degree program in another University School or College.	
<b>Associate Degree Programs</b>	
<b>Ratcliffe Hicks School of Agriculture</b>	
Animal Science Equine and Dairy/Livestock options	ME, RI, VT
Ornamental Horticulture and Turfgrass Management	ME, NH, RI

All international applicants whose first language is not English or who do not have a transcript from an accredited university where English is the language of instruction must submit official scores from either the TOEFL or IELTS exam. A score of 213 on the computer based exam, a score of 79 on the internet based exam, a written test score of at least 550 on the Test of English as a Foreign Language or an overall band score of 6.5 on the IELTS (International English Language Test System) is required.

International students who will study in F-1 status are also required to provide the International Student Financial Declaration Form and supporting funding documents. All new international students with F-1 status must attend a mandatory orientation session and physically check-in with International Student and Scholar Services (ISSS) at the beginning of their program. International students should regularly check the website [issu.uconn.edu](http://issu.uconn.edu) for policy changes and updates.

Further information can be obtained from the BGS Counselor at any University regional campus by contacting one of the following:

- Avery Point (860) 405-9190, [BGSAPT@uconn.edu](mailto:BGSAPT@uconn.edu);
- Stamford (203) 251-8550, [BGSSTAM@uconn.edu](mailto:BGSSTAM@uconn.edu)
- Storrs (860) 486-4670, [BGSSTORR@uconn.edu](mailto:BGSSTORR@uconn.edu)
- Torrington (860) 626-6813, [BGSTORRI@uconn.edu](mailto:BGSTORRI@uconn.edu)
- Waterbury (203) 236-9932, [BGSWTBY@uconn.edu](mailto:BGSWTBY@uconn.edu)
- Greater Hartford (860) 570-9310, [BGSHTFD@uconn.edu](mailto:BGSHTFD@uconn.edu)

### Non-Degree Study

Non-degree study enables qualified individuals to register in credit bearing courses without being admitted to an undergraduate or graduate degree program.

To enroll in undergraduate-level credit courses, non-degree students ordinarily must either have graduated from a state-approved secondary school or have a high school equivalency diploma. A bachelor's degree is usually required for enrollment in graduate level courses as a non-degree student.

Non-degree students must complete a non-degree application. If granted permission, non-degree students can register for credit courses for which they have the necessary background and qualifications and in which space is available. All prerequisites to a course (or their equivalent) as listed in the University of Connecticut Catalogs must be met by the student prior to registration. Special permission to enroll may also be required in selected courses or academic disciplines. Ordinarily, non-degree students may register for no more than two courses or eight credits in an academic semester.

The refund policy applicable to non-degree students may vary from the refund policy in effect for degree-seeking students, and may also vary between the academic year, the summer, and special programs. Consult the appropriate course schedule for the refund policy applicable in a given term at a specific site.

To continue studying at the University of Connecticut, a non-degree student must maintain a "C" average in courses taken at the University of Connecticut. If, after 12 attempted credits, a non-degree student has not maintained a "C" average or better (i.e., a cumulative grade point average of 2.0 or better), permission to continue as a non-degree student at the University ordinarily will be suspended. A higher grade point average is usually required for graduate level courses.

Non-degree status does not constitute or guarantee admission to any degree program at the University of Connecticut. However, a non-degree student who has completed 24 credits at the University of Connecticut with a minimum grade point average of 2.7 is eligible to apply for transfer admission to an undergraduate degree program. An application and all required materials must be submitted to the undergraduate Transfer Admissions Office in accordance with their standard application procedures and deadlines ([admissions.uconn.edu/content/transfer](http://admissions.uconn.edu/content/transfer)). The Transfer Admissions Office handles the processing of all students, other than BGS students, moving into a degree classification. This includes students who have been enrolled at another institution prior to their non-degree study here, who wish to move from non-degree to degree classification, and are in the process of completing 24 non-degree credits; as well as non-degree students without previous college-level course work. Students are urged to check with the dean of the school or college they wish to enter to determine

appropriate courses to take within the 24 credits. If admitted to regular status, a determination will be made at that time by the dean of the school or college in which the student has been accepted as to whether the credits earned as a non-degree student may be counted toward the degree. Credits from other institutions cannot be evaluated for transfer to a degree program at the University of Connecticut unless and until a person has been accepted into degree-seeking status. Regular application procedures for admission to graduate degree programs apply at all times. Ordinarily, only six credits earned in non-degree status can be used in a graduate program.

Former undergraduate degree students at the University of Connecticut may enroll as non-degree students. However, if degree-seeking status is desired, former students should seek formal readmission to degree status at the University since credits earned in non-degree status might not be accepted towards the degree.

For further information on non-degree study check [nondegree.uconn.edu](http://nondegree.uconn.edu).

### **Senior Citizen Audits**

Individuals may attend undergraduate credit classes on a not-for-academic/audit basis as the instructor permits (Note: Individuals need to be 62 years of age or older prior to the start of the class(es) and permanent CT residents). An auditing senior may participate in the course only as the instructor permits. The instructor may unenroll individuals not meeting the auditing criteria set forth by the instructor. Laboratory, studio-type classes and online courses are not available for senior audit. Senior citizens auditing courses must adhere to the same code of conduct as all University of Connecticut students.

All seniors planning to audit a course must first submit a non-degree application form. If given permission to participate in non-degree study, a senior citizen must present a completed senior audit form to the Office of the Registrar, Storrs Campus or Regional Campus Registrar. Forms must be completed and returned with a nominal fee. Proof of identification is required at time of registration.

# Fees and Expenses

The schedule of fees which follows, as reported by the Bursar's Office, is comprehensive and is expected to prevail during the 2016-2017 academic year, but the Board of Trustees and the Board of Governors for Higher Education reserve the right, at any time, to authorize changes. Revisions in the State budget may force fee changes.

**Application Fee.** An application fee must accompany the application for admission to any undergraduate school or college of the University for full-time study. The application fee is not refundable and may not be applied to outstanding charges. For more information about the application fee, refer to the Admissions website ([admissions.uconn.edu](http://admissions.uconn.edu)).

**Enrollment Deposit.** A freshman student entering the University in the fall semester must make an enrollment deposit, which is nonrefundable, by May 1. This payment will apply toward the University fee bill. Failure to remit payment by May 1 will result in cancellation of admission. The new freshman student is encouraged to make payment as soon as the student's intention to accept admission is firm.

A transfer student entering the University in the fall semester and a freshman or transfer student entering the University in the spring semester must make an enrollment deposit, which is non-refundable, within fifteen days of receiving notice of admission. This payment will apply toward the University fee bill. Failure to remit payment by the prescribed date will result in cancellation of admission. For more information about the enrollment deposit, refer to the Admissions website ([admissions.uconn.edu](http://admissions.uconn.edu)).

## Tuition

All students are subject to a tuition charge in addition to the mandatory fees charged to Connecticut and out-of-state students. For information about tuition for Connecticut and out-of-state students, refer to the Undergraduate Tuition and Fees page on the Bursar's Office website ([bursar.uconn.edu](http://bursar.uconn.edu)). Tuition is prorated for part-time undergraduate students who initially register for less than full time.

Pursuant to Connecticut Public Act 10-66, tuition is waived: (1) for any dependent child of a person whom the armed forces of the United States has declared to be missing in action or to have been a prisoner of war while serving in the armed forces after January 1, 1960, which child has been accepted for admission to the University of Connecticut, provided the person missing in action or former prisoner of war was a resident of Connecticut at the time of entering the service of the armed forces of the United States or was a resident of Connecticut while so serving; (2) for any veteran having served in the time of war, as defined in subsection (a) of section 27-103, or who served in either a combat or combat support role in the invasion of Grenada, October 25, 1983, to December 15, 1983; the invasion of Panama, December 20, 1989, to January 31, 1990; or the peace keeping mission in Lebanon, September 29, 1982, to March 30, 1984; or Operation Earnest Will (escort of Kuwaiti oil tankers), February 1, 1987, to July 23, 1987, and is a resident of Connecticut at the time of *acceptance for admission or readmission* to the University. For additional information, contact Department of Veterans Affairs and Military Programs in the Arjona Building, Room 340, (860) 486-2442 or refer to the Veterans Affairs and Military Programs website ([veterans.uconn.edu](http://veterans.uconn.edu)); (3) For any Connecticut resident sixty-two years of age or older who has been accepted for admission, provided this person is enrolled in a degree-granting program or, provided, at the end of the regular registration period, there is space available in the course in which the person intends to enroll; (4) for any active member of the Connecticut army or air national guard who (a) is a resident of Connecticut; (b) has been certified by the adjutant general or a designee, as a member in good standing of the guard; and (c) is enrolled or accepted for admission on a full-time or part-time basis in an undergraduate degree-granting program. If any person who receives a tuition waiver in accordance with the provisions of this subsection also receives educational reimbursement from any employer, the waiver shall be reduced by the amount of the educational reimbursement; (5) provides that any dependent child of a police officer or fire fighter killed in the line of duty is eligible for a tuition waiver at the University of Connecticut, the Connecticut State University system or a Regional Community-Technical College.

## New England Regional Student Program

Please visit the New England Board of Higher Education (NEBHE) website ([www.nebhe.org](http://www.nebhe.org)) for information regarding qualifying New England Regional programs that are offered at the University of Connecticut.

New students admitted to the University who qualify for the New England Regional rate based upon their residency and their major will have New England Regional tuition rates automatically reflected in their fee bill.

Students have until the 10th day of classes to change to a qualifying program to receive the New England Regional tuition rate. Students that change after the 10th day will be eligible to receive the New England Regional tuition rate for the upcoming semester provided that they remain in the qualifying program. Students switching to a non-qualifying program on or before the 10th day of classes will be charged out-of-state tuition.

Please note that a student's change in residency, either to or from the New England region, may result in review and possible revisions of their financial aid package. Students should contact the Financial Aid Office with questions regarding financial aid revisions.

## Undergraduate Fees

All undergraduate students are subject to the following fees. Please refer to the Bursar's website ([bursar.uconn.edu](http://bursar.uconn.edu)) for the current amount of fees as well as a full description of fees.

**General University Fee.** All students attending the University of Connecticut in Storrs or the regional campuses are subject to a general University fee each semester. This fee varies by campus. Please refer to the Bursar's website for a breakdown of the fees paid by Storrs students and students at the regional campuses: [bursar.uconn.edu](http://bursar.uconn.edu).

**Infrastructure Maintenance Fee.** All students are subject to an infrastructure maintenance fee each semester. This fee supports the operating and maintenance costs related to UConn 2000 projects as well as preventative and deferred maintenance on University buildings.

**Technology Fee.** All students are subject to a technology fee each semester. This fee supports various IT projects directly benefitting students including, but not limited to, increased wireless capacity, UConn Virtual PC (vPC), technology and media-related library services, and access to certain University-wide software licensing agreements. This fee does not cover surcharges for online courses.

**Student Government Fee.** All students are subject to a student government fee each semester. This fee supports student governmental activities and the student yearbook. This fee varies by campus. Please refer to the Bursar's website for a breakdown of fees paid by Storrs students, and students at the regional campuses.

## Fees for Undergraduates at the Storrs Campus

Undergraduate students at Storrs are subject to the following fees: UCTV Fee, Daily Campus Fee, Student Union Fee, WHUS Fee, and Student Transit Fee. Please refer to the Bursar's website for more information about these fees, including current amounts and descriptions ([bursar.uconn.edu/description-of-fees](http://bursar.uconn.edu/description-of-fees)).

## Residence Halls

**Residence Hall Fee.** The Residence Hall fee covers occupancy while classes are in session, excluding recess periods. Detailed information regarding room rates can be found on the Residential Life website ([reslife.uconn.edu](http://reslife.uconn.edu)).

**Room Reservation Fee.** A non-refundable room reservation fee for on-campus housing is required from new and continuing undergraduate residents. Reservation fees will be credited as a partial payment for the appropriate semester housing fee. The Department of Residential Life serves as the source of all information involving room reservation and contract buy-out fees. The detailed On-Campus Housing Contract is available on the Residential Life website ([reslife.uconn.edu](http://reslife.uconn.edu)). Their staff may be contacted by phone (860) 486-3430 or by email at [livingoncampus@uconn.edu](mailto:livingoncampus@uconn.edu).

## University Meals

**Board Fee.** All students living in undergraduate residences are required to pay for one of the resident meal plans offered by Dining Services. The cost will be determined by which plan is chosen. Refer to the Dining Services website ([dining.uconn.edu](http://dining.uconn.edu)) to see the current plans. Meal plans are in effect the Friday evening of move-in weekend (Convocation Dinner) for first year students and families. All returning students' plans begin with lunch on Saturday of move-in weekend. Then, meals are available seven days per week while classes are in session through finals week. Students should consult the Dining Services website, UCuisine, or the individual dining centers for variations to this basic schedule.

Commuters can purchase blocks of meals or meal plan points. In addition, they are welcome on an a la carte basis using cash or 'Husky Bucks' at retail outlets in several locations throughout campus and the Student Union.

## Other fees

**Continuous Registration Fee.** A non-refundable fee is charged each semester to Bachelor of General Studies students, Cooperative Education students, and Education Abroad students.

**Audit Fee.** Auditors pay standard undergraduate tuition and fees.

**Senior Citizens Audit Fee.** All persons 62 years of age or older who audit undergraduate courses on a space-available, not-for-credit basis, must pay a fee each semester. Instructor consent is required for all audits. Please refer to the Non-Degree Services website ([nondegree.uconn.edu](http://nondegree.uconn.edu)) for more information

**UConnPIRG Fee.** A waivable fee is charged for students attending the Storrs and Hartford campuses. The UConn Public Interest Research Group is a student activism group that works on a number of issues relating to the environment, campaign finance reform, corporate watchdog causes, and other issues. Please refer to the Bursar's website for more information.

**Student Identification Card.** Each new entering student is furnished with a personalized identification (ID) card, which is revalidated each semester upon full payment of the University fee bill. Should the student's card become lost or destroyed, a fee is charged for a replacement. Please refer to the One Card Office website for more information ([onecard.uconn.edu](http://onecard.uconn.edu)).

**Student Parking Fees.** Student parking fees are assessed to fifth semester resident students, commuting students, resident assistants, and graduate assistants registering a vehicle and obtaining permission to park in a designated University student parking area, and are paid directly to Parking Services. Please refer to the Parking Services website for more information.

**Course Fees.** Extra fees may be applied to courses. These fees cover consumables, malpractice insurance, equipment, and other costs. Those costs may be found in the descriptions of courses listed in the "Directory of Courses" section of this *Catalog*. The fees serve as a guide, but are subject to change.

**Course Credit by Examination Fee.** The fee for the examination is payable at the Business Office. Course Credit by Examination specifications may be found under "Academic Regulations."

**Online Course Fee.** All students taking online courses during summer or intersession are charged a fee per credit. Non-degree students taking online courses during fall or spring semesters are charged a fee per credit. Please refer to the Bursar's website for more information.

## Fees for Academic Programs

Fees are charged for some academic programs. For information about fees, students should refer to the website of the academic program in which they are enrolled or contact the program director. The following programs are among those that charge fees for some or all students: Digital Media and Design, Dramatic Arts, Landscape Architecture, Maritime Studies, and Music.

In addition, some of the schools and colleges within the University of Connecticut charge maintain fees for some students.

**School of Pharmacy.** Students participating in the Pharmacist Immunization Certificate Program will be charged a materials fee.

**Summer Sessions Fees and Expenses.** The University fee for each summer session is equal to the preceding academic year in-state tuition rate. In addition, there is a one-time, non-refundable summer enrollment fee for University of Connecticut degree students and non-matriculated students. Please refer to the Summer Session website ([summersession.uconn.edu](http://summersession.uconn.edu)) for more information.

**Winter Intersession Fees and Expenses.** The University fee for each winter session is equal to the academic year's in-state tuition rate. In addition, there is a one-time, non-refundable winter enrollment fee for University of Connecticut degree students and non-matriculated students. Please refer to the Winter Intersession website ([wintersession.uconn.edu](http://wintersession.uconn.edu)) for a list of fees and expenses for Winter Intersession courses.

**Education Abroad.** Please refer to the Education Abroad website ([abroad.uconn.edu](http://abroad.uconn.edu)) for more information about the costs of studying abroad.

## Regulations

**Payment of Fees.** Collection of all fees is handled by the Office of the University Bursar. The fall semester fee bill is payable prior to August 1; the spring semester is payable prior to January 8. Payment in full is required and no exceptions to this policy are granted for partial payment of fees, unless enrolled in the University payment plan. Failure to make payment on time will result in cancellation of the privileges accorded to a student, including class registration, use of recreational facilities, access to transcripts, and other services. Registration is not complete nor is the residence hall assignment confirmed in any semester until all the fees for the semester have been paid.

It is each student's financial responsibility to make fee payments by the specified due dates. Failure to receive a fee bill does not relieve a student of fee payment responsibility. Please refer to the Bursar's website for more information on failure to pay.

If a check is returned by the bank for any reason, the student is charged a returned check fee. Please refer to the Bursar's website for more information.

**Late Payment Fee.** The payment of the fee bill is due in full prior to August 1 for the fall semester and January 8 for the spring semester. A late payment fee is payable by all undergraduate students whose tuition and fees are not paid in full on the published due date. Checks returned by the bank for any reason are considered late payment. Students may have services denied if all fees have not been paid by the due date. Please refer to the Bursar's website for more information.

**Deposit Account.** An escrow deposit must be maintained by all students. This deposit, less deductions for breakage, fines, health service, and any other outstanding charges, will be refunded to students graduating or officially withdrawing from the University. Please refer to the Bursar's website for more information.

**Cancellations and Refunds.** The following is general information regarding cancellations and refunds. However, if a student is a recipient of federal financial aid, it is critical that they also read the information under the "Return of Federal Financial Aid" section of the Bursar's website.

All undergraduate students who withdraw from the University for any reason must secure from the Dean of Students Office (DOS) acknowledgement of their withdrawal, and arrange with DOS the details of their leaving. No refunds are made unless this procedure is followed.

If a student is dismissed after a semester, payments (if any) for the next semester will be refunded with the exception of certain non-refundable deposits.

In certain other instances, including illness, adjustments to the following schedule of refunds can be made at the discretion of the DOS office. Where notice of cancellation is received through the first day of classes of a semester, full refund (less non-refundable fees) is made if fees have been paid in full.

### Refundable Fees

- Tuition
- Fees related to certain majors, courses, or lessons;
- Escrow breakage deposit (less charges);
- Student Union Fee;
- Technology Fee;
- Student Government or Activity Fee;
- WHUS Fee;
- Transit Fee;
- Residence Hall Fee (conditions apply);
- General University Fee;
- Infrastructure Maintenance Fee;
- Daily Campus Fee;
- UCTV Fee;
- Dining Fee

### Nonrefundable Fees

Acceptance Fee (Admissions Deposit), Late Payment Fee(s), Room Deposit/Reservation Fee (conditions apply), Continuous Registration Fee, Payment Plan Enrollment Fee

After the first day of classes, withdrawal adjustments are made only on refundable fees according to the following schedule:

Remainder of the 1st calendar week .....	90%
2nd week.....	60%
3rd and 4th week .....	50%
5th week through 8th week .....	25%

No fees are refundable after the 8th week of classes.

(Calendar weeks run Monday through Sunday; whatever day of the week on which the semester begins, the following Sunday ends the first calendar week.)

### Insurance

**Malpractice Insurance.** Covers all students with a clinical experience component to their coursework. The insurance is charged once for the academic year.

**Mandatory Student Health Insurance.** All full-time students must provide for their own accident and illness insurance to cover medical care not provided through the Department of Health Services. Students may

opt to be covered for accidents and illnesses through a personal insurance policy, a parental or family insurance policy, or a policy sponsored by the university. Supplemental Student Health Insurance for accident and sickness is available from a private student medical insurance program. Students who fail to provide proof of health insurance by filing an on-line insurance waiver may be charged and automatically enrolled in the University sponsored plan. Insurance information and enrollment for the insurance program is available at the Department of Health Services. Please call (860) 486-0745 or refer to the Student Health Services website (shs.uconn.edu) for further information.

**Education Abroad Supplemental Health Insurance.** Students choosing to study abroad through the University’s Office of Education Abroad may also be assessed an international health insurance premium that will cover them for the time period that they are abroad. This insurance is in addition to any other health insurance coverage that a student may have, including the university sponsored health insurance plan. Please call (860) 486-5022 for further information or visit the Education Abroad website (abroad.uconn.edu).

**Education Abroad and Additional Credits Registered.** Students choosing to take additional credits in addition to the Education Abroad program will be charged additional tuition and the general University fee depending on their Education Abroad program during the fall and spring semesters. Please refer to the Education Abroad website for more information. During summer and winter sessions they will also be charged regular summer and winter fees for the additional credits. Please contact the Bursar’s office at bursar@uconn.edu if you have any questions.

**(Non-immigrant) international students.** All (non-immigrant) international students will be required, at the time of registration, to show evidence of adequate insurance coverage for accidents, illness and medical evacuation and repatriation expenses. Students should consult the International Student Advisor regarding compliance with this requirement and assistance in enrolling in an approved insurance program.

### Students Attending Under Public Laws

All public law recipients attending this University for the first time under the auspices of the Veterans Administration must have a Certificate of Eligibility or Supplemental Certificate of Eligibility which is to be presented at the Office of Student Financial Aid Services prior to registration.

In the case of a disabled veteran the cost of books and supplies is reimbursed by the Veterans Administration for graduate and undergraduate students.

# Student Resources

(Formerly “General Information”)

Certain University policies and regulations affecting most students are included in this *Catalog*. Other regulations are set forth in various materials provided to all new students. In general, students are expected to meet the University’s academic requirements, attend classes regularly, conduct themselves as responsible members of the community, and meet their financial obligations to the University and to the residence groups to which they are assigned.

## Support for Academic Success

The University provides many services to support the academic success of its students. Several of those programs are described below.

**Academic Advising.** The deans of the schools and colleges assign advisors to help students meet their academic goals and complete degree requirements. Although the advisor is responsible for making appropriate academic recommendations, students are responsible for their own academic progress. Meeting regularly with an advisor helps students anticipate and solve problems before they become serious. Advising includes:

- Describing the goals of higher education, the aims of disciplinary and interdisciplinary study, and the reasons for academic requirements including minimum scholastic standards;
- Describing registration procedures, courses, faculty interests, educational opportunities and degree programs;
- Helping the student plan semester by semester registration including tentative and final plans of study;
- Referring the student to appropriate sources for information and specialized services.

Students and advisors should know the academic requirements published in the University *Catalog* and departmental plans of study.

## Undergraduate Advisory Centers

For an overview of advising at the university, see [advising.uconn.edu](http://advising.uconn.edu).

School/College/Center	Contact Person	Location
Academic Center for Exploratory Students	James Hill	John W. Rowe Center, Room 111
Agriculture, Health and Natural Resources	Patricia Jepson Meagan Ridder Jillian Ives	W. B. Young Building, Room 206
Business	Brandy Nelson	School of Business, Room 248
BGS/Non-Degree	James Hill Patricia Harkins	John W. Rowe Center, Room 323 (860) 486-4670
Education	Ann Traynor	C. B. Gentry Building, Room 322
Engineering	Brian Schwarz	Engineering II Building, Room 304
Fine Arts	Eva Gorbants	Fine Arts Building, Room 202
Liberal Arts and Sciences Academic Services Center	Katrina Higgins Mansour Ndiaye	CLAS ASC Building, 423 Whitney Road
Nursing	Pamela Cartledge	Storrs Hall, Room WW17
Pharmacy	Philip Hritcko	Pharmacy/Biology Building, Room 351
Ratcliffe Hicks	Patricia Jepson Meagan Ridder Jillian Ives	W. B. Young Building, Room 202

Before registering, students consult with their advisors. The University tries to meet the students’ requests where course selections conform to University rules and where resources permit.

**Academic Achievement Center.** The Academic Achievement Center (AAC) assists students in attaining their academic and personal goals by providing a comprehensive, personalized array of programs, resources, and services which enhance skill development, effective decision-making, and personal transitions to and within the university setting. Students can visit by walk-in or appointment. Each student is paired with a coach for a one-on-one session. Students are welcome to return and meet with a coach as often as they want. Website: [achieve.uconn.edu](http://achieve.uconn.edu). Email: [aac@uconn.edu](mailto:aac@uconn.edu). Location: Rowe Center for Undergraduate Education, Room 217. Phone: (860) 486-4889.

**Academic Center for Exploratory Students.** With expert academic advising and staff, ACES helps students navigate the most efficient route to their selected field of study. Website: [aces.uconn.edu](http://aces.uconn.edu). Email: [aces@uconn.edu](mailto:aces@uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Room 111. Phone: (860) 486-1788.

**Center for Academic Programs.** The Center for Academic Programs (CAP) increases access to higher education for high-potential students who come from underrepresented ethnic or economic backgrounds and/or are first-generation college students. Website: [cap.uconn.edu](http://cap.uconn.edu). Email: [cap@uconn.edu](mailto:cap@uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Room 231. Phone: (860) 486-4040.

**Center for Career Development.** Career Services assists students in gaining and applying knowledge and skills to make well-informed career decisions by advising them through the process of identifying a major, exploring career interests, and securing post-graduate opportunities. The office serves as the clearinghouse for internships and cooperative education which are an important part of the educational and career development process. Website: [career.uconn.edu](http://career.uconn.edu). Email: [career@uconn.edu](mailto:career@uconn.edu). Location: Wilbur Cross Building, Room 202. Phone: (860) 486-3013.

**Center for Students with Disabilities.** The Center for Students with Disabilities (CSD) offers comprehensive services. Their staff seeks to accommodate students with documented disabilities to allow them equal access in their educational endeavors. Website: [csd.uconn.edu](http://csd.uconn.edu). Email: [csd@uconn.edu](mailto:csd@uconn.edu). Location: Wilbur Cross Building, Room 204. Phone: (860) 486-2020.

**Dean of Students Office.** The primary function of the Dean of Students Office is to help students and their families get answers and solutions to college-life questions or problems that students may have. Website: [dos.uconn.edu](http://dos.uconn.edu). Email: [dos@uconn.edu](mailto:dos@uconn.edu). Location: Wilbur Cross Building, Room 203. Phone: (860) 486-3426.

**Digital Learning Center.** Staff helps students with HuskyCT, E-portfolio, Huskymail, PeopleSoft’s Student Administration module and the Computer Technology Competency general education requirements. Website: [dlc.uconn.edu](http://dlc.uconn.edu); [learningcommons.uconn.edu/services/lrc.htm](http://learningcommons.uconn.edu/services/lrc.htm). Email: [learningcommons@uconn.edu](mailto:learningcommons@uconn.edu). Location: Homer Babbidge Library, Level 1. Phone: (860) 486-1187.

**Education Abroad.** Studying abroad is a great way to gain proficiency in another language and to experience a new culture. Website: [abroad.uconn.edu](http://abroad.uconn.edu). Email: [studyabroad@uconn.edu](mailto:studyabroad@uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Room 117. Phone: (860) 486- 5022.

**Engineering Diversity Program.** The (EDP) provides academic retention programs and outreach activities designed to increase the numbers of under-represented students pursuing careers in engineering. Website: [www.engr.uconn.edu/diversity](http://www.engr.uconn.edu/diversity). Location: School of Engineering, 191 Auditorium Road. Phone: (860) 486-5536.

**International Student and Scholar Services.** International Student and Scholar Services (ISSS) supports the internationalization of the University of Connecticut through the development and delivery of services and programs that help our international students, scholars, faculty and staff accomplish their academic and professional goals at UConn. Website: [iss.uconn.edu](http://iss.uconn.edu). Email: [international@uconn.edu](mailto:international@uconn.edu). Location: McMahon Hall, Main Floor, Suite #183. Phone: (860) 486-3855.

**Institute for Student Success.** The Institute for Student Success, within Undergraduate Education and Instruction, provides students with the tools for success. ISS consists of three units: The Academic Center for Exploratory Students, First Year Programs and Learning Communities,

and the Center for Academic Programs. Website: [iss.uconn.edu](http://iss.uconn.edu). Location: 368 Fairfield Way, John W. Rowe Center for Undergraduate Education. Phone: (860) 486-6709.

**Language and Cultural Center.** Students can find support for second language and culture. The Department of Literatures, Cultures and Languages offers tutoring by graduate students who are heritage speakers of their respective languages. Website: [lcenter.uconn.edu](http://lcenter.uconn.edu). Email: [learningcommons@uconn.edu](mailto:learningcommons@uconn.edu). Location: Level One, Homer Babbidge Library. Phone: (860) 486-6255.

**Learning Community Program.** The communities create a small world on a large campus. Students live on the same floor, eat in the same cafeteria, and take the same classes with students who share their interests. Descriptions of the wide variety of programs and an application form can be found on the website: [lc.uconn.edu](http://lc.uconn.edu).

**McNair Scholars Program.** The McNair Scholars Program prepares talented, highly motivated UConn undergraduate students for doctoral studies in science, technology, engineering, and math (STEM) disciplines. McNair is open to low-income, first-generation college students or those from populations underrepresented in STEM graduate fields who are seeking to pursue a Ph.D. Scholars are paired with faculty mentors for academic enrichment, research, and internships. Website: [cap.uconn.edu/msp](http://cap.uconn.edu/msp). Location: Rowe Center for Undergraduate Education, Room 204. Phone: (860) 486-5146.

**Office of First Year Programs and Learning Communities.** With courses, a personal support network, interactive online resources, and unique living/learning experiences, First Year Programs helps new students achieve success from the start. Website: [fyp.uconn.edu](http://fyp.uconn.edu). Email: [fyp@uconn.edu](mailto:fyp@uconn.edu). Location: Rowe Center for Undergraduate Programs, 2nd Floor. Phone: (860) 486-3378.

**Office of National Scholarships and Fellowships.** The Office of National Scholarships (ONSF) advises and mentors high-achieving students at the University of Connecticut who are competing for prestigious national and international scholarships and fellowships. Website: [onsf.uconn.edu](http://onsf.uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Room 416. Phone: (860) 486-6255.

**Office of Undergraduate Research.** The Office of Undergraduate Research (OUR) provides research-related opportunities and information to interested students. OUR is an enrichment opportunity for all undergraduates in all majors on all UConn campuses. Website: [ugradresearch.uconn.edu](http://ugradresearch.uconn.edu). Email: [our@uconn.edu](mailto:our@uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Fourth Floor. Phone: (860) 486-7939.

**Pre-Law Advisement.** The UConn Pre-Law Center is committed to working with students and alumni who wish to become legal professionals. Website: [prelaw.uconn.edu](http://prelaw.uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Room 409.

**Quantitative Learning Center Tutoring.** The Q Center runs an extensive drop-in tutoring area, focusing on lower-division (but not exclusive to) Q courses in Chemistry, Mathematics, Physics, and Statistics. Website: [qcenter.uconn.edu](http://qcenter.uconn.edu). Email: [qcenter@uconn.edu](mailto:qcenter@uconn.edu). Location: Quantitative Learning Center, Level One, Homer Babbidge Library. Phone: (860) 486-1961.

**Student Health Services.** The University of Connecticut Health Service is a health care facility which is fully accredited by the Accreditation Association of Ambulatory Health Care Facilities. Website: [shs.uconn.edu](http://shs.uconn.edu). Email: [shs@uconn.edu](mailto:shs@uconn.edu). Location: Student Health Services, 234 Glenbrook Road. Phone: (860) 486-4700.

**Students Engaged in Academic Leadership.** UConn SEAL is designed to cultivate leadership and engagement among talented UConn students. Website: [diversity.business.uconn.edu/on-campus-programs/seal](http://diversity.business.uconn.edu/on-campus-programs/seal). Location: Wilbur Cross Building, Room 112. Phone: (860) 486-2461.

**Student Support Services.** Student Support Services increases access to the University of Connecticut for first-generation, low-income and/or underrepresented students with the goal of their retention and graduation. Accepted students participate in a six-week summer program prior to the fall semester of their freshmen year, providing an introduction to the rigors of university academics. Students are assigned to a Counselor or Regional Coordinator who provides them with advising, support, and advocacy during the summer program and throughout their tenure at

UConn. Specific contact information for the Avery Point, Greater Hartford, Stamford, Storrs, and Waterbury campuses can be found on the website: [cap.uconn.edu/sss/about](http://cap.uconn.edu/sss/about).

**UConn American English Language Institute.** UCAELI offers a full service intensive English program for students of English as a second language. Website: [ucaeli.uconn.edu](http://ucaeli.uconn.edu). Email: [register-ucaeli@uconn.edu](mailto:register-ucaeli@uconn.edu). Location: McMahan Hall; 2011 Hillside Road. Phone: (860) 486-2127.

**UConn Connects.** UConn Connects is an intervention program to help students be more successful academically. Students at the University may participate in the UConn Connects program on a semester by semester basis. Website: [achieve.uconn.edu](http://achieve.uconn.edu). Email: [uconnconnects@uconn.edu](mailto:uconnconnects@uconn.edu). Location: John W. Rowe Center for Undergraduate Education, Room 217. Phone: (860) 486-4889.

**Veterans Resources.** The Office of Veterans Affairs and Military Programs provides support for our veterans, guardsmen, reservists, active duty, and dependents as they adjust to the academic and social terrain at the University. Specific information regarding veterans' financial aid is available through the Office of Veterans Affairs and Military Programs. Their office is located in Arjona, Room 340. Website: [veterans.uconn.edu](http://veterans.uconn.edu). Email: [veterans@uconn.edu](mailto:veterans@uconn.edu). Phone: (860) 486-2442.

**Writing Center.** A faculty-led staff of tutors from disciplines across the university, are available to support students at all stages of the writing process. Website: [writingcenter.uconn.edu](http://writingcenter.uconn.edu). Email: [writingcenter@uconn.edu](mailto:writingcenter@uconn.edu). Location: Homer Babbidge Library, Level 1, Room 108. Phone: (860) 486-4387.

## Academic Records

**Confidentiality of Records.** The Family Educational Rights and Privacy Act of 1974, as amended, protects the privacy of educational records, establishes the students' rights to inspect their educational records, provides guidelines for correcting inaccurate or misleading data through informal and formal hearings, and permits students to file complaints with the Family Policy Compliance Office of the U.S. Department of Education concerning alleged failures of the institution to comply with this Act. In compliance with this Act, the University of Connecticut publishes detailed FERPA information at: [ferpa.uconn.edu](http://ferpa.uconn.edu) and sends notification to students via email.

**Graduation Rate.** The Student Right to Know Act of 1990 requires each institution to make available the graduation rates, within six years, of entering freshmen classes. For the University of Connecticut Fall 2009 entering freshmen, the graduation rates by the summer of 2015 were: entered at Storrs is 83%; entered at a regional campus 56%. Non-graduates may have completed degrees at other institutions.

**Certifications.** Students needing certification of enrollment or academic status for loan deferments, job procurement, scholarships, insurance, international student I.D. cards, licensing exams, admission to graduate school or other purposes may obtain the necessary documentation from the Office of the Registrar or through the use of the Student Administration System via the internet.

**Official Transcript Requests.** Students at Storrs and the regional campuses can request official transcripts of their academic records by writing to the University of Connecticut, Office of the Registrar, Wilbur Cross Building, Unit 4077T, Storrs, CT 06269-4077. Requests can also be faxed to the Registrar at (860) 486-0062. All requests should include full name, date of birth, Student Administration System USER ID (if known), dates of attendance, complete and accurate addresses of transcript recipients including ZIP codes, and the requester's address, telephone number, and email address in the event that there is a problem with the request. All requests, including faxes and email attachments must be signed. Students can also request official transcripts through the Student Administration System.

Request forms can be completed at the Office of the Registrar in the Wilbur Cross Building and submitted for processing. These forms are also available at the regional campus registrars' offices for mailing or faxing to the University Registrar at Storrs. An online version is available through the Transcript Request link at [registrar.uconn.edu/forms](http://registrar.uconn.edu/forms).

Students can request that their transcripts be sent to themselves. Note, however, that such transcripts are stamped "issued to student in a sealed

envelope” and the envelope bears a similar stamp and a signature. Students are advised that some recipients will not accept transcripts that have not been sent directly to them.

For Priority/Express mail service, the request must be accompanied by a pre-paid and pre-addressed envelope(s). Carriers available are U.S. Postal Service, FedEx and DHL. All arrangements must be made by the requestor.

There are other restrictions to this service. Official transcripts may be withheld if financial or other obligations to the University remain unmet. Since official transcripts are issued on security paper they cannot be faxed. The University cannot honor telephone or ordinary email requests for transcripts.

**Unofficial Transcripts.** Any student can obtain an unofficial transcript via a computer that has internet access by logging on to the Student Administration System using their unique NetID and password. Unofficial transcripts are also available at the Office of the Registrar at Storrs or at any of the regional campuses; however, students should call the regional campus registrar in advance to make arrangements for transcript pickup.

## Financial Aid

The primary role of the Office of Student Financial Aid Services (OSFAS) is to reduce the financial barriers that limit access to a higher education at the University of Connecticut. This is accomplished through the offering of financial aid packages to eligible students that consist of scholarships, grants, loans, and part-time employment. While students and parents are primarily responsible for funding a UConn education, the OSFAS makes every effort to provide assistance in the event that income from family, wages, savings, and other financial resources are insufficient to cover the cost of a UConn education.

### How to Apply for Financial Aid

Complete the Free Application for Federal Student Aid (FAFSA) at: [fafsa.ed.gov](http://fafsa.ed.gov). UConn’s on-time application deadline is March 1. Students whose applications are received after the deadline may not be eligible for certain types of financial aid.

**Submit required documentation.** In the event that your FAFSA is selected for verification by the U.S. Department of Education, be prepared to submit documentation to the Office of Student Financial Aid Services (OSFAS) in order to substantiate the data reported on your FAFSA.

You will be notified via your University email account if additional documentation is required to continue processing your financial aid application. Upon notification, access the ‘View Financial Aid’ link in the Student Administration System to determine what information must be submitted to the OSFAS. Additional information about the verification process is available at [financialaid.uconn.edu/verification](http://financialaid.uconn.edu/verification).

**Accept your awards.** Upon notification via your University email account that your financial aid award is ready for review/action, access the Student Administration System to accept/decline your financial aid award and complete all steps in the ‘View Financial Aid’ link. Continuing students who have submitted all required documentation will receive their award notification beginning in April.

**Maintain Satisfactory Academic Progress.** Federal Regulations require the OSFAS to review the academic progress of students who apply for and/or receive financial assistance. All aid applicants are required to maintain a designated grade point average (GPA) and satisfactorily complete a percentage of the number of credit hours attempted. A complete text of these requirements is available at [financialaid.uconn.edu/sap](http://financialaid.uconn.edu/sap).

For more information about the financial aid process, including important deadlines, please visit [financialaid.uconn.edu](http://financialaid.uconn.edu).

## Student Identification

**Net ID.** HuskyCT and University email each require the use of a Net identification number and a password. The NetID and password become important tools to be used to register for classes, obtain grade transcripts and schedules, and change contact information. Questions regarding NetID and password should be referred to the UITS Help Center.

**Student Administration System.** Each student is assigned a randomly selected, unique USER ID number which is used primarily by administrative offices as an identifier in the Student Administration System.

**One Card.** Each student is issued a photo identification card. The card is used to obtain services such as dining, residential life, and library. It is also the identifier used to gain entrance to some campus social events. The initial card is obtained at the One Card Office, as are replacements.

**Social Security Number.** The social security number (SSN) is collected to enable the University to comply with federal requirements mandated under IRS tax laws and the Title IV student aid legislation and for other administrative purposes. The University assigns each student a unique identifier that is not the SSN that is used for most administrative purposes. If the SSN appears incorrectly on any University document, the undergraduate student must present a social security card indicating the correct number to the Office of the Registrar.

**Reporting Name and Address Changes.** Undergraduate students must report any change of name and commuting or permanent address at the time such change occurs to the Office of the Registrar. Name changes require official documentation. Changes made by the Registrar’s staff will update the information that appears on the University website’s Directory of students’ names and addresses.

Changes to current mailing address and telephone number can be made through use of the Student Administration System via the internet.



# Academic Regulations

*By accepting admission, the student assumes responsibility for knowing and complying with the regulations and procedures set forth by the University.*

## University Requirements

The Board of Trustees awards the degrees of Bachelor of Arts, Bachelor of Science in Engineering, Bachelor of Fine Arts, Bachelor of Music, Bachelor of Science and Bachelor of General Studies to students who have completed the degree requirements of a school or college. Students can find their degree requirements in the section of the *Catalog* devoted to their school or college.

### Required Credits

The University requires all students to complete at least 120 credits toward the degree. Some schools require more than 120 degree credits for graduation.

### Required GPA

The University requires that all students have a cumulative grade point average (GPA) of at least 2.0 at the time of graduation. However, some of the schools and colleges require higher averages. Students should refer to their school or college requirements to determine the minimum cumulative GPA required.

### University-Wide Residence Requirement

It is expected that advanced course work in the major will be completed in residence. Students must earn a minimum of thirty credits in residence toward a degree at the University, though particular schools and colleges may require more. Courses taken at the University and through the University's Education Abroad and Early College Experience programs are all deemed in-residence. Students desiring to transfer credits should be aware of residence requirements in the individual schools and colleges, and should request necessary permissions in advance. Students seeking exceptions to any additional residence requirements of a school or college must petition the dean or director of the appropriate program from which they will earn their degree.

### Immunization Requirement

Student Health Services sends health report forms to entering students. Students' physicians must sign these forms signifying that the student is free from active tuberculosis and immunized against rubella and measles. Students must complete the forms and return them directly to the University Health Services before registering.

### Time Limit

All students wishing to apply toward a degree the credits earned more than eight years before graduation must have permission from the dean of the school or college concerned. The permission, if granted, applies only to the current school or college.

### Applicability of Requirements

Students graduating from a school or college must meet the requirements as they were at the time the student entered, or as they were at any subsequent time. Candidates who transfer from a school or college and then return must meet the requirements as they were at the time the student returned, or as they were at any subsequent time. Students who withdraw (except those on official leave of absence) or are dismissed from the University and later return must meet the requirements as they were at the time the student returned, or as they were at any subsequent time.

### Exemptions from, and Substitutions for, University Requirements

Students seeking an exemption from a University requirement, or wishing to substitute another course for the course prescribed, should consult their academic dean. To effect a change, the dean must recommend the change, and the Vice Provost for Undergraduate Education must approve it. Transfer students wanting exemptions or substitutions should request them of their academic dean as they enroll.

## Course and Credit Information

### Course Numbers

Course numbers show the level of the material presented. The numbers and the academic levels follow:

- 0000-0999 courses in the Ratcliffe Hicks School of Agriculture, may not be taken for degree credit by Baccalaureate students.
- 1000-1999 introductory courses, usually with no prerequisites, primarily intended for Freshmen and Sophomores.
- 2000-2999 courses, usually with no more than one prerequisite, primarily intended for Sophomores.
- 3000-3999 advanced undergraduate courses primarily intended for Juniors and Seniors.
- 4000-4999 advanced undergraduate courses primarily intended for Seniors.
- 5000-5999 entry-level and intermediate Graduate courses.
- 6000-6999 advanced Graduate courses.
- 7000-7999 Law School courses.

Unless their school or college has more stringent requirements, undergraduate seniors with a cumulative grade point average of 2.6 or above may take 5000-level courses. Other undergraduates must have the permission of the instructor and the student's academic dean to enroll in a 5000-level course.

### Syllabi

Faculty shall provide syllabi to students in their courses, including internships and independent studies. Syllabi shall specify what will be taught, how it will be taught, how learning will be assessed, and how grades will be assigned.

### Consent Courses

Many University courses require consent of the instructor for enrollment. The course directory section of this *Catalog* specifies the required signatures.

### Enrollment Requirements

#### Prerequisites and Corequisites

The term prerequisite implies a progression from less advanced to more advanced study in a field. Students must satisfy the prerequisite(s) before registering for the course, unless exempted by the instructor. Corequisite courses must be taken concurrently. When a course is listed as both a prerequisite and a corequisite, it may be taken prior to or concurrently with the other course.

Prerequisites taken out of sequence within a single department shall not count towards degree credit unless the head of the department offering the course grants an exception. For example, assume that courses A and B are in the same department and A is prerequisite to B. If the instructor permits the student to take B without having taken A, and the student passes B, the student may not take A for credit without permission. The student seeking credit for A must have the permission of the head of the department offering the course. The department head must notify the Registrar in writing.

#### Restricted Credits

Students should read carefully the course descriptions in the *Catalog* before they register because some of the course credits may not count toward graduation. Some examples of credit-restricted courses are:

- Only six credits from PHIL 1101, 1102, 1103, 1104, 1105, 1106, 1107
- Not both STAT 1000 and STAT 1100

Students who have had three or more years of a foreign language in high school cannot receive credit for the elementary language courses in that same language. However, transfer students who were placed in an elementary language course through a proficiency exam at another institution of higher learning may contact the Literatures, Cultures and

Languages Department Head about permission to receive credit for the elementary language courses.

Course restrictions also apply to independent study courses (see Independent study, special topics, and variable topics courses), repeated courses (see Repeating courses), and prerequisites taken out of sequence (see Prerequisites).

In credit-restricted courses, the earned credits are reduced on the transcript. However, full credit will be used in the determination of full-time status and in the calculation of grade point averages.

### Recommended Preparation

Denotes that the instructor will assume that students know material covered in the course(s) listed. Students who register for a course without the recommended background may experience difficulties and are encouraged to consult with the instructor prior to registration.

### Satisfying Course Requirements by Examination

A student may, with the permission of their academic dean, meet school or college course requirements by examination. The student earns no credit. The department offering the course gives the examination.

### Independent Study and Special and Variable Topics Courses

Students wishing to study a subject independently, for credit, must find an instructor to supervise the project. The instructor and the student then agree on the number of credits the student may earn. The student must complete an Independent Study Authorization Form (available for pick-up at the Office of the Registrar or registrar.uconn.edu/forms), have it signed and deliver it to the Registrar's Office. Without special permission, students may not register for or earn toward the degree more than six credits each semester in any one or combination of independent study, special topics, and variable topics courses. To increase this limit, students must consult with their advisor and get the permission of their academic dean.

### Repeating Courses

Any student who is regularly registered for courses and who satisfies the requirements shall receive credit except that no student shall receive credit for the same course twice, unless it is specifically stated, as in a variable content course. Courses with the same number that cover the same course content cannot be counted more than once for credit. The parenthetical phrases (Formerly offered as...) and (Also offered as...) that follow a course title as a cross reference indicate that a student may not take both the course and the cross-referenced course. A student is regularly registered for a course only if he or she has conformed to all university or college regulations or requirements applying to registration for the course.

A student may repeat a course previously taken one time without seeking permission in order to earn a higher grade. The student may take the course a third time with the permission of the dean of the school or college in which the student is enrolled and the instructor of the course. Under no circumstances may a student take a course more than three times.

When a student repeats a course, credit shall be allowed only once. Furthermore, in the computation of the grade point average, the registered credit and grade points for the most recent taking of the course shall be included in the GPA calculation and the registered credit and grade for the prior taking of the course shall remain on the transcript, but shall be removed from the GPA calculation.

The student should note that repeating a course that was previously passed can have negative consequences. For example, if a student fails a course previously passed, the student would lose credit for the first, passed, attempt and not earn credit for the second, failed, attempt. Repeating a previously passed course may also have an effect on financial aid. Students considering repeating previously passed courses should consult their advisors and Student Financial Aid Services staff.

When a student repeats a course after receiving a degree, the student's transcript will indicate a grade, but no registered credit, for the repeated course. The grade and registered credit recorded for the course prior to receipt of the degree shall continue to be included in the GPA and credit calculations.

A student must have department head permission to repeat a course that is listed as a prerequisite or corequisite for any course that the student has

passed. For example, a student who received a D in CHEM 1127Q and subsequently passed CHEM 1128Q may not retake CHEM 1127Q without permission.

### Earning Course Credits by Examination

The student should obtain a *Petition for Course Credit by Examination* from the Office of the Registrar or registrar.uconn.edu/forms, pay the Credit by Examination fee at the Bursar's Office, and take the form to the instructor of the course and the department head for review of the student's academic qualifications and approval to take the exam. The student must then take the form to the student's academic dean for final approval. When all approvals have been obtained, the student must take the form to the academic department to arrange for the examination.

When acceptable candidates apply, departments arrange examinations once a semester, as shown in the University calendar. The course instructor prepares and grades the examination. The student writes the answers unless the material makes an oral or performance examination more appropriate. Examinations in laboratory courses test the student's mastery of laboratory techniques. Students may not elect the Pass/Fail option when taking an examination for course credit. Posted grades are from A to D- with the corresponding grade points, and if the student fails the examination, the Registrar does not record a grade. If the department permits, students may review past examinations.

Students may not:

- take an examination for credit if they previously covered a substantial portion of the material in a high-school or college course for which the University granted credit.
- earn credits by examination for any course they have failed, by examination or otherwise.
- earn credits by examination for ENGL 1003, 1004, or for 1000-level foreign language courses. Schools and Colleges may exclude other courses from course credit by examination.
- earn by examination more than one-fourth of the credits required for the degree.

### Advanced Placement

Various academic deans have approved Advanced Placement Examinations as a basis for granting advanced standing to students at the time of admission. The department teaching the subject matter covered by the test determines whether the student (1) receives full credit for a specific course, or (2) may use a specific course in meeting prerequisite requirements for more advanced courses or in fulfilling course requirements for graduation, or (3) neither of the preceding alternatives. See College Board AP Examination Transfer Guidelines chart on the next page.

### Transfer Credits for Continuing Students

Students who wish to take courses elsewhere and apply the credits toward their degrees should consult their advisor, their academic dean and the Transfer Admissions Office beforehand. Otherwise, the credits may not apply toward the student's degree. The student must complete the Prior Approval Process and submit an official transcript as soon as coursework is completed to the Transfer Admissions Office. Students must meet the University-wide residence requirements, as well as the residence requirements of their individual school or college.

Transfer courses must have a grade of "C" (2.0 on 4.0 scale) or above in order to transfer. Grades and grade points do not transfer. If the student earns grades of "P," "CR," or the like, for work completed elsewhere, the student must provide the Transfer Admissions Office with official letter grade equivalents to have the work evaluated.

### Registration

All students must register on the dates announced and pay the succeeding semester fee bills as due. Failure to pay by the payment deadlines may result in sanctions, including, but not limited to cancellation of courses and removal from residence halls. Before registering, students must consult their academic advisors.

Students may take courses at any campus: Avery Point, Greater Hartford, Stamford, Storrs, and Waterbury. However, students must be registered for

## College Board AP Examination Transfer Guidelines

AP Exam	Score	UConn Course Equivalent Granted	Credits Granted
Art: Drawing	4, 5	ART/Studio 1000-level	3
Art: 2-D Design	4, 5	ART/Studio 1000-level	3
Art: 3-D Design	4, 5	ART/Studio 1000-level	3
Art History	4, 5	ARTH 1137 and 1138	6
Biology	4, 5	BIOL 1107 and 1108	8
Chemistry	4, 5	CHEM 1127Q and 1128Q	8
Chinese Language and Culture	4, 5	CHIN 1114	4
Computer Science	4, 5	CSE 1000-level	3
Economics: Macroeconomics	4, 5	ECON 1202	3
Economics: Microeconomics	4, 5	ECON 1201	3
English Language or English Literature	4, 5	ENGL 1011	4
Environmental Science	4, 5	NRE 1000	3
French Language	4, 5	FREN 3267	3
French Literature	4, 5	French Literature 2000-level	3
Human Geography	4, 5	GEOG 1000	3
German Language	4	Placement into 2000-level course	No credit
German Language	5	GERM 3233	3
Comparative Government and Politics	4, 5	POLS 1202	3
U.S. Government and Politics	4, 5	POLS 1602	3
American History	4, 5	HIST 1502	3
European History	4, 5	HIST 1400	3
World History	4, 5	HIST 1201	3
Italian Language and Culture	4, 5	ILCS 3239	3
Latin Literature	4, 5	CAMS 2000-level	3
Latin – Vergil	4, 5	CAMS 2000-level	3
Mathematics AB	4, 5	MATH 1131Q	4
Mathematics BC	3	MATH 1131Q	4
Mathematics BC	4, 5	MATH 1131Q and 1132Q	8
Music	4, 5	MUSI 1011	3
Physics 1	4, 5	PHYS 1201Q	4
Physics 2	4, 5	PHYS 1202Q	4
Physics C Elec and Magnet	4, 5	PHYS 1502Q	4
Physics C Mechanics	4, 5	PHYS 1501Q	4
Psychology	4, 5	PSYC 1000-level	3
Spanish Language	4, 5	SPAN 3178	3
Spanish Literature	4, 5	Spanish Literature 2000-level	3
Statistics	4, 5	STAT 1100Q	4

the majority of their credits at their home campus. The home campus is the campus to which the student was admitted unless an authorized campus change has taken place.

### Placement Testing

Depending on the student's preparation and course of study, some schools and colleges require entering students to take tests in mathematics, foreign languages and English.

### Full-Time and Part-Time Registration

Full-time students register for at least 12 credits and continue to carry at least 12 credits through the end of the semester or the summer term.

Courses with restricted credits (see Credit Restrictions) have all credits counted in computing the Semester Credit Load, but only unrestricted credits count toward the degree. Unresolved marks from a previous semester and/or courses currently being audited are not counted in computing the Semester Credit Load.

Part-time students are those enrolled for fewer than 12 credits. Enrolling for fewer than 12 credits requires the written approval of the student's academic dean. Part-time students must obtain permission from the Dean of Students or designee to participate in any extra-curricular activity involving intercollegiate competition. Students considering taking fewer than 12 credits should consult their advisor and read carefully the rules governing scholastic probation and dismissal, financial aid and housing. They also should ask if their part-time status will affect their social security, their insurance and related matters.

### Maximum Number of Credits Students May Take Per Semester

To register for more than the maximum credits listed below, the student must obtain permission from the student's advisor and academic dean.

- Engineering, Fine Arts, and Pharmacy: 19 (21 if fifth semester or above and earned 2.6 SGPA or above the previous semester)
- All other schools and colleges: 17 (18 if earned 2.6 SGPA or above the previous semester or taking National Defense courses)

In all schools and colleges, except Engineering, Fine Arts, and Pharmacy, a freshman or sophomore in the Honors Program who has, or will have, earned a minimum of 18 credits at the time of enrollment and has met the minimum excess credit requirement for the University may register for or be enrolled in a maximum of 19 credits. Honors juniors and seniors who have earned a grade point average of at least 3.0 for the last semester for which grades are available, may enroll in up to 21 credits.

A form for obtaining permission to take more than the maximum number of credits is available from the Registrar at: [registrar.uconn.edu/forms](http://registrar.uconn.edu/forms).

For five or six-week Summer Session, the maximum is eight credits. For three-week terms, the maximum is four credits.

### Adding or Dropping Courses

Registration information can be found on the website of the Office of the Registrar at [registrar.uconn.edu/registration](http://registrar.uconn.edu/registration). Within the following regulations, students may revise their course schedules on days and at hours specified by the Office of the Registrar. Though classes may be scheduled on weekends, these are not factored into the following regulations.

Students must consult with their academic advisor prior to adding or dropping courses. The table on the following page offers further clarification.

If a particular course requires consent, a student must obtain that consent before adding the course.

Students may add courses during the first 10 days of classes without special permissions. In exceptional cases only, a student may add courses after the tenth day of classes with the consent of the student's advisor, the course instructor, and the head of the department or program offering the course. After the fourth week, the permission of the student's academic dean or his/her designee is also required for adding classes.

Students may drop courses before the end of the tenth day of classes. After the tenth day of classes and through the ninth week, a student may drop one course for any reason with permission from the student's advisor.

## Undergraduate Schedule Revision Regulations

### Adding Courses

Semester Period	Add
First and second weeks of classes	Registration
Third and fourth weeks of classes	Advisor, Instructor, and Department Head offering the course
After the fourth week	All of the above and the Dean

### Dropping Courses

Semester Period	Single Drop	Two or More Drops
First and second weeks of classes	Registration with NO "W" grade *	Registration with NO "W" grade *
Third through ninth weeks of classes	Advisor with "W" grade	Advisor and Dean with "W" grade
After the ninth week	DEAN Exceptions made only for extenuating circumstances	

\* Students should be made aware of the rules of their individual schools and colleges for using the Registration System.

No student is permitted to drop a course after the ninth week of classes or to drop more than one course after the first 10 days of classes unless, on the recommendation of the advisor, an exception is made by the dean or designee of the school or college in which the student is enrolled. Exceptions are made only for extenuating circumstances beyond the student's control. Poor academic performance is not considered a sufficient reason for dropping a course after the ninth week. Any course dropped after the first 10 days of classes will receive a "W" on the transcript. Exceptions to transcript notations can be made only by the Provost or designee.

During the first 10 days of classes of the semester, a student may change course sections without advisor consultation. After the tenth day of classes, course section changes require the same authorizations as other add/drop transactions.

In considering a schedule with fewer than 12 credits, a student should consult with an advisor and dean or designee of the school or college in which the student is enrolled. A student considering fewer than 12 credits should note the regulations concerning part-time students, scholastic probation and dismissal, and financial aid.

A student who withdraws from a full-year course at the close of the first semester shall receive credit for the work of the first semester if the student has passed the course, unless it is announced in the catalog that the course must be taken in its entirety, in which case the credit shall be withheld until the course is completed.

Students at the University's regional campuses are subject to all regulations governing adding and dropping courses except that course instructors act for the department heads and the regional campus director or designee acts for the dean.

For courses of fewer than 14 weeks duration, the add/drop periods will be adjusted and determined by the Registrar.

When a student drops a course during the first two weeks of classes, the Registrar does not place the course on the student's record. When a student drops a course after the second week, the Registrar places the course on the student's record with a "W" (for withdrawal). After the second week of classes, adjustments to the student's schedule must be filed with the Registrar. To drop more than one course during the third through ninth week, simultaneously or cumulatively, requires the dean's signature as well as the advisor's. No student is permitted to drop a course after the ninth week of classes unless the dean makes an exception. Exceptions are made only for extenuating circumstances beyond the student's control.

### Section Changes

Section changes require the same authorization as other add/drop transactions.

### Registration in Courses Labeled "Credits and Hours by Arrangement"

The student and the instructor agree on the number of credits the student expects to earn and the student enters the number of credits when registering. If the number of credits a student expects to earn changes during the semester, the instructor must report the change to the Office of the Registrar as soon as possible, by memo, class list or grade sheet.

### Auditing Courses Without Credit

Students wanting to have the fact that they were exposed to the material in a course recorded on their academic record, but not receive either credit or a grade, may choose to audit a course. The student may participate in the course as the instructor permits. In place of a grade, the record will show AU.

All students planning to audit a course must get an Audit Card from the Office of the Registrar or registrar.uconn.edu/forms, complete it, and file it with the Registrar. To complete the card, they must consult their advisor and get the instructor's consent. Students changing a course from credit to audit after the second week of classes receive both W (for Withdrawal) and AU marks on their academic records. The instructor may disenroll a student not meeting the auditing criteria set forth by the instructor.

Part-time students must pay the same fee to audit a course as they would pay if they took the course for credit.

### Failure to Register

Students must enroll in a course to attend the class. Instructors with unenrolled students in a class should tell the students they should add the course to attend and notify the Registrar. Unenrolled students will earn no credit for courses or parts of courses completed. Students who have paid their fees may register late with the permission of the student's advisor, instructors, department heads of the departments offering the courses and the student's academic dean.

### Improper Registration

Students who discover they are not eligible for a course in which they have enrolled, should consult their advisor and drop the course as soon as possible. Upon recommendation of an advisor, instructor, department head or dean, the Registrar may remove students from courses for which students are not eligible to enroll.

### Denial of Space for Non-Attendance

A student who is enrolled in, but does not attend any classes or laboratory meetings during the first ten days of classes may be denied a place in the course. Such non-attendance, or non-attendance later in the semester, does not constitute withdrawal; the student must officially drop the course by regular procedures or risk being assigned a failing grade.

## Grade Information

### Class Attendance

The instructor describes the computation of the grades and the relation between grades and attendance at the beginning of the semester. Where grades depend on classroom participation, absences may affect the student's grade. However, if a student were absent and the instructor reduced the grade, the reduction would be due to lack of class participation, not the student's absence. Except for final examinations, instructors have final authority in permitting students to submit assignments late or make up examinations.

### Final Examinations

Instructors of undergraduate courses shall provide a clear form of assessment of student work that shall be consistent with and sufficient for the learning goals of the course.

**Grades, Grade Points, Credits, and Skills**

Explanation	Final Grades	Grade Points	Course Credits	Skills
Excellent	A	4.0	yes	yes
	A-	3.7	yes	yes
Very Good	B+	3.3	yes	yes
Good	B	3.0	yes	yes
	B-	2.7	yes	yes
	C+	2.3	yes	yes
Average	C	2.0	yes	yes
Fair	C-	1.7	yes	yes
Poor	D+	1.3	yes	yes
	D	1.0	yes	yes
Merely Passing	D-	0.7	yes	yes
Failure	F	0	no	no
Pass/Fail Pass	P@	N/A	yes	no
Pass/Fail Failure	F@	N/A	no	no
Satisfactory	S	N/A	yes	no
Unsatisfactory	U	N/A	no	no
Audit	Au	N/A	no	no
Withdrawal	W	N/A	no	no
Continuing Registration	N/A	N/A	N/A	N/A

During the semester or term, examinations shall be held only during regularly scheduled class periods. Permission for exceptions to this rule may be granted by the deans or designees of the school or college in which the course is offered. Exceptions must be granted prior to the start of registration. Sections of courses for which such exception has been granted shall carry a footnote to that effect in the published Schedule of Classes. In the event of student absences from assessments given during the semester, decisions regarding possible make-up assessments shall be the prerogative of the instructor.

In-class final examinations must be given in the places and at the times scheduled by the University. In the case of online final examinations, though faculty may choose to make examinations available an extended period of time, students must be allowed the opportunity to take the examination during the time scheduled by the University.

Each instructor shall determine for his or her own courses the weight to be assigned to the final assessment in computing the semester grade of a student. Each instructor in charge of a course will assume responsibility for proctoring in-class assessments, including those during finals week.

**Final Examinations for Courses Given at Non-standard Times**

In undergraduate courses scheduled by arrangement or at non-standard times, final examinations must be given during the same scheduled week as courses scheduled at standard times. Instructors of graduate courses scheduled by arrangement may schedule the final examination during the final examination period, provided (1) space is available, (2) no student will have a conflict and (3) no student has more than two examinations in one day.

**Absences from Final Examinations**

A student who is prevented by sickness or other unavoidable causes from completing a scheduled final assessment must apply to the Dean of Students or designee for validation that will authorize the student's instructor to give a substitute assessment. A student whose absence is excused by the Dean of Students or designee shall have an opportunity to complete a substitute assessment without penalty. A student whose absence from a scheduled final assessment is not excused in this way shall receive a failure for this assessment.

**Rescheduling Final Examinations**

Students should check their final examination schedule to see if they have either: a) four examinations in two consecutive calendar days, b) three examinations in one calendar day, or c) three examinations in consecutive time-blocks spanning parts of two consecutive days. If any of the above apply, they may request the Dean of Students Office to rearrange their schedule. In all cases concerning the rescheduling of bunched final exams, the student must present a note of permission granted by the Dean of Students Office, whose prerogative it is to determine which of the bunched examinations may be rescheduled.

**Grade Point Formulas**

Grade points for courses graded A-F are the product of the course credits and the points per credit for the grade earned. For example, given a B- for a 3-credit course, points earned for the course are 8.1 (2.7 x 3). For any period, the total grade points for the courses graded A-F divided by the total credits give the grade point average. The term GPA includes all courses graded A-F in a semester or summer session. The cumulative GPA averages all courses graded A-F.

If a student repeats a course that may not be repeated for credit, the Registrar records the grades for both attempts. If the repeat occurred prior to Summer Session 2002, both attempts are included in the GPA calculations. If the repeat occurred after Spring 2002, only the second attempt is included in the GPA calculations although both grades appear on the transcript. The student should note that when a lower grade is earned on the second attempt, the lower grade is the one that is used in the calculations.

Students withdrawing from a full-year course at the close of the first semester will, if they have passed the first part of the course, receive credit for the work of the first semester, unless the course description states otherwise.

**The Dean's List**

At the end of each semester the Dean of each school and college names to the Dean's List those students who (1) were registered for at least 12 credits calculable for grade points, (2) received no grade below C, including the actual letter grade awarded in any course under the Pass/Fail option, (3) earned at least 3.0 times as many grade points as the number of calculable credits recorded by the Registrar, and (4) were in at least the upper quartile of their school or college.

Undergraduate students whose disabilities warrant the adjustment of carrying less than a full-time course load per semester can be determined eligible for Dean's List status. The Center for Students with Disabilities will notify the Registrar each semester regarding students who are eligible.

Annually, at the conclusion of the Spring semester, the deans of the various schools and colleges shall issue a list of those degree-seeking students who did not attain full-time status at any time during the previous 12 months, but who, during this 12 month period (including summer and intersession sessions) (a) were registered for a total of at least twelve calculable credits, (b) received no mark below C nor received a U in any course, (c) earned at least a 3.0 grade point average, and (d) were in the upper quartile of their respective school or college based on the Spring data. These students will receive the distinction: "Dean's List (Part-time)".

**Satisfactory/Unsatisfactory (S/U)**

In a few courses, with the permission of the Senate Curricula and Courses Committee, the instructor grades everyone in the course either S (satisfactory) or U (unsatisfactory). As these grades have no grade points they do not affect grade-point averages. Courses graded S/U may not be used to satisfy the General Education Requirements.

**Pass/Fail Option**

The University Senate, the schools, the colleges and some programs have restricted the credits placed on Pass/Fail in various ways. Thus students planning to place a course on Pass/Fail should consider the consequences carefully. The advantage to the student is that the grade for a course placed on Pass/Fail does not affect their grade point average. However, they should discuss with their advisor the immediate, the long-term, the direct, and the indirect effects.

Students who have earned at least 24 credits and are not on scholastic probation may place three courses, for no more than 12 credits, on Pass/Fail. Students may not place more than one course each semester on Pass/Fail, nor more than one during the summer, regardless of the number of summer sessions attended.

Students place courses on Pass/Fail, or remove them from Pass/Fail, at the Office of the Registrar (form can be obtained at the Office of the Registrar or registrar.uconn.edu/forms). The examining, grading and reporting do not differ from that of other students. The Registrar enters P@ if the instructor submits a passing grade and F@ if the student fails. Students must place courses on Pass/Fail during the first two weeks of the semester or the first week of the summer session. If a student, having placed a course on Pass/Fail, decides to remove it from Pass/Fail, the student must do so by the ninth week of the semester or the fourth week of summer session.

### Restrictions on Pass/Fail Courses

Courses placed on Pass/Fail do not satisfy the General Education Requirement, the major or related requirements, the skill requirements, the minor requirements, or any school or college course requirement. Pass/Fail credits may not be acceptable when a student changes majors or schools within the University. Pass/Fail credits may not be transferable to another institution.

Non-degree students must have the approval of the Director of Continuing Education to place a course on Pass/Fail. The Director grants permission only in extenuating circumstances.

Students working on a degree at another institution need written approval from their dean, or other official, at the other institution to place a course on Pass/Fail.

The Registrar does not place a student on the Dean's List if the instructor's grade for a Pass/Fail course is less than C. Note that at least 12 credits must contribute to the semester grade point average placing a student on the Dean's List. As the Pass/Fail marks have no grade points, the instructor's grade does not contribute to the grade point averages. Note also that at least 54 credits must contribute to the grade point average for students to graduate cum laude or higher.

### Restriction by School or College

Listed below are the Pass/Fail supplementary restrictions imposed by each school and college.

1. In the School of Business, students may not elect the Pass/Fail option for any of the departments of the School.
2. In the School of Education, students may not elect the Pass/Fail option for courses offered in the School of Education which are required for certification as a teacher.
3. In the School of Engineering, no course taken on Pass/Fail may be counted for credit toward graduation.
4. In the School of Pharmacy, no specifically required courses (all courses for which no alternate choice is given in the curricular listings) can be taken on Pass/Fail.
5. In the Ratcliffe Hicks School of Agriculture students may only place one course on the Pass/Fail option.

### Temporary Marks of I and X

An I or X means the student has not earned course credit at the end of the semester and may be subject to scholastic probation or dismissal.

#### I (incomplete)

The instructor reports an I if the completed work is passing and the instructor decides that, due to unusual circumstances, the student cannot complete the course assignments by the scheduled end of the term. If the student completes the work by the end of the third week of the next semester, the instructor will send the Registrar a grade for the course. Otherwise, the Registrar will convert the I to I F. Effective with spring 2004 classes, upon successful completion of a course, the I on the academic record is replaced by the permanent letter grade. If the instructor does not submit a grade the Registrar will change the grade to IF or I U.

#### X (absent from the final examination)

The instructor reports an X only when a student missed the final examination and when passing it with a high mark could have given the student a passing grade for the course. If the student would have failed the

course regardless of the grade on the final examination, the student will receive an F. If the instructor reports an X and the Dean of Students Office or designee excuses the absence, the instructor will give the student another opportunity to take the examination. The absence must be due to sickness or other unavoidable causes. The instructor must give the examination before the end of the third week of the next semester. If by the end of the third week of the next semester the instructor does not send a grade to the Registrar, the Registrar will change the X to X F or X U.

### Extensions for I and X Grades

In exceptional instances, after consulting the instructor, the Dean of Students or designee may extend the time for completing courses marked I or X.

### Other Temporary Marks

The letters N, and Y are temporary marks posted on a student's academic record when the instructor has not reported a final grade.

- N: recorded when no grade is reported for a student who has been registered in a course section; usually indicates a registration problem.
- Y: recorded when course does not end at conclusion of semester or summer session. This mark may be assigned only to courses the Senate Curricula and Courses Committee specifically approves. It is not intended as an alternative to the I or X.

N, X, and Y temporary marks are replaced on the academic record by the actual grade when submitted by the instructor. An N mark which remains unresolved will become NF and be computed as an F at the end of the third week of the next semester. If no grade is submitted for a mark of X, the mark will automatically revert to a grade of F or U and will be shown as X F or XU.

Temporary marks I, X, N, Y do not prevent the calculation of either the semester or the cumulative grade point average.

Temporary marks I, X, and N do not represent earned credit. A student placed on probation with unresolved grades will be relieved of probation status if satisfactory completion of the work places his or her academic performance above the probation standards. See section on Scholastic Standards.

### Grade Reports

Instructors of 1000 and 2000-level courses notify the Registrar by the end of the sixth week of the semester of students who appear to be in danger of earning D, F, U or N grades. The Registrar alerts the students, their advisors, and others, such as the First Year Programs Office, as appropriate, via the University's e-mail system. These reports are not part of the permanent record. They are designed to be of diagnostic aid to the student. If a student is doing unsatisfactory work, the full responsibility for improvement is left to the student. The student is strongly advised, however, to confer with his or her advisor, with the instructors concerned, and with others qualified to assist him or her in improving his or her standing in the University. At the end of each semester, students may view their grades on the Student Administration System at student.studentadmin.uconn.edu.

### Changes of Course Grades

Grades are part of the student's permanent record. Therefore they are not changed for reasons unrelated to course requirements or quality of work. An instructor may neither accept additional work nor give additional examinations once the grade in the course has been submitted. Nevertheless, there can be situations in which course grades may and ought to be changed. These comprise computational errors, clerical errors, and the discovery of overlooked components in a student's body of work. In cases when the instructor of record concludes that a course grade ought to be changed, he or she determines a corrected grade and initiates the grade change process. The grade change must be approved by the head of the department offering the course (in departmentalized schools or colleges) and the dean of the school or college in which the course is taught in order to monitor grade changes and ensure that they are based only on the considerations mentioned above. If a grade change is approved, the dean will notify the instructor, student, and registrar in writing.

## Appeals of Assigned Course Grades

A student who believes that an error in grading has occurred and wishes to request a review by the instructor of record must do so within six months of the course grade having been posted. If the instructor of record cannot be contacted, the student should contact the Department Head. If the instructor agrees that a change is justified, the instructor will initiate the grade change according to the procedure described above. Individual schools and colleges may have more stringent requirements.

If a student requests a review of a course grade and the instructor believes that the original grade is correct, the student may appeal the decision to the head of the department in which the course is taught within 30 days. The department head will seek input from the instructor and the student. If this process results in agreement by the instructor that a grade change is justified, the instructor will initiate the grade change. If the instructor and the department head agree that a grade change is not justified, the department head shall notify the student in writing with a copy to the instructor.

If the student is dissatisfied with the appeal decision, the student may request, within 10 days, through the dean of the school or college in which the course is taught, a review by the Faculty Grade Change Review Panel. If the department head thinks that a grade change is justified but the instructor does not agree, the department head shall request, through the dean of the school or college in which the course is taught, a review by a Faculty Grade Change Review Panel.

The Faculty Grade Change Review Panel is composed of three full-time faculty members appointed by the dean of the school or college in which the course is taught. The panel convenes a hearing within 10 working days of notification of a case. Both the appealing student and the course instructor should be present at the hearing. The student is afforded an opportunity to state the grounds on which he or she is appealing the grade. The instructor is afforded the opportunity to document the basis on which the grade was awarded. Both parties may present supporting evidence and/or request testimony of others. The panel may also request input from the department head. The Review panel will send a written report of the decision to the instructor, the student, the department head, and the dean of the school or college offering the course. If the panel recommends a grade change, it sends the Registrar a change of grade request signed by all the members of the Review Panel. The decision of the Faculty Review Panel shall be considered final.

## Program and Campus Changes

### Change of School

Students wishing to change from one school or college to another should consult their advisor and the dean of the school or college the student wishes to enter. Students may get a School Change Petition from the office of a dean or from the Office of the Registrar or [registrar.uconn.edu/forms](http://registrar.uconn.edu/forms). The applicant should give the completed Petition to the dean of the school or college the applicant wishes to enter.

Students who transfer out of a school or college may no longer continue under the requirements of that school or college. If they transfer back into that school or college they may no longer continue under earlier requirements. When students change schools their catalog year for the second school is the year of the change, unless the dean of the school to which they transfer makes an exception.

### Change of Major within a School or College

All students wanting to change majors should consult their academic dean, or for, College of Liberal Arts and Sciences students, their Academic Services Center.

### Change of Campus

Most University programs require completion of 54 earned credits in order to change from a regional campus to the Storrs campus. Rare exceptions to the campus change requirements are made for extenuating circumstances only and require approval from the Student Services Center at the student's regional campus. Storrs students who wish to change to a regional campus should contact the Office of the Registrar. The Campus Change form is available at [registrar.uconn.edu/forms](http://registrar.uconn.edu/forms).

## Graduation

### Tentative and Final Plans of Study

Except for students in the Schools of Nursing and Pharmacy, all students must consult with their advisors in completing a tentative Plan of Study form. The Plan of Study describes how the student intends to satisfy the requirements for the degree. Students should get the form from the dean of their school or college, consult with their advisor and file the completed form with their major department. Students should file the tentative Plan of Study as soon as possible.

Students must submit a final Plan of Study form during the first four weeks of the semester in which the student expects to graduate. The major advisor and the department head must sign the form before the Registrar receives it. The signatures indicate that the advisor and department head believe that the program meets degree requirements. The student's program is still subject to audit by the degree auditor to insure the student has met all requirements. The degree auditor will notify the student if a problem is discovered with the final Plan of Study.

### Minors

A minor is available only to a matriculated student currently pursuing a baccalaureate degree. While not required for graduation, a minor provides an option for the student who wants an academic focus in addition to a major. Unless a higher standard is noted in the description of a specific minor program, completion of a minor requires that a student earn a C (2.0) grade or better in each of the required courses for that minor. The same course may be used to meet both major and minor course requirements unless specifically stated otherwise in a major or minor. Substitutions are not possible for required courses in a minor. A plan of study for the minor signed by the department or program head, director, or faculty designee must be submitted to the Office of the Registrar during the first four weeks of the semester in which the student expects to graduate. All available minors are listed in the "Academic Degree Programs" section and described in the "Minors" section of this *Catalog*.

### Application for Degrees

To graduate, candidates must apply to graduate by the due dates specified by the Office of the Registrar. Candidates apply through the Student Administration System. Additional information pertinent to graduation is available through the Steps to a Successful Graduation website: [registrar.uconn.edu/graduation](http://registrar.uconn.edu/graduation). This application is essential for graduation. Candidates failing to file the application on time may not: (1) be granted a degree on the date expected even though they fulfilled all other requirements for the degree; (2) have their names printed in the Commencement Program; (3) have their names listed in hometown newspapers as graduating; or (4) receive information about and tickets for the Commencement ceremony.

### General Graduation Honors

Graduating seniors are eligible for cum laude designations on diplomas and transcripts if their complete academic records show at least 54 calculable credits at the University and meet the following criteria:

- cum laude: at least a 3.0 total GPA (grade point average) and a class rank in the 75th percentile or above in the student's school or college.
- magna cum laude: at least a 3.4 total GPA (grade point average) and a class rank in the 85th percentile or above in the student's school or college.
- summa cum laude: at least a 3.7 total GPA (grade point average) and a class rank in the 95th percentile or above in the student's school or college.

General graduation honors for students meeting requirements at the conclusion of the summer sessions or the fall semester will be based on the grade point average cut-off points used for the previous spring semester to establish class rank in each school or college.

### Conferring of Degrees

The Board of Trustees awards degrees only to students in good standing who have met their obligations to the University. Students who do not

Traditional	Semester Standing	Earned Credits
Freshman	1	0 - 11
	2	12 - 23
Sophomore	3	24 - 39
	4	40 - 53
Junior	5	54 - 69
	6	70 - 85
Senior	7	86 - 99
	8	100+
	9	117 - 133 (Pharmacy)
	10	134+ (Pharmacy)

complete requirements for the degree by one conferral date may qualify for the next conferral date by satisfactorily completing all graduation requirements.

The Board of Trustees confers degrees three times annually: Commencement Day in May, August 24 and the Sunday following the end of final exams in December. Candidates meeting the requirements before the conferral date and needing verification may ask for a "Completion Letter" from the Office of the Registrar.

## Commencement

The University has one commencement in May each year, following the Spring semester. Students who received degrees at the end of the previous summer or Fall semester and students who anticipate completing degree requirements by the May commencement or the following August may participate.

## Diplomas

Students do not receive their diplomas at Commencement. The Registrar mails them to graduates by the third month after conferral. Diplomas may be withheld if financial or other obligations to the University remain unmet. Graduates who have not received their diploma by the end of the periods noted above should inform the Office of the Registrar.

## Additional Degree

Students may pursue an additional baccalaureate, either wholly or partly, concurrently or after receiving another degree. The student must complete an Additional Degree Petition, which requires the consent signature of the dean of each school or college in which the student will be enrolled. Students may get Additional Degree Petitions from the offices of deans or from the Registrar at registrar.uconn.edu/forms.

The student must meet all requirements for each degree. The two degrees require at least 30 degree credits more than the degree with the higher minimum-credit requirement. For example, Engineering degrees require at least 126 credits while Arts and Sciences degrees require at least 120 credits. The Engineering degree has the higher minimum-credit requirement, so the total is 126 + 30, or 156. (If the student pursues a third degree, the two additional degrees require at least 60 degree credits more than the degree with the highest minimum-credit requirement.) At least 30 of the additional credits must be 2000-level courses, or above, in the additional degree major or closely related fields and must be completed with a grade point average of at least 2.0. The requirement of 30 additional credits is waived for students who complete the requirements of both a teacher preparation degree in the Neag School of Education and a bachelor's degree in another school or college.

Some schools and colleges offer double majors. The Additional Degree should not be confused with a double major.

## Scholastic Standards

### Undergraduate Earned Credit Semester Standing

The University of Connecticut charts a student's educational progress by semester standing based on earned credits rather than the traditional designations of freshman, sophomore, junior, and senior. However, semester standing may be related to these traditional terms. Standing is based on earned credits, not on numbers of semesters attended. Courses in progress are not counted. Standing is advanced after minimum credits indicated on the Semester Standing chart have been earned.

### Scholastic Probation

Scholastic probation is an identification of students whose scholastic performance is below University standards. The student and the student's counselor are informed that a marked academic improvement in future semesters is necessary to obtain the minimum scholastic standards.

Students are on scholastic probation for the next semester in which they are enrolled if their academic performance is such that they are included in any of the following conditions:

1. Students who have earned 0-11 credits (considered to be first semester standing) and who have earned less than a 1.8 semester grade point average.
2. Students who have earned 12-23 credits (considered to be second semester standing) and who have earned less than a 1.8 semester grade point average.
3. Students who have earned 24 credits or more (considered to be third semester or higher) and who have earned less than a 2.0 semester grade point average or cumulative grade point average.

The end of the semester is defined as the day when semester grades must be submitted to the Registrar. This must occur no later than seventy-two hours after the final examination period ends.

Incomplete and Absent grades (I, X, and N) do not represent earned credit. A student placed on probation with unresolved grades will be relieved of probation status if satisfactory completion of the work places his or her academic performance above the probation standards.

Any student placed on academic probation because of a cumulative grade point average less than 2.0 shall be removed from probation when the cumulative grade point average reaches 2.0 or above.

Warning letters will be sent to students in good standing who have completed their first or second semester with less than a 2.0 semester grade point average.

### Dismissal

A student who fails to meet these minimum scholastic standards for two consecutively registered semesters (Fall and Spring or Spring and Fall) is subject to dismissal. However, no student with at least a 2.3 semester grade point average after completing all courses for which he or she is registered at the end of a semester shall be subject to dismissal; the student will be continued on scholastic probation if such status is warranted.

Students who are subject to dismissal but who, for extraordinary reasons, are permitted to continue may be subjected by the Office for Undergraduate Education to other conditions for their continuance.

When a student is dismissed from the University for scholastic reasons only, any certificate or transcript issued must contain the statement "Dismissed for scholastic deficiency but otherwise entitled to honorable dismissal."

Dismissal involves non-residence on the University campus and loss of status as a candidate for a degree effective immediately upon dismissal.

A student who has been dismissed from the University for academic reasons may not register for courses at the University as a non-degree student without the approval of a non-degree advisor.

Students who have been dismissed may, during a later semester, request an evaluation for readmission to the University by applying to the Dean of the school or college into which entry is sought. Readmission will be considered favorably only when the evaluation indicates a strong probability for academic success. In their first regular semester after readmission, dismissed students will be on scholastic probation and may



be subjected by the Office for Undergraduate Education to other conditions for their continuance. Students who have left the University for a reason other than academic dismissal are readmitted under the same scholastic standing status as achieved at the time of separation from the University.

### **Leave of Absence**

A leave of absence is a special status assigned to students who have been granted permission by the Dean of Students Office or designee to interrupt their studies and resume them in a subsequent semester specified by mutual agreement. A leave of absence is granted in conjunction with a Voluntary Separation (usually a cancellation). Leaves are not granted for more than three full semesters or to students who wish to interrupt their studies for less than one full semester.

Requests for leaves are considered only after the student has personally consulted a representative of the Dean of Students Office or designee and frequently a representative of the student's school or college. Leaves are granted only to students in good academic standing and who know the specific semester in which they plan to return. Students on academic probation or who have outstanding incomplete work are seldom granted a leave of absence.

### **Cancellation and Withdrawal**

Students may voluntarily leave the University through one of two possible actions - cancellation of registration or withdrawal. Both actions are finalized in the Dean of Students Office. A personal interview with a staff member in the Dean of Students Office, would be appropriate for any student considering voluntary separation. The interview may help the student realize alternatives and/or options which would allow the student to continue at the University. If a personal interview is not desired, or not possible, written notice must be given to the Dean of Students Office. No student is considered officially separated and no refunds of fees or deposits can be made unless the student has contacted (interview or letter) the Dean of Students Office.

#### **Cancellation**

Students presently enrolled may cancel their registration for the subsequent semester, while planning to complete the current one. Students may also cancel their registration during the summer and midyear vacations if they do not intend to return for the following semester. Cancellations must take place prior to the first day of classes of a semester. The date of cancellation will not appear on the student's official transcript.

#### **Withdrawal**

To withdraw officially means to voluntarily terminate enrollment during a semester which is in progress. Students may withdraw between the first day of classes and the last day before finals week begins. (See the University Calendar for dates.) Students who officially withdraw will not receive credits, grades, or "W's" for courses taken during the semester. Only the date of withdrawal will be entered on the student's official transcript. Students who merely leave the University or stop attending classes, without officially withdrawing, should expect to receive Fail "F" grades in all courses in which they are registered at the close of the semester other than those for which grades have previously been submitted.

No student who withdraws after the end of the sixth week of a semester will be permitted to register for a subsequent semester without the permission of the Dean of Students Office or designee. It is understood that when such permission is sought the Dean or designee will ascertain the standing of the student at the time when he or she withdrew. For purposes of application for readmission such students shall be treated as a dismissed student if his or her standing at the time of withdrawal is such that if it were continued to the end of the semester he or she would then be subject to dismissal.

All students withdrawing from the University for any reason must complete the proper forms through the Dean of Students Office or designee. If the withdrawing student lives on campus s/he must also complete the proper forms through the Residential Life Office.

### **University Suspension or Expulsion**

University suspension or expulsion may be incurred as a result of unsatisfactory conduct. Students who are suspended or expelled are not entitled to any refund of University fees including room and board fees.

#### **University Suspension**

Separation from the University for a designated period of time after which the student shall be eligible to apply for readmission to the University. Readmission to the University is not guaranteed. Conditions for consideration of readmission may be specified. A student's reacceptance into his/her school or college is at the discretion of the school or college. A student who is on suspension is prohibited from participating in any University activity or program. The individual may not be in or on any University owned or leased property without securing prior approval from the Director of Community Standards or designee. A notation of "Suspension" shall be placed on the student's official transcript until graduation. However, the student may petition the Director of Community Standards for earlier removal of the notation upon completion of the suspension. The University of Connecticut will not accept credits earned at another institution during a period of suspension.

#### **University Expulsion**

Permanent separation from the University. A student who has been expelled is prohibited from participating in any University activity or program. The individual may not be in or on any University owned or leased property. A permanent notation of "Expulsion" shall be placed on the student's transcript.

For complete rules, regulations and procedure consult Responsibilities of Community Life: The Student Code.

### **Readmission**

All students seeking readmission to the University, including those seeking readmission to regional campuses must apply through the Dean of Students Office.

If a student is applying to be readmitted for a fall semester, it is strongly encouraged that the student to submit a completed application between December 1st and January 15th. These applications will be given priority review in March. Applications that are received between January 15th and July 1st may not be reviewed until July.

If a student is applying to be readmitted for a spring semester, it is strongly encouraged that the student to submit a completed application between August 1st and September 15th. These applications will be given priority review in October. Applications that are received between September 15th and December 1st may not be reviewed until December.

The attention of such students is called to the following University regulations: (1) A student who wishes to apply toward a degree credits earned more than eight years before graduation must obtain permission from the dean of the school or college concerned and the Office for Undergraduate Education: (2) All readmitted students (except those who are on an official leave of absence returning to their previous school or college) must satisfy the academic requirements of the school or college to which readmitted as stated in the catalog effective at the time of readmission, unless a subsequent catalog is elected.

A student in good standing who leaves the University at the end of a semester and is out of residence for one or more semesters may re-enter at the beginning of any later semester upon application to the Dean of Students Office or designee. The attention of such students is called to the fact that special permission is needed to count courses taken more than eight years before graduation.

### **Supplementary Scholastic Standards**

In addition to the minimum scholastic standards described above and applicable to all University students, there may be additional requirements. Refer to specific information in the description of each College, School, and program.

# General Education Requirements

The University Senate enacted these requirements to ensure that all University of Connecticut undergraduate students become articulate and acquire intellectual breadth and versatility, critical judgment, moral sensitivity, awareness of their era and society, consciousness of the diversity of human culture and experience, and a working understanding of the processes by which they can continue to acquire and use knowledge. It is vital to the accomplishment of the University's mission that a balance between professional and general education be established and maintained in which each is complementary to and compatible with the other.<sup>1</sup>

Every student must meet a set of core requirements to earn a baccalaureate degree, though some schools and colleges may add to the requirements listed here. To avoid delaying the progress of their degree, students should always consult the requirements listed for their particular school or college before registering. The school or college may refer the student to these General Education Requirements when the requirements and choices duplicate those listed here.

## Content Areas

There are four content Areas: Content Area One - Arts and Humanities. Six credits; Content Area Two - Social Sciences. Six credits; Content Area Three - Science and Technology. Six to seven credits; Content Area Four - Diversity and Multiculturalism. Six credits.

The courses fulfilling the Content Areas One, Two, and Three requirements must be drawn from at least six different subjects as designated by the subject letter code (e.g., ANTH or PVS). The courses within each of these Content Areas must be from two different subjects. Content Area courses may be counted toward the major.<sup>2</sup>

Normally, the six credits required as a minimum for each Content Area will be met by two three-credit courses. However, in Content Area One and Content Area Four (including Content Area Four International), repeatable one-credit courses may be included. Students may use no more than three credits of such courses to meet the requirement.

Students must pass at least seven content area courses with at least three credits each (with the exception noted above), amounting to a total of at least 21 credits.

In Content Area Three, one of the courses must be a laboratory course of four or more credits. However, this laboratory requirement is waived for students who have passed a hands-on laboratory science course in the biological and/or physical sciences.

In Content Area Four, at least three credits shall address issues of diversity and/or multiculturalism outside of the United States.

For all Content Areas, there can be multiple designations. An individual course may be approved for and may count for one Content Area, two Content Areas, or three Content Areas if one of the three is Content Area 4.

### Content Area One - Arts and Humanities

Arts and Humanities courses provide a broad vision of artistic and humanist themes. These courses enable students themselves to study and understand the artistic, cultural and historical processes of humanity. They encourage students to explore their own traditions and their places within the larger world so that they, as informed citizens, may participate more fully in the rich diversity of human languages and cultures.

<sup>1</sup> Undergraduate students with Bachelor's degrees from regionally accredited institutions are exempt from the University General Education Requirements but not the 2000-level and above W course within the major nor any additional general education requirements of a School/College.

<sup>2</sup> A student will be permitted to use two courses from the same department within Content Areas One through Three if one of those courses is cross-listed in another subject letter code not otherwise used to meet this requirement.

AFRA/FINA 1100	Afrocentric Perspectives in the Arts
AFRA/DRAM 3132	African American Women Playwrights, 1900 to the present
AFRA/HIST 3206	Black Experience in the Americas
AFRA/HIST/LLAS 3619	History of the Caribbean
AMST 1700	Honors Core: American Landscapes
ANTH 1001W	Anthropology through Film
ANTH 3401	World Religions
ANTH 3450W	Anthropological Perspectives on Art
ARAB 1121	Traditional Arab Literatures, Cultures, and Civilizations
ARAB 1122	Modern Arabic Culture
ART 1000	Art Appreciation
ART/AASI/INDS 3375	Indian Art and Popular Culture
ARTH 1128	Global Perspectives on Western Art: Renaissance to Present
ARTH 1137	Intro to Art History: Prehistoric - 14th Century
ARTH 1138	Intro to Art History: 15th Century - Present
ARTH 1140	Introduction to Asian Art
ARTH 1141	Intro to Latin American Art
ARTH 1162	Intro to Architecture
AASI 3201	Intro to Asian American Studies
AASI/HIST 3531	Japanese Americans and World War II
CHIN 1121	Traditional Chinese Culture
CHIN 1122	Modern Chinese Culture
CHIN 3250W	Advanced Chinese
CHIN 3270	Chinese Film
CAMS 1101	Greek Civilization
CAMS 1102	Roman Civilization
CAMS 1103	Classical Mythology
CLCS 1002	Reading Between the Arts
CLCS 1101	Classics of World Literature I
CLCS 1102	Classics of World Literature II
CLCS 1103W	Languages and Cultures
CLCS 1110	Intro to Film Studies
CLCS 2201	Intercultural Competency towards Global Perspectives
CLCS 3211	Indigenous Film World Wide
DMD 2010	History of Digital Culture
DRAM 1101	Intro to the Theatre
DRAM 1110	Intro to Film
DRAM 1811	Dance Appreciation
DRAM 2134	Honors Core: Analyzing Sports as Performance
ECON 2101/W	Economic History of Europe
ECON 2102/W	Economic History of the United States
ENGL 1101/W	Classical and Medieval Western Literature
ENGL 1103/W	Renaissance and Modern Western Literature
ENGL 1503	Intro to Shakespeare
ENGL 1616/W	Major Works of English and American Literature
ENGL 2100	British Literature I
ENGL 2101	British Literature II
ENGL 2274W	Disability in American Literature and Culture
ENGL 2401	Poetry

ENGL 2405	Drama	HIST 1203/ WGSS 1121	Women in History
ENGL 2407	The Short Story	HIST 1206	Living through War in World History since 1500
ENGL 2408/W	Modern Drama	HIST 1300	Western Traditions Before 1500
ENGL 2409	The Modern Novel	HIST 1400	Modern Western Traditions
ENGL 2411/W	Popular Literature	HIST 1501/W	United States History to 1877
ENGL 3220/HEJS 3401/W	Jewish American Literature and Culture	HIST 1502/W	United States History Since 1877
ENGL 3320	Literature and Culture of India	HIST/LLAS 1570	Migrant Workers in Connecticut
ENGL 3629	Intro to Holocaust Literature	HIST 1600/ LLAS 1190/W	Intro to Latin America and the Caribbean
ENGL 3633/W	The Rhetoric of Political Discourse	HIST 1800	The Roots of Traditional Asia
FINA 1001/ MUSI 1006	Earthtones: Vocal Ensembles	HIST 1805	East Asian History Through Hanzi Characters
FREN 1169	Modernity in Crisis: France and the Francophone World from 1850 to Today	HIST/SCI 2206	History of Science
FREN 1171	French Cinema	HIST/MAST 2210	History of the Ocean
FREN 1176	Literatures and Cultures of Postcolonial Francophone World	HIST 2401/W	Europe in the 19th Century
FREN 1177	Magicians, Witches, Wizards: Parallel Beliefs and Popular Culture in France	HIST 2402/W	Europe in the 20th Century
FREN 3210	French Art and Civilization	HIST/LLAS 3607	Latin America in the Colonial Period
FREN 3211	Contemporary France	HIST/LLAS 3609	Latin America in the National Period
FREN 3218	Francophone Studies	HIST/LLAS 3635	History of Modern Mexico
FREN 3224	Issues in Cultural Studies, the Media, and the Social Sciences	HIST/URBN 3650	History of Urban Latin America
FREN 3230	The Middle Ages: Myths and Legends	HIST/LLAS 3660W	History of Migration in Las Americas
FREN 3234	Romanticism, Realism, Fin de Siecle: 19th-Cent Literature	HIST 3674/ LLAS 3220	History of Latino/as in the United States
FREN 3235	French Modernity	HIST 3705	The Modern Middle East from 1700 to the Present
FREN 3261W	From the Holy Grail to the Revolution: Intro to Literature	HRTS/PHIL 2170W	Bioethics and Human Rights in Cross-Cultural Perspective
FREN 3262W	From the Romantics to the Moderns: Intro to Literature	HRTS 3200/W	International Human Rights Law
FREN 3267	Grammar and Culture	HRTS/PHIL 3220/W	Philosophical Foundations of Human Rights
FREN 3268/W	Grammar and Composition	HRTS 3250/W	Human Rights and New Technologies
FREN 3270W	French Literature and Civilization in English	INTD 3260	The Bible
GEOG/URBN 1200	The City in the Western Tradition	ILCS 1101	The Italian Renaissance
GERM 1140W	German Literature in English	ILCS 1149	Cinema and Society in Contemporary Italy
GERM 1169	Contemporary Germany in Europe	ILCS 1158	Italian American Experience in Literature and Film
GERM 1171	The German Film	ILCS 1160	Culture of Fascist Italy
GERM 1175	Human Rights and German Culture	ILCS 1170	Introducing Italy through Its Regions
GERM 2400	The Environment in German Culture	ILCS 3255W	Dante's Divine Comedy In English Translation
GERM 3251	German Culture and Civilization	ILCS 3258W	Cinematic Representations of Italian Americans
GERM 3252W	Studies in Early German Literature	ILCS 3260W	Italian Cinema
GERM 3254W	Studies in 19th Century German Literature	LAND 2210	The Common (Shared) Landscape of the USA: Rights, Responsibilities and Values
GERM 3255/W	Studies in 20th Century German Literature	LING 1010	Language and Mind
GERM 3258	Germans in Africa, Blacks in German- Speaking Countries. Colonial and Postcolonial Perspectives	LLAS/SPAN 1009/W	Latino Literature, Culture, and Society
GERM 3261W	German Film and Culture	MAST 1200	Intro to Maritime Culture
GERM 3264W	German Cinema in Cross-Cultural Perspective	MUSI 1001	Music Appreciation
HEJS 1103	Literature and Civilization of the Jewish People	MUSI 1002	Sing and Shout! The History of America in Song
HEJS 2104	Modern Jewish Thought	MUSI 1003	Popular Music and Diversity in American Society
HEJS 3301	The Jewish Middle Ages	MUSI 1004	Non-Western Music
HEJS 3401W	Jewish American Literature and Culture	MUSI 1005	Honors Core: Music and Nature, Music and the Environment
HIST 1100/W	The Historian as Detective	MUSI 1021	Intro to Music History I
HIST 1201	Modern World History	MUSI 1022	Intro to Music History II
		MUSI 1112	University Symphony Orchestra <sup>3</sup>

NRE 1235	Environmental Conservation
NURS 2175	Global Politics of Childbearing and Reproduction
PHIL 1101	Problems of Philosophy
PHIL 1102	Philosophy and Logic
PHIL 1103	Philosophical Classics
PHIL 1104	Philosophy and Social Ethics
PHIL 1105	Philosophy and Religion
PHIL 1106	Non-Western and Comparative Philosophy
PHIL 1107	Philosophy and Gender
PHIL 1175	Ethical Issues in Health Care
POLS 1002	Intro to Political Theory
SPAN 1007	Major Works of Hispanic Literature in Translation
SPAN 1008	Christians, Muslims and Jews in Medieval Spain
SPAN 1010	Contemporary Spanish Culture and Society through Film
SPAN 1020	Fashion, Design, Art, and Identity in Spain
SPAN 3232	Literature of Crisis in Modern Spain
SPAN 3250	Film in Spain and Latin America
SPAN 3267W	The Spanish-American Story
WGSS 1104	Feminisms and the Arts

## Content Area Two - Social Sciences

The social sciences examine how individuals, groups, institutions, and societies behave and influence one another and the natural environment. Courses in this group enable students to analyze and understand interactions of the numerous social factors that influence behavior at the individual, cultural, societal, national, or international level. They use the methods and theories of social science inquiry to develop critical thought about current social issues and problems.

AFRA/ANTH 3152	Race, Ethnicity, and Nationalism
ARE 1110	Population, Food and the Environment
ARE 1150	Principles of Agricultural and Resource Economics
ANTH 1000/W	Other People's Worlds
ANTH 1006	Intro to Anthropology
ANTH 1010	Global Climate Change and Human Societies
ANTH 1500	Great Discoveries in Archaeology
ANTH 2000/W	Social Anthropology
ANTH 2400	Analyzing Religion
COMM 1000	The Process of Communication
ECON 1000	Essentials of Economics
ECON 1107	Honors Core: Economics, Nature, and the Environment
ECON 1108	Game Theory in the Natural and Social Sciences
ECON 1179	Economic Growth and the Environment
ECON 1200	Principles of Economics
ECON 1201	Principles of Microeconomics
ECON 1202	Principles of Macroeconomics
EDCI 2100	Power, Privilege and Public Education
ENVE 1000	Environmental Sustainability

<sup>3</sup> MUSI 1112 has fewer than 3 credits.

EPSY 2810	Creativity: Debunking Myths and Enhancing Innovation
EVST 1000	Introduction to Environmental Studies
GEOG 1000	Intro to Geography
GEOG 1700	World Regional Geography
GEOG 2000	Globalization
GEOG 2100	Economic Geography
GEOG 2320	Climate Change: Current Geographic Issues
GEOG 2400	Introduction to Sustainable Cities
HDFS 1060	Close Relationships Across the Lifespan
HDFS 1070	Individual and Family Development
HDFS 3311/W	Parenthood and Parenting
HDFS 3540/W	Child Welfare, Law and Social Policy
HRTS 1007	Intro to Human Rights
LING 1020	Language and Environment
LING 1030	The Diversity of Languages
LING 2850	Intro to Sociolinguistics of the Deaf Community
LING 3610W	Language and Culture
LLAS 1000	Introduction to Latina/o Studies
POLS 1202/W	Intro to Comparative Politics
POLS 1207	Intro to Non-Western Politics
POLS 1402/W	Intro to International Relations
POLS 1602/W	Intro to American Politics
POLS 3208/W	Politics of Oil
POLS 3237/W	Democratic Culture and Citizenship in Latin America
POLS 3615/W	Electoral Realignment
PSYC 1101	General Psychology II
PSYC 1103	General Psychology II (Enhanced)
PUBH 1001	Intro to Public Health
PP 1001	Intro to Public Policy
SOCI 1001/W	Intro to Sociology
SOCI 1251/W	Social Problems
SOCI 1501/W	Race, Class and Gender
SOCI 3823	The Sociology of Law: Global and Comparative
SLHS 1150	Intro to Communication Disorders
URBN 1300/W	Exploring Your Community
WGSS 1105	Gender and Sexuality in Everyday Life
WGSS 1124	Gender and Globalization
WGSS 3253/W	Gender Representations in U.S. Popular Culture

## Content Area Three - Science and Technology

These courses acquaint students with scientific thought, observation, experimentation, and formal hypothesis testing, and enable students to consider the impact that developments in science and technology have on the nature and quality of life. Knowledge of the basic vocabulary of science and technology is a prerequisite for informed assessments of the physical universe and of technological developments.

AH/NUSC 1030	Interdisciplinary Approach to Obesity Prevention
ANSC/NUSC 1645	The Science of Food
BME/CSE/MCB/PNB 1401	Honors Core: Computational Molecular Biology
CHEG 1200	Intro to Food Science and Engineering
COGS 2201	Foundations of Cognitive Science

DMD 2010	History of Digital Culture
EEB 2202	Evolution and Human Diversity
GEOG/GSCI 1070	Natural Disasters and Environmental Change <sup>4</sup>
GEOG 2300	Intro to Physical Geography
GEOG 2410	New Digital Worlds of Geographic Information Science
GSCI 1010	Dinosaurs, Extinctions, and Environmental Catastrophes
GSCI 1051	Earth's Dynamic Environment (Lecture) <sup>4</sup>
GSCI 1055	Geoscience and the American Landscape <sup>4</sup>
LING 2010Q	The Science of Linguistics
MARN 1001	The Sea Around Us
MARN 1002	Intro to Oceanography
MATH 1050Q	Mathematical Modeling in the Environment
MCB 1405	Honors Core: Genetics Revolution in Contemp. Culture
NRE 1000	Environmental Science
NUSC 1165	Fundamentals of Nutrition
PHAR 1000	Drugs: Actions and Impact on Health and Society
PHAR 1001	Toxic Chemicals and Health
PHAR 1005	Molecules in the Media
PHYS 1020Q	Introductory Astronomy
PHYS 1030Q	Physics of the Environment
PLSC 1150	Agricultural Technology and Society
PSYC 1100	General Psychology I
SOIL 2120	Environmental Soil Science

### Content Area Three - Laboratory Courses

BIOL 1102	Foundations of Biology
BIOL 1103	The Biology of Human Health and Disease
BIOL 1107	Principles of Biology
BIOL 1108	Principles of Biology
BIOL 1110	Intro to Botany
CHEM 1122	Chemical Principles and Applications
CHEM 1124Q	Fundamentals of General Chemistry I
CHEM 1127Q	General Chemistry
CHEM 1128Q	General Chemistry
CHEM 1137Q	Enhanced General Chemistry
CHEM 1138Q	Enhanced General Chemistry
CHEM 1147Q	Honors General Chemistry
CHEM 1148Q	Honors General Chemistry
GEOG 1302	GIS Modeling of Environmental Change
GSCI 1050	Earth's Dynamic Environment
MARN 1003	Intro to Oceanography with Laboratory
PHYS 1010Q	Elements of Physics
PHYS 1025Q	Introductory Astronomy with Laboratory
PHYS 1035Q	Physics of the Environment with Laboratory
PHYS 1075Q	Physics of Music

<sup>4</sup> Students who complete both the laboratory course GSCI 1052 and one of the following CA 3 courses may request that the CA 3 course be converted from a CA 3 non-laboratory to a CA 3 Laboratory course: GSCI 1051, GSCI 1055, or GEOG/GSCI 1070.

PHYS 1201Q	General Physics
PHYS 1202Q	General Physics
PHYS 1401Q	General Physics with Calculus
PHYS 1402Q	General Physics with Calculus
PHYS 1501Q	Physics for Engineers I
PHYS 1502Q	Physics for Engineers II
PHYS 1600Q	Intro to Modern Physics
PHYS 1601Q	Fundamentals of Physics I
PHYS 1602Q	Fundamentals of Physics II

### Content Area Four - Diversity and Multiculturalism

In this interconnected global community, individuals of any profession need to be able to understand, appreciate, and function in cultures other than their own. Diversity and multiculturalism in the university curriculum contribute to this essential aspect of education by bringing to the fore the historical truths about different cultural perspectives, especially those of groups that traditionally have been underrepresented. These groups might be characterized by such features as race, ethnicity, gender, sexual identities, political systems, or religious traditions, or by persons with disabilities. By studying the ideas, history, values, and creative expressions of diverse groups, students gain appreciation for differences as well as commonalities among people.

AFRA/FINA 1100	Afrocentric Perspectives in the Arts
AFRA/PSYC 3106	Black Psychology
AFRA/DRAM 3131/W	African-American Theatre
AFRA/DRAM 3132	African American Women Playwrights, 1900 - the present
AFRA/ANTH 3152	Race, Ethnicity, Nationalism
AFRA/ENGL 3214W	Black American Writers I
AFRA/HRTS/SOCI 3505	White Racism
AFRA/POLS 3642	African-American Politics
AMST 1201/ENGL 1201/HIST 1503	Intro to American Studies
ANTH 2000/W	Social Anthropology
ANTH 3150/W	Migration
ANTH 3202W	Illness and Curing
ANTH 3902	North American Prehistory
ANTH 3904	Ethnohistory of Native New England
ARTH 3050/W	African-American Art
ARTH 3640/W	Mexican and Chicano Art from Muralism to La Raza
ARTH 3645/W	From Revolution to Reggae: Modern and Contemporary Caribbean Art
AASI 3201	Intro to Asian American Studies
AASI/ENGL 3212	Asian American Literature
AASI/SOCI 3221/HRTS 3571	Sociological Perspectives on Asian American Women
AASI/HIST 3531	Japanese Americans and World War II
COMM 3321/LLAS 3264/WGSS 3260	Latinas and Media
DRAM 3130	Women in Theatre
DRAM 3133	Latina/o Theatre
EDCI 2100	Power, Privilege and Public Education
ENGL 1601W	Race, Gender, and the Culture Industry
ENGL 2274W	Disability in American Literature and Culture
ENGL 3210	Native American Literature

**Content Area Four - International**

ENGL 3214	Black American Writers I
ENGL 3218/W	Ethnic Literatures of the United States
ENGL 3220/HEJS 3401/W	Jewish American Literature and Culture
ENGL 3605/ LLAS 3232	Latina/o Literature
ENGL/WGSS 3609	Women's Literature
ENGL/WGSS 3611	Women's Literature 1900 to the Present
ENGL/WGSS 3613	Intro to LGBT Literature
HEJS 1103	Literature and Civilization of the Jewish People
HEJS 3301	The Jewish Middle Ages
HIST 1203/ WGSS 1121	Women in History
HIST/LLAS 1570	Migrant Workers in Connecticut
HIST 3204W	Science and Social Issues In the Modern World
HIST 3570	American Indian History
HIST/LLAS 3660W	History of Migration in Las Américas
HIST 3674/ LLAS 3220	History of Latinos/as in the United States
HDFS 2001	Diversity Issues in Human Development and Family Studies
HDFS 3261	Men and Masculinity: A Social Psychological Perspective
INTD 2245	Introduction to Diversity Studies in American Culture
INTD 3584	Seminar in Urban Problems
ILCS 1158	Italian American Experience in Literature and Film
ILCS 3258W	Cinematic Representations of Italian Americans
LLAS 1000	Introduction to Latina/o Studies
LLAS/SPAN 1009/W	Latino Literature, Culture, and Society
LLAS 2011W	Introduction to Latino-American Writing and Research
LLAS 3210	Contemporary Issues in Latino Studies
LLAS 3270/ POLS 3662	Latino Political Behavior
LING 1030	The Diversity of Languages
LING 2850	Intro to Sociolinguistics of the Deaf Community
MUSI 1002	Sing and Shout! The History of America in Song
MUSI 1003	Popular Music and Diversity in American Society
NURS 1175W	End of Life: A Multicultural Experience
PHIL 1107	Philosophy and Gender
PSYC 2101	Intro to Multicultural Psychology
PSYC 2701	Social Psychology of Multiculturalism
PSYC 3102/ WGSS 3102	Psychology of Women
SOCI 1501/W	Race, Class and Gender
SOCI 2501/W	Sociology of Intolerance and Injustice
SOCI/WGSS 3621/W	Sociology of Sexualities
SLHS 1150	Intro to Communication Disorders
URBN 1300/W	Exploring Your Community
WGSS 1104	Feminisms and the Arts
WGSS 1105	Gender and Sexuality in Everyday Life
WGSS 3718/W	Feminism and Science Fiction

AFRA/HIST 3206	Black Experience in the Americas
AFRA/HIST/ LLAS 3619	History of the Caribbean
AH 2330	Italy's Mediterranean Food and Our Health
ANTH 1000/W	Other People's Worlds
ANTH 1001W	Anthropology through Film
ANTH 1006	Intro to Anthropology
ANTH 1010	Global Climate Change and Human Societies
ANTH 1500	Great Discoveries in Archaeology
ANTH 2400	Analyzing Religion
ANTH/HRTS 3028/W	Indigenous Rights and Aboriginal Australia
ANTH 3030	Peoples of the Pacific Islands
ANTH/HRTS 3153W	Human Rights in Democratizing Countries
ANTH 3401	World Religions
ARAB 1121	Traditional Arab Literatures, Cultures, and Civilizations
ARAB 1122	Modern Arabic Culture
ART/AASI/ INDS 3375	Indian Art and Popular Culture: Independence to the Present
ARTH 1128	Global Perspectives on Western Art: Renaissance to the Present
ARTH 1141	Intro to Latin American Art
ARTH 3630/W	Alternative Modernities: Visual Culture of Latin America
CHIN 1121	Traditional Chinese Culture
CHIN 1122	Modern Chinese Culture
CHIN 3230	Language and Identity in Greater China
CHIN 3250W	Advanced Chinese
CLCS 1101	Classics of World Literature I
CLCS 1102	Classics of World Literature II
CLCS 1103W	Languages and Cultures
CLCS 2201	Intercultural Competency towards Global Perspectives
CLCS 3211	Indigenous Film World Wide
EEB 2202	Evolution and Human Diversity
ECON 2104/W	Economic History of the Middle East
ENGL 1301	Major Works of Eastern Literature
ENGL 2301/W	World Literature in English
ENGL 3120	Early and Modern Irish Literature
ENGL 3122	Contemporary Irish Literature
ENGL 3318	Literature and Culture of the Third World
ENGL 3320	Literature and Culture of India
ENGL 3629	Introduction to Holocaust Literature
FREN 1169	Modernity in Crisis: France and the Francophone World from 1850 to Today
FREN 1171	French Cinema
FREN 1176	Literatures and Cultures of the Postcolonial Francophone World
FREN 1177	Magicians, Witches, Wizards: Parallel Beliefs and Popular Culture in France
FREN 3211	Contemporary France
FREN 3218	Francophone Studies
FREN 3224	Issues in Cultural Studies, the Media, and the Social Sciences

GEOG 1700	World Regional Geography
GEOG 2000	Globalization
GEOG 2400	Introduction to Sustainable Cities
GERM 1169	Contemporary Germany in Europe
GERM 1171	The German Film
GERM 1175	Human Rights and German Culture
GERM 3251	German Culture and Civilization
GERM 3258	Germans in Africa, Blacks in German-Speaking Countries. Colonial and Postcolonial Perspective
GERM 3261W	German Film and Culture
HEJS2104	Modern Jewish Thought
HIST 1206	Living through War in History since 1500
HIST 1600/LLAS 1190/W	Intro to Latin America and the Caribbean
HIST 1800	The Roots of Traditional Asia
HIST 1805	East Asian History Through Hanzi Characters
HIST/LLAS 3607	Latin America in the Colonial Period
HIST/LLAS 3609	Latin America in the National Period
HIST/LLAS 3635	History of Modern Mexico
HIST 3705	The Modern Middle East from 1700 to the Present
HRTS 1007	Intro to Human Rights
HRTS 3200/W	International Human Rights Law
ILCS 1149	Cinema and Society in Contemporary Italy
ILCS 1160	Culture of Fascist Italy
ILCS 3260W	Italian Cinema
LING 1020	Language and Environment
LING 3610W	Language and Culture
MAST 2100W	Ports of Passage
MUSI 1004	Non- Western Music
MUSI 3421W	Music in World Cultures
NRE 2600	Global Sustainable Resources
NRE 3305	African Field Ecology and Renewable Resources Management
NURS 2175	Global Politics of Childbearing and Reproduction
NUSC 1167	Food, Culture and Society
PHIL 1106	Non-Western and Comparative Philosophy
PLSC 1125	Insects, Food and Culture
POLS 1202/W	Intro to Comparative Politics
POLS 1207	Intro to Non-Western Politics
POLS 1402/W	Intro to International Relations
POLS 3472/W	South Asia in World Politics
SOCI 1701	Society in Global Perspective
SOCI 2509/W	Sociology of Anti-Semitism
SOCI 3823	The Sociology of Law: Global and Comparative
SPAN 1007	Major Works of Hispanic Literature in Translation
SPAN 1008	Christians, Muslims and Jews in Medieval Spain
SPAN 1010	Contemporary Spanish Culture and Society through Film
SPAN 1020	Fashion, Design, Art and Identity in Spain
SPAN 3250	Film in Spain and Latin America
WGSS 1124	Gender and Globalization

WGSS 2105/W	Gender and Science
WGSS 2255/W	Sexualities, Activism and Globalization
WGSS 3255W	Sexual Citizenship

## Competencies

University of Connecticut undergraduates need to demonstrate competency in five fundamental areas – computer technology, information literacy, quantitative skills, second language proficiency and writing. The development of these competencies involves two parts: one establishing entry-level expectations and the second establishing graduation expectations. The entry-level expectations apply to all incoming students. The exit expectations may vary for different major fields of study.

### Computer Technology Competency

Entering students are expected to have the basic computer technology skills required to begin university study. Students should take online assessments of knowledge and competency and utilize available workshops/online tutorials to make up any gaps. Each major has established expectations for the computer technology competencies of its graduates and built the development of these into the major curriculum. Further details are given under the description of each major elsewhere in this catalog.

### Information Literacy Competency

Information literacy involves a general understanding of how information is created, disseminated and organized, and an ability to access, evaluate, synthesize and incorporate information into written, oral, or media presentations. Basic information literacy is taught to all freshmen as an integral part of ENGL 1010/1011, in collaboration with the staff of the University Libraries. Each major program has considered the information literacy competencies required of its graduates and built those expectations into the upper-level research and writing requirements in the major. Further details are given under the description of each major elsewhere in this catalog.

### Quantitative (Q) Competency

All students must pass two Q courses, which may also satisfy Content Area requirements. One Q course must be from Mathematics or Statistics. Students should discuss with their advisor how best to satisfy these requirements based on their background, prior course preparation and career aspirations. Students whose high school algebra needs strengthening should be encouraged to complete MATH 1011Q: Introductory College Algebra and Mathematical Modeling, as preparation for other Q courses. To receive credit for MATH 1011Q, it must be taken before successful completion of another Q course. In some cases, advisors may recommend postponing registration in a Q course until after the student has completed a semester of course work at the University.

### Second Language Competency

A student meets the minimum requirement if admitted to the University with three years of a single foreign language in high school, or the equivalent. When the years of study have been split between high school and earlier grades, the requirement is met if the student has successfully completed the third-year high school level course. With anything less than that, the student must pass the second semester course in the first year sequence of college level study in a single language.

### Writing (W) Competency

All students must take either ENGL 1010 or 1011. Students passing ENGL 3800 are considered to have met the ENGL 1010 or 1011 requirement. Additionally, all students must take two writing-intensive (W) courses, which may also satisfy Content Area requirements. One of these must be at the 2000-level and associated with the student's major. Approved courses for each major are listed in their sections of this catalog. (Note: English 1010 or 1011 is a prerequisite to all writing-intensive courses.)

# Honors Scholar Program

The Honors Scholar Program provides a nationally-competitive program for academically talented and highly motivated students. It enriches the academic experience of undergraduates in all majors by offering the challenges of in-depth study and considerable opportunity for independent projects or research. Participation in the Honors Program further influences the quality and character of a student's education by offering opportunities for involvement in a community designed for individual, social, and cultural development.

During the first two years, Honors Scholars choose from a variety of special Honors sections of courses offered to satisfy UConn's General Education requirements and/or to build strong foundations in their academic disciplines. Students also enroll in specially-designed Honors First-Year Seminars and interdisciplinary Honors Core Curriculum courses. Sophomore Honors is awarded after the second year and upon the fulfillment of Honors credit, activity, and grade point average requirements. During the junior and senior years, students emphasize work in the major, with Honors credit for course work generally attained by independent Honors projects associated with courses at the 2000-level or above, Honors seminars in the major, graduate-level course work, and/or independent research. Enrolled Honors students graduate with the designation of Honors Scholar in their major based on the completion of Honors credit and course requirements, a departmentally approved Honors thesis/project, and grade point average requirements.

An active living-learning environment is fostered through the First-year Honors Residential Community, Honors residence options for upper-division students, and multiple Honors student organizations. Honors Scholars are encouraged to participate in social and community service activities, seminars with visiting scholars, artists, and persons in public life, and many activities offered through the other undergraduate enrichment programs: the Individualized and Interdisciplinary Studies Program, the Office of National Scholarships and Fellowships, the Office of Undergraduate Research, the Pre-Med/Pre-Dental Advising Office, and the Pre-Law Advising Office. The Honors Program sponsors several study abroad and study away experiences, including programs in Washington, D.C.; Cape Town, South Africa; Salamanca, Spain; and Singapore.

All students enrolled in the Honors Program are assigned an Honors advisor who assists students with course selection. Beginning in the first year or at a time designated by the major department, students are assigned a faculty Honors advisor who provides support with long-range academic planning. Students enrolled in the Honors Program receive priority registration, special library privileges, and permission to exceed semester credit limits after their first semester and after earning 18 credits. Participation in the Honors Program is recorded on a student's transcript each semester. Students who graduate as Honors Scholars receive an Honors notation on the diploma and transcript. They are recognized in the Commencement program and at the Honors Medals Ceremony, where they receive an Honors medal to wear during Commencement.

Qualified entering first-year students at the Storrs campus are admitted to the Honors Program by invitation only. Candidates are expected to have a strong academic record as demonstrated by a rigorous high school curriculum, excellent scores on the SAT or the ACT, and evidence of leadership and engagement beyond the classroom. First-year students are notified of their admission to the Honors Program in their letter of admission to the University.

Current first and second-year students at any University of Connecticut campus with excellent academic records may apply for the Honors Program according to the guidelines and timetable listed on the Honors Program web site. Students are admitted for their sophomore year based on their credentials and the availability of space in the Honors Program. Students entering their junior years (fifth year for Pharm.D. students) with excellent academic records may also apply with an approved Honors plan of study from their major department. The Honors Program will accept applications from students transferring to UConn from other colleges during their sophomore or juniors years.

Honors students are expected to participate fully in Honors Program courses and activities. Academic and participation records are reviewed annually for compliance with Honors Program policies. A student's

continuation as an Honors student for the junior and senior year is subject to the review and approval of the major department. To graduate as Honors Scholars, students must fulfill certain requirements. Enrolled Honors Program students must earn a cumulative GPA of at least 3.40. They must complete at least fifteen approved Honors credits. Twelve of these must be in their major or related areas at the 2000-level or above and may not have been used toward Sophomore Honors, and at least three of the twelve must be toward the Honors thesis. They must submit a departmentally-approved Honors thesis to the Honors Program office. In addition to the twelve Honors credits listed above, they must complete three Honors credits (at any level) which may have been used toward Sophomore Honors. At least three of the fifteen Honors credits must be from an "Honors graded" course, but not be from Honors conversions, independent study, or work toward the Honors thesis/project. There must be at least two departments in which Honors credits have been earned, with a minimum of three credits in each of two departments.

Beyond the minimum University-wide Honors requirements, departments may add further or specific major requirements that must be met in order for students to graduate with the designation of Honors Scholar. These requirements often involve certain prescribed Honors courses and seminars taken in preparation for writing the Honors thesis. Honors Scholars should make inquiries to their department or program about specific departmental Honors requirements.

## Honors Scholar Program at the Regional Campuses

Opportunities for participation in the Honors Program are available at the University of Connecticut regional campuses. Students at the Avery Point, Hartford, Stamford, or Waterbury campuses apply to the Honors Program as current first- or second-year UConn students in order to enter as sophomores or juniors, respectively. Depending on a student's campus and major, sophomores and juniors may participate in Honors while remaining at a regional campus or after they transition to the Storrs campus. For additional information or questions, regional campus students may speak with their campus' general Honors advisor, the Honors advisor in their major at their campus or at Storrs, or directly with the Honors Program office.

For more information, contact the Honors Program, University of Connecticut, John W. Rowe CUE Building, Room 419, Unit 4147, Storrs, CT 06269-4147; (860) 486-4223; [www.honors.uconn.edu](http://www.honors.uconn.edu)

## University Scholar Program

Each year up to thirty juniors are selected for the University Scholar Program through an application process sponsored by the Honors Program. All undergraduate Honors and non-Honors students from all campuses may apply. This prestigious program allows motivated students to pursue individualized and intellectually challenging programs of study that include an intensive research or creative project and a more robust program of coursework to complement the project. Students are usually members of the Program for the last three semesters of undergraduate study. Graduation as a University Scholar is the highest academic honor bestowed upon undergraduates by the University of Connecticut.

Students interested in applying to the Program are encouraged to begin planning no later than the second semester of their sophomore year. Program applicants must submit a "letter of intent," an application, and appropriate documentation by the published deadlines. Applicants must completely and clearly describe the subject matter, topic, or issue of interest; the proposed University Scholar project, including the methods and resources to be used to complete the project; and the set of courses that would enable them to explore their interests in depth. In late fall, an University Scholar Program committee selects recipients for this award according to the creativity, clarity, detail, and thoughtfulness of the applicants' proposed research projects and programs of study.

A committee composed of a major advisor and two additional advisors (at least one member of the committee must be a tenured or tenure track faculty) enlisted by the student guides the student through his or her study or project. The scholarly work culminates with a tangible product, such as a completed research paper or work of art. Upon completion of the approved University Scholar project and plan of study and the submission



of appropriate forms to the Honors Program Office, students earn the title of University Scholar. Students in the University Scholar Program receive awards in the amount charged for the General University Fee every remaining semester (up to three semesters) the student enrolls in his or her undergraduate program. University Scholars are granted priority registration, priority housing, and special library privileges. University Scholars are also relieved from the maximum credit load during any

given semester. Participation in the University Scholar Program is noted on students' academic transcripts at entry and for each semester enrolled. Graduation as a University Scholar is recognized at commencement and on the academic transcript and diploma.

For more information, contact the University Scholar Program, University of Connecticut, John W. Rowe CUE-Building, Room 403, Unit 4151, Storrs, CT 06269; (860)-486-3631.

# College of Agriculture, Health and Natural Resources

Gregory J. Weidemann, Ph.D., *Dean*

Cameron Faustman, Ph.D., *Associate Dean*

Patricia Jepson, Ph.D., *Director, Academic Advisory Center*

Meagan Ridder, M.A., *Academic Advisor*

Jillian Ives, M.A., *Academic Advisor*

In 1862, Congress passed the Morrill Land Grant Act providing grants of federal land to each state. Funds from the sale of these lands were used in establishing a college teaching agriculture and related subjects in each state. Subsequent federal acts have enlarged the responsibilities of these colleges. Today they continue to serve agriculture and society in many ways through a variety of educational programs. The University of Connecticut is the land-grant university in Connecticut. The College of Agriculture, Health and Natural Resources offers instruction at both undergraduate and graduate levels. Research and experimental work is carried on through the Storrs Agricultural Experiment Station. Educational and service programs are conducted throughout the State by the Cooperative Extension System. The College of Agriculture, Health and Natural Resources is supported by both federal and state appropriations and contributions from the private sector.

Agriculture has evolved to engage scientists concerned with food, people, and health in a manner that is economically viable and environmentally sustainable. The College of Agriculture, Health and Natural Resources maintains strong programs in fields such as agricultural biotechnology, allied health sciences, animal science, diagnostic and environmental sciences, health promotion, landscape architecture, medical laboratory sciences, nutritional biochemistry, pathobiology, pre-veterinary study, resource economics, and wildlife management.

The College has extensive facilities and operations to supplement and enhance instruction, learning experiences, and research. Laboratories, plants, animals, greenhouses and other related resources – both on and off campus – allow students to apply knowledge and skills in real-world, professional environments. The Agricultural Biotechnology complex, Center for Land Use Education and Research, Center for Environmental Health, Nayden Rehabilitation Clinic, Corey Stringer Institute and Athletic Training Learning Laboratory, Connecticut Institute of Water Resources, Connecticut State Climate Center, Food Marketing Policy Center, and the Wildlife Conservation Research Center are all integral components of the College of Agriculture, Health and Natural Resources.

The following departments offer undergraduate instruction in the College: Agricultural and Resource Economics, Allied Health Sciences, Animal Science, Kinesiology, Natural Resources and the Environment, Nutritional Sciences, Pathobiology and Veterinary Science, and Plant Science and Landscape Architecture. The Directory of Courses section of this Catalog describes the course offerings of these departments. Other courses are offered under the departmental listing Agriculture and Natural Resources.

The four-year curriculum leads to the Bachelor of Science degree for all majors except Environmental Studies, which leads to a Bachelor of Arts degree.

## Admission Requirements

Students may enter the College of Agriculture, Health and Natural Resources directly upon admission to UConn as a freshman or transfer student. New students who select Allied Health Sciences will be admitted as Allied Health Sciences majors and advised by the Department of Allied Health Sciences. Professional majors in the Department of Allied Health Sciences (Dietetics, Diagnostic Genetic Sciences, and Medical Laboratory Sciences) are competitive junior/senior year programs with additional admission procedures and requirement as outlined below. Students planning to apply to the Kinesiology programs in Athletic Training, or Exercise Science should refer to specific information in the Kinesiology Programs description of this section.

See Admission to the University and New England Regional Student Program.

**Scholarships.** Over \$550,000 in scholarships and awards are available to students in the College of Agriculture, Health and Natural Resources.

**Advisors Assigned by Major:** Departmental Advisors are assigned to students upon entry into the College of Agriculture, Health and Natural Resources according to a student's major and area of special interest. Advisors assist students in the selection of appropriate courses and help them develop an individualized program of study that will meet educational and career goals. The office of the Associate Dean for Academic Programs and the Academic Advisory Center of the College of Agriculture, Health and Natural Resources also support students and advisors.

## Bachelor's Degree Requirements

Upon recommendation of the faculty the degree of Bachelor of Science or Bachelor of Arts is awarded by vote of the Board of Trustees to students who have met the following requirements: (1) earned a total of 120 degree credits; (2) earned at least a 2.0 cumulative grade point average for the number of calculable credits for which they have been registered; (3) earned at least a 2.0 cumulative grade point average for all courses included in the 36 credit numbered 2000 or above requirement for the major; (4) met all the requirements of the University of Connecticut, the College of Agriculture, Health and Natural Resources, and their individual major as outlined below.

### General Education Requirements

All students in the College of Agriculture, Health and Natural Resources must meet the University-wide General Education Requirements (GER) as described in the "General Education Requirements" section of this Catalog.

### Science and Mathematics Requirements

Students in the College of Agriculture, Health and Natural Resources must pass at least two courses in Content Area 3, including at least one course from the list of four-credit laboratory courses; and at least two Quantitative (Q) courses, including at least one course in Mathematics or Statistics. Ordinarily, these requirements will be met by completing University general education courses and/or courses required by the Major. However, if a student receives a waiver from general education courses (e.g. based on completion of a previous baccalaureate degree) he or she must still complete the science and quantitative courses, as listed above.

### 36 Credit Requirement for All Majors

Students in all majors of the College of Agriculture, Health and Natural Resources must successfully complete at least 36 credits of courses in or relating to their major. Courses for this 36 credit group may be taken from specific major requirements (as listed below for some majors), or may be selected according to a student's individual educational and career goals. This group of courses must:

1. be numbered 2000 or above
2. be approved by the student's advisor and department head
3. include at least 30 credits taken at the University of Connecticut
4. be taken in two or more departments
5. include at least 15 credits from departments in the College of Agriculture, Health and Natural Resources, which must be taken at the University of Connecticut
6. have a combined grade point average of at least 2.0
7. not include more than six credits (combined) of independent study, internship, or field studies (if included, these credits must be taken at the University of Connecticut)
8. not be taken on Pass/Fail
9. not include more than six credits of S/U coursework

**Residence Requirement.** It is expected that advanced course work in the major will be completed at the University of Connecticut. However, students may be eligible to use up to six credits from other institutions in the 36-credit group if approved by their advisor and department head. These credits must be identified as courses comparable to specific University of Connecticut courses and cannot include internships, special topics, or non-specific discipline credits. Transfer students must complete

at least 30 credits of 2000-level or higher course work at the University of Connecticut, including at least 15 credits in College of Agriculture, Health and Natural Resources courses.

### Plan of Study

Students should work closely with their advisors to review requirements, recommended courses, and career goals. Each student should prepare a tentative plan of study, outlining all courses, with an academic advisor as early as possible, but in no case later than at the start of the junior year. A final plan of study, approved by the major advisor and the department head, must be filed with the Degree Auditor no later than the end of the tenth week of the semester prior to graduation. Professional majors in the Department of Allied Health Sciences do not require a plan of study.

### Specific Course Requirements for Individual Majors

Students must complete specific courses for individual majors as outlined below. Many courses may be used to meet more than one requirement.

#### Undergraduate Majors

Students in most majors have a great deal of latitude in the choice of courses and may emphasize a range of options to meet personal objectives. Students may prepare for career opportunities in such diverse activities as research, production, distribution, business and industry, public service, health sciences, professional service, education, communications, product development, international development, environmental protection, and community resource development. In addition to formal course work students may participate in independent study projects, field internships, cooperative education, and practicums. Students may also prepare for formal education beyond the baccalaureate degree.

Advisors are available to discuss requirements, recommended courses, and career opportunities of the various majors with current and prospective students.

#### Agricultural Education

Individuals preparing for a career in Agricultural Education obtain content area expertise by selecting a major and starting in the College of Agriculture, Health and Natural Resources. Certification requirements and a Master's degree in Agriculture Education will be completed in the Neag School of Education.

Students interested in agricultural education should refer to the Neag School of Education section of this Catalog.

#### Agriculture and Natural Resources

The Agriculture and Natural Resources major is an interdisciplinary major designed for students who want broad training in agricultural, environmental, and/or health sciences, with content that does not readily align with any one department or major. Students work with advisors to develop and complete a personalized and interdepartmental baccalaureate program based on their educational and career interests and goals. Courses selected for this major will include both introductory and advanced material from multiple departments in the College of Agriculture, Health and Natural Resources, as well as prerequisite and related knowledge and experiences in other disciplines.

#### Requirements

**Biology:** One course from BIOL 1107, 1108, 1110

**Chemistry:** One course from CHEM 1122, 1124Q, 1127Q, 1137Q

**Additional Science or Mathematics:** One additional course (minimum three credits) from BIOL, CHEM, GSCI, MARN, or PHYS, or one extra MATH or STAT course beyond those required for general education requirements

**Introductory Agriculture and Natural Resources:** Two 1000-level courses (minimum three credits each) representing two departments in CAHNR.

**36 Credit Group:** Agriculture and Natural Resources majors must meet all the requirements listed under the 36 Credit requirements for all CAHNR majors, which must include at least 24 credits (combined total) from

departments in CAHNR. These credits must include at least three credits of course work from each of four (4) distinct departments in CAHNR.

**Writing Competency:** Students must pass one 2000-level or above W course in any department of the College of Agriculture, Health and Natural Resources.

**Computer Technology Competency:** Satisfied by University entrance expectations.

**Information Literacy Competency:** Satisfied by meeting the Writing Competency Requirement.

**Career Statement:** Agriculture and Natural Resources majors must submit a statement describing how courses relate to their desired career. This statement and courses for the major must be approved by advisor and College of Agriculture, Health and Natural Resources Associate Dean as early as possible in order to confirm the courses approved for the final Plan of Study.

A minor in Agricultural Biotechnology is described in the "Minors" section.

#### Allied Health Sciences

The Allied Health Sciences major leads to a Bachelor of Science degree. Students may elect to pursue the major with or without a concentration. The major offers a general (Standard) plan and four concentrations in Health Sciences, Healthcare Administration, Public Health and Health Promotion, and Occupational and Environmental Health and Safety. Please refer to information under the "Required courses by concentration" section for detailed information related to the major and concentrations.

#### Admission

Freshmen are admitted into the Department of Allied Health Sciences as Allied Health Sciences (AHS) majors. Students are advised in the Department of Allied Health Sciences. During the spring of their sophomore year or after completion of a minimum of 45 credits, students may remain an Allied Health Sciences major, may further define their major by petition into a concentration within the Allied Health Sciences major, or apply to a Professional Program (admission to a concentration within the AHS major or to a professional program is not automatic; refer to respective program admission information).

Students not admitted to the University as Allied Health Sciences majors may apply into this major during the first two weeks of each semester (does not apply to professional program application; see professional program admission information).

Students who apply to the Allied Health Sciences major as a second major for additional degree or double major will be subject to department review and admission decision consistent with the admission requirements.

University readmission applicants who declare the AHS major will be subject to department review and admission decision consistent with the procedure applied to current non-AHS students applying to the major.

Students who apply to the Allied Health Sciences major with admission requirement coursework in transfer must provide the department with an official transcript as part of their application documentation.

Admission to the Allied Health Sciences major is competitive. The following requirements must be met for consideration of admission into the Allied Health Sciences major. Admission requirements must be complete at time of application to be considered for admission.

1. Be in good academic standing (not on probation or eligible for dismissal).
2. Math and Science GPA to include at least one each of the following with no grades less than a C (no substitutions):
  - a. CHEM 1122 or 1124Q or 1127Q;
  - b. BIOL 1107 or 1108 (preferred BIOL 1107);
  - c. MATH 1040Q or 1060Q or 1125Q, or higher; or STAT 1000Q or 1100Q.
3. Students must have a minimum of a 3.4 cumulative GPA to be admitted into the Healthcare Administration concentration.

Please note: AH 1100 is recommended as a preparation for admission, but must be completed within one (1) year following admission into the Allied Health Sciences major. Students admitted to the AHS major typically have

a cumulative GPA of 2.8 or higher and a science and math GPA of 2.7 or higher; however, competitive applicants will have greater than a 3.0 cumulative GPA. Advanced course work completed (i.e. science courses 2000 level and above) with grades less than a C may be cause for denial of admission. Students petitioning their junior or senior year may require additional semesters to complete requirements depending on how their coursework meets program requirements and course availability at time of registration. Please contact the department for questions as they relate to admissions.

Admission to the Health Sciences, Healthcare Administration, Public Health and Health Promotion, or Occupational and Environmental Health and Safety concentrations within the Allied Health Sciences major requires a minimum of 45 earned credits, a cumulative GPA of 2.2 or higher (a 3.4 GPA is required for Healthcare Administration), academic good standing, and successful completion of one college level (1000 level or higher) course in each of the following: biology, chemistry, and mathematics as listed in the admission requirements.

To satisfy the general education requirements for computer technology and information literacy competencies, Allied Health Sciences majors must meet the University's entrance expectations. They will not have to meet any advance requirements for computer technology and information literacy competency.

To satisfy the general education requirement for writing in the major, Allied Health Sciences students must pass the writing in the major course as indicated by concentration.

The course requirements listed below are those of the Department of Allied Health Sciences and may also satisfy the University's General Education requirements.

### Required courses by concentration

Students majoring in Allied Health Sciences (AHS) must complete required courses and the 36-credit major requirement as indicated below in addition to the university general education requirements (in some cases, major courses may also be used to satisfy university general education requirements):

### 36 Credits Major Requirement

Students majoring in Allied Health Sciences (AHS) (with or without a concentration) must complete 36 credits of course work (Groups A and B below) meeting the following requirements:

1. Numbered 2000 level or above
2. Include a minimum of 30 credits completed at the University of Connecticut
3. Approved by the student's advisor and department head
4. Include coursework from two or more departments
5. Courses cannot be taken on pass/fail
6. Courses must be passed with a grade of "C" or better
7. Courses may be repeated once for a total of two times
8. Cannot include more than six credits (combined) of internship, independent study, or international study taken at the University of Connecticut
9. Cannot include more than eight credits of courses used to satisfy requirements for a minor

The 36-credit major and graduation requirements to the Allied Health Science:

**Group A:** A minimum of 18-21 credits (varies by concentration) in **Major** course work *within* CAHNR. Course requirements vary by concentration as indicated below.

**Group B:** A minimum of 15-18 credits in **Related Cognate** course work (varies by concentration) selected based on the student's interest, ability, and that speaks to the student's career goals and interests approved by the advisor and department head. Courses used cannot also be used to meet group A requirements. Students may include a maximum of six credits of combined International Study (AH 2093, 4093), Independent Study (AH 3099; DIET 3099; DGS 3999; MLSC 4099) and Internship credits (AH 3091) toward the Group B requirement with advisor and department head approval.

### Allied Health Sciences (Standard Plan)

The Allied Health Sciences major without a concentration is designed specifically for students who would like to pursue a broad-based baccalaureate degree in Allied Health or who would like to pursue *graduate* health programs that require a baccalaureate degree for admission. Working with an advisor, students design a flexible plan of study that they can tailor to meet their professional and personal goals. Students combine university general education and required coursework in Allied Health with coursework from departments across the university to tailor their baccalaureate degree to meet requirements for employment or admission to various graduate programs, including but not limited to Physical Therapy, Occupational Therapy, Post-Baccalaureate nursing programs, and Physician Assistant.

**Required courses:** AH 1100; BIOL 1107; CHEM 1122 or 1124Q or 1127Q; CHEM 1125Q or 1128Q or PHYS 1010Q; COMM 1000 or 1100; MATH 1040Q or 1060Q or 1125Q or higher; NUSC 1165; PHIL 1000-level; PSYC 1100; PSYC 1101 or 1103; PSYC 2300, 2400; STAT 1000Q or 1100Q; and two (2) additional science courses approved by the Department of Allied Health Sciences. Science courses used to meet other program requirements cannot be used to meet this requirement. Courses used to satisfy this requirement must be two or more credits.

Writing in the major: AH 4240W

**Group A major Courses:** (A-1) AH 4239 and 4240W; and (A-2) AH 2001; and (A-3) a minimum of 14 credits (or five additional courses) from the following list of CAHNR course options, three of which must be AH-coded: AH 3000, 3005, 3021, 3101, 3121, 3133, 3175, 3203, 3234, 3320, 3571, 3574, 4092, 4225, 4242, 4243, 4244, 4297W, 4501, 4503; DIET 3230; DGS 3222, 3226, 4224, 4234, 4246; NUSC 2200, 4236, 4250; PVS 3100, 4300. Other courses may be used to meet this requirement pending advisor and department head approval.

**Group B major Courses:** Courses used to meet the Allied Health Sciences (no concentration) related cognate group B may be from departments across the university including courses in Allied Health not used to meet other program requirements. Courses should relate to career goals and interests. Students are advised to discuss course options with their faculty advisor as not all courses may satisfy this requirement.

### Health Sciences Concentration

The Health Sciences (HESCI) concentration in Allied Health Sciences prepares students interested in health specialties which involve laboratory procedures for diagnostic purposes or who are looking to pursue allied health fields requiring a strong health science and pathology background. This concentration is also designed for students seeking admission to post baccalaureate (graduate) programs such as, but not limited to, Medical or Dental School, Epidemiology, Optometry, Pathology Assistant, Pharmacy or the Department of Allied Health Sciences' Post-Baccalaureate Diagnostic Genetic Sciences or Medical Laboratory Sciences Certificate Programs.

**Required courses:** AH 1100; BIOL 1107; CHEM 1124Q or 1127Q; CHEM 1125Q or 1128Q; CHEM 2241 and 2242 or 2443, 2444, and 2445; COMM 1000 or 1100; MATH 1060Q or 1125Q or higher; PHIL 1000-level; PHYS 1201Q and 1202Q or PHYS 1401Q and PHYS 1402Q or PHYS 1501Q and 1502Q; PSYC 1100; STAT 1000Q or 1100Q; and two (2) additional science courses approved by the Department of Allied Health Sciences. Science courses used to meet other program requirements cannot be used to meet this requirement. Courses used to satisfy this requirement must be two or more credits.

Writing in the major: AH 4240W

**Group A major courses:** (A-1) AH 4239 and 4240W; (A-2) AH 2001 plus two of the following: AH 3000, 4242, 4244; and (A-3) minimum of eight credits (or three additional courses) from the following list of CAHNR course options. AH 3005, 3021, 3101, 3121, 3175, 3320, 4092, 4225, 4243, 4297W; DGS 3222, 3226, 4224, 4234, 4246; NUSC 4236, 4250; PVS 3100, 4300. Courses cannot **also** be used to meet Group A-2 requirements. Other courses may be used to meet this requirement pending advisor and department head approval.

**Group B major Courses:** Courses used to meet the Health Sciences concentration related cognate group B must be from the following subject areas: AH major/Health Sciences concentration Group A-3 courses (not

used to meet that requirement) BIOL, CHEM, MCB, PHYS, PNB. Other science-based courses may be used to meet this requirement pending advisor and department head approval.

### Healthcare Administration Concentration

The Healthcare Administration (HADM) concentration in Allied Health Sciences prepares students interested in administration and managerial positions in hospitals, clinics, government planning and regulatory agencies, health maintenance organizations, hospital associations, consulting firms, computer vendors, health insurance companies, and hospital equipment and supplies manufacturers, etc. This concentration is also designed for students seeking admission into graduate programs such as the Department of Allied Health Sciences Master's Program in Health Promotion as well as for those looking to enroll in graduate programs such as Public Health, Health Administration, Health Insurance Studies, Health Policy and Law, and others.

**Required courses:** AH 1100; ANTH 1000 or GEOG 1700; BIOL 1107; CHEM 1122 or 1124Q or 1127Q; CHEM 1125Q or 1128Q or PHYS 1010Q; COMM 1000 or 1100; ECON 1201 and 1202; MATH 1070Q or 1125Q or higher; PHIL 1000-level; PSYC 1100; PSYC 1101 or 1103; PSYC 2400; PUBH 1001; STAT 1000Q or 1100Q; and two (2) additional science courses approved by the Department of Allied Health Sciences. Science courses used to meet other program requirements cannot be used to meet this requirement. Courses used to satisfy this requirement must be two or more credits.

Writing in the major: AH 4240W

**Group A major courses: (A-1)** AH 4239 and 4240W; **(A-2)** all of the following: AH 2001, 3570, and ARE 3222; and **(A-3)** minimum of nine credits (or three additional courses) from the following list of CAHNR course options: AH 3000, 3005, 3278, 3571, 3574, 4243, 4244, 4297W, 4501, ARE 4275 and DIET 3230. Courses cannot also be used to meet Group A-2 requirements. Other courses may be used to meet this requirement pending advisor and department head approval.

**Group B major courses:** Courses used to meet the Healthcare Administration concentration related cognate group B must be from the following: **(B-1)** ACCT 2001; BADM 2710 and 3730; HCMI 3240 and 3243; **(B-2)** three (3) additional credits at the 2000 level or higher (refer to Plan of Study for options). Other courses may be used with advisor and department head approval.

### Public Health and Health Promotion Concentration

The Public Health and Health Promotion (PHHP) concentration in Allied Health Sciences prepares students interested in working in a setting such as health and social service agencies, work site health promotion programs, government health agencies, hospital wellness programs, business, industry, and educational settings that emphasize health and wellness. This concentration is also designed for students seeking admission into graduate programs such as the Department of Allied Health Sciences Master's Program in Health Promotion as well as for those looking to enroll in graduate programs such as Public Health, Gerontology, Health Education, Health Administration, Health Policy and Law, Health Psychology, or the Department of Allied Health Sciences Post-Baccalaureate Certificate in Health Promotion and Health Education.

**Required courses:** AH 1100; BIOL 1107; CHEM 1122 or 1124Q or 1127Q; CHEM 1125Q or 1128Q or PHYS 1010Q; COMM 1000 or 1100; MATH 1040Q or 1060Q or 1125Q or higher; NUSC 1165; PHIL 1000-level; PSYC 1100; PSYC 1101 or 1103; PSYC 2300, 2400; PUBH 1001; STAT 1000Q or 1100Q; and two (2) additional science courses approved by the Department of Allied Health Sciences. Science courses used to meet other program requirements cannot be used to meet this requirement. Courses used to satisfy this requirement must be two or more credits.

Writing in the major: AH 4240W

**Group A Major courses: (A-1)** AH 4239 and 4240W; **(A-2)** all of the following: AH 2001, 3005, 3175, 3231 and 4244; and **(A-3)** minimum of six credits (or two additional courses) from the following list of CAHNR course options: AH 3000, 3021, 3101, 3133, 3203, 3234, 3320, 3571, 4225, 4242, 4243, 4297W, 4501, 4503; DIET 3230; NUSC 2200, 4250. Other courses may be used to meet this requirement pending advisor and

department head approval. Courses cannot **also** be used to meet Group A-2 requirements.

**Group B Major courses:** Courses used to meet the Public Health and Health Promotion concentration related cognate group B must be from the following: **(B-1)** PUBH 3001; **(B-2)** twelve (12) additional credits at the 2000 level or higher (refer to Plan of Study for options). Other courses may be used with advisor and department head approval.

### Occupational and Environmental Health and Safety Concentration

The Occupational and Environmental Health and Safety (OEHS) concentration in Allied Health Sciences prepares students for careers in occupational safety and environmental health by acquiring knowledge to enhance safe work conditions and practices, and minimize disease and injuries. OEHS professionals identify, evaluate, control and communicate health and safety hazards (chemical, physical, biological and ergonomic) related to the workplace, homes, schools, recreational and outdoors environments, and promote health and safety by recommending safer working conditions and lifestyle practices. The concentration also provides a foundation for professional certification in individual OEHS disciplines such as safety, industrial hygiene and ergonomics, and it uniquely positions students for graduate studies in OEHS and related disciplines.

**Required courses:** AH 1100, ARE 1150 or ECON 1000; BIOL 1107; CHEM 1124Q or 1127Q; CHEM 1125Q or 1128Q; COMM 1000 or 1100; MATH 1060Q or 1125Q or 1131Q or higher; NRE 1000; PHIL 1000-level; PHYS 1010Q or PHYS 1201Q or higher; PUBH 1001; STAT 1000Q or 1100Q; and two (2) additional science courses approved by the Department of Allied Health Sciences. Science courses used to meet other program requirements cannot be used to meet this requirement. Courses used to satisfy this requirement must be two or more credits. (CHEM 1126Q and/or CHEM 2241 suggested.)

Writing in the major: AH 4221W

**Group A Major courses: (A-1)** AH 4221W; **(A-2)** all of the following: AH 2001, 3175, 3275, 3570, and 4241; **(A-3):** A minimum of six credits (or two additional courses) of the following courses: AH 3005, 3571, 3573, 4501; ANSC 4341, 4642. Other courses may be used to meet this requirement pending advisor and department head approval.

**Group B Major courses:** Courses used to meet the Occupational and Environmental Health and Safety concentration related cognate group B must be from the following: **(B-1)** Two courses (minimum of six credits) from the following: AH 3278 and 3574 or EEB 2244 and MCB 3211; and **(B-2)** nine (9) additional credits at the 2000 level or higher (refer to plan of study for options). Other courses may be used with advisor and department head approval.

### Animal Science

This major provides six areas of interest leading to the B.S. degree: Pre-professional (veterinary medicine or graduate training), Animal Biotechnology, Business/Service, Equine Science, Food Science, and Production Management. For detailed information, please refer to: [www.animalscience.uconn.edu](http://www.animalscience.uconn.edu).

Animal Science majors must pass all courses from Group A, at least one course from Group B, at least one course from Group C, and one additional course from either Group B or C. No single class can satisfy more than one requirement.

**Group A:** (All of the following): ANSC 1001, 1111, 3121, 3122, 3194; PVS 2100; BIOL 1107, 1108; CHEM 1122 or 1127Q or both 1124Q and 1125Q; CHEM 2241 and 2242, or CHEM 2443 and 2444 and 2445; One of the following: ANSC 4341, MCB 2000, MCB 2610

**Group B:** ANSC 2251, 2271, 3261, 3272, 3273

**Group C:** ANSC 3311, 3313, 3316, 3323, 3343, 3641, 4311, 4341 (if not already taken to fulfill Group A requirement)

To satisfy the general education requirement for the computer technology competency, students must meet the University's entrance expectations.

To satisfy the general education requirement for information literacy, students must pass ENGL 1010 or 1011 or 2011 and one of the following

courses: ANSC 3312W, 3317W, 3324W, 3194, 3261, 3314W, 3344W, 3642W, 4312W, 4342W, or 4662W.

To satisfy the general education requirement for writing in the major, students must pass either ANSC 3312W, 3314W, 3317W, 3324W, 3344W, 3642W, 4312W, 4342W, or 4662W.

The Department of Animal Science offers minors in Animal Science, Dairy Management, Food Science, and Therapeutic Horsemanship Education. These are described in the "Minors" section of this Catalog.

## Applied and Resource Economics

*(Formerly offered as Resource Economics)*

This major in the Department of Agricultural and Resource Economics applies analytical and decision-making skills to problems of production and distribution of food products, and the management of natural resources and the environment. The Applied and Resource Economics major places a high priority on program flexibility and individualized attention. In addition to meeting the general education requirements of the University and the College, students majoring in Applied and Resource Economics are expected to take a common core of courses. Students may concentrate in one or more of the following areas: Marketing and Business Management, Environmental Economics and Policy, and International Development. Concentration areas are optional (not required to fulfill the requirements for the major). For detailed information, please refer to [www.are.uconn.edu](http://www.are.uconn.edu).

**Competency Requirements.** All Applied and Resource Economics majors must pass ARE 1150 or ECON 1200 or ECON 1201; ARE 3150; and a minimum of nine additional credits of ARE courses at the 2000 level or above. Students must also pass either ARE 3261W or 3440W to fulfill their writing in the major requirement. The advanced information literacy requirement is fulfilled with either ARE 3261W or 3440W. There are no advanced requirements for computer technology. The courses used to satisfy the nine additional credit ARE minimum can also be used to fulfill the 36 credit requirement and the concentrations.

**Concentrations.** Applied and Resource Economics majors may concentrate in one or more of the following areas: Marketing and Business Management, Environmental Economics and Policy, and International Development. Majors choosing a concentration are required to complete 18 credits from the list of specified courses for a given concentration. A minimum of nine credits of ARE courses at the 3000 level or above are required for each concentration.

**Marketing and Business Management:** ARE 3210, 3215, 3221, 3222, 3225, 3260, 3333, 3434, 4217, 4275, 4279, 4464; ECON 2411; with approval of advisor up to three credits of any 3000-level or above course.

With the approval of the advisor, additional courses in ARE or in related fields can be used to fulfill the 36-credit requirement for the major with this area of concentration.

**Environmental Economics and Policy:** ARE 3210, 3235, 3260, 3333, 3434, 3436, 4217, 4305, 4438, 4444, 4462, 4464; GEOG 2100; NRE 3245; with approval of advisor up to six credits of any 3000-level or above course.

With the approval of the advisor, additional courses in ARE or in related fields can be used to fulfill the 36-credit requirement for the major with this area of concentration.

**International Development:** ARE 3210, 3215, 3260, 3333, 3434, 4279, 4305, 4444, 4464; ANTH 3325; ECON 2440, 2456, 3421/W, 3473/W; GEOG 2100, 3100; POLS 3402, 3406, 3410; SOCI 3701; WGSS 2267, 3216; with approval of advisor up to six credits of any 3000-level or above course.

With the approval of the advisor, additional courses in ARE or in related fields can be used to fulfill the 36-credit requirement for the major with this area of concentration.

Minors in Agribusiness Management, Environmental Economics and Policy, and Equine Business Management are described in the "Minors" section.

## Athletic Training

The Department of Kinesiology provides students with the opportunity to pursue an undergraduate degree in areas emphasizing exercise science and exercise research. It has well-equipped laboratories in Exercise Physiology, Exercise Biochemistry, and Sport Biomechanics.

The Department of Kinesiology offers majors in Athletic Training and Exercise Science.

Most students participate in the services offered by the Academic Center for Exploratory Students (ACES) during their freshman and sophomore years. Students who intend to pursue a kinesiology major declare as pre-kinesiology.

### Admission

During sophomore year, students must submit an application and all supporting materials by November 1.

Successful applicants to the Department of Kinesiology generally have completed sufficient credits to be eligible for consideration, have applied by the annual deadline, have competitive aptitude test scores, have accumulated sufficient experience related to their career choice, have written acceptable essays, have submitted required personal recommendations confirming their professional potential, and have earned the most competitive grade point average. The Athletic Training major is a competitive and selective academic program that prepares students for a professional career in the field of Athletic Training. All prospective Athletic Training students must be enrolled in KINS 2100/2110 and KINS 3100 and meet the November 1st deadline to be considered for admission in the spring of their sophomore year. Students are encouraged to contact Dr. Stephanie Mazerolle, Director, Entry-Level Athletic Training at [stephanie.mazerolle@uconn.edu](mailto:stephanie.mazerolle@uconn.edu) for any additional information.

### Requirements

The Athletic Training major's aim is to prepare students to become certified as athletic trainers by the BOC\* and work with interscholastic, intercollegiate, and professional sport teams; and sport medicine centers that specialize in sport injuries and rehabilitation. Applicants for this degree will be required to complete 100 hours of observations/experience under the supervision of a certified athletic trainer. The observation hours will be accrued during the semester of application to the program as part of KINS 2100/2110. Additional experiences under the supervision of a certified athletic trainer are encouraged. The students complete coursework in general education, cognate areas, and kinesiology. Requirements for a Bachelor of Science degree in Athletic Training include: BIOL 1107; CHEM 1122 or 1127Q; COMM 1100; NUSC 1165, 4250; PHYS 1010Q or 1201Q; PNB 2264-2265; PSYC 1100; STAT 1000Q or 1100Q; KINS 1160 (credits and topics as approved by advisor), 2100, 2110, 3100, 3101, 3102, 3103, 3104, 3110, 3111, 3112, 3113, 3114, 3115 (credits and topics as approved by advisor), 3120, 3122, 3125, 3130, 3140, 3150, 3155W, 3156, 3160, 3165W, 3170, 3177, 3522, 3545, 4510/W.

\* BOC certification requires that students (a) receive a Bachelor of Science degree in athletic training from an accredited program in athletic training and, (b) pass a national certification examination.

All students in the Department of Kinesiology will be required to successfully complete two writing intensive courses within the College of Agriculture, Health and Natural Resources. The W courses in each of the major program fields will develop writing skills specific to the content area domain as well as be consistent with the practices of professionals in the areas of athletic training and exercise physiology. Courses that will satisfy the W requirement include: KINS 3099W, 3155W, 3165W, 3530W, 3697W, and 4510W. The information literacy competency requirement for students in the Department of Kinesiology will be satisfied by the successful completion of the W courses within each major.

### Accreditation

The Athletic Training Education Program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). Upon completion of the program, students are eligible to take the National Athletic Trainers Association, Board of Certification (BOC) administered certification examination. Students who pass the BOC Certification

Examination will be eligible for athletic training licensure or other state requirements for practice.

## Diagnostic Genetic Sciences

The Diagnostic Genetic Sciences major leads to a Bachelor of Science degree and offers two concentrations: Cytogenetics and Molecular Diagnostics. Cytogenetic technologists study blood, bone marrow, solid tissues, and amniotic fluid for chromosomal abnormalities that are associated with genetic malformations and diseases like cancer. Molecular technologists evaluate and investigate DNA and RNA with regards to disease, identity, cancer and forensics. The on-campus course requirements for the two emphasis areas are the same, but the clinical courses differ.

Both concentrations are accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) (5600 N. River Road, Suite 70, Rosemont, IL 60018-5119, phone: 773-714-8880). Graduates are eligible to take the American Society of Clinical Pathology Board of Certification (ASCP BOC) certification examination in their concentration (Cytogenetics or Molecular Biology) immediately upon graduation.

### Requirements

The course requirements listed below may also be used to satisfy the University's General Education requirements.

**Mathematics and Science Courses** - CHEM 1124Q and 1125Q or CHEM 1127Q and 1128Q; CHEM 2241 or CHEM 2443; BIOL 1107; MATH 1040Q or 1060Q or 1125Q or above; MCB 2400 or 2410, 2610; STAT 1000Q or 1100Q.

**Professional Courses** - AH 2001, 3121, 4241; DGS 3222, 3223, 3225, 4224, 4234W, 4235, 4236, 4246, 4248; MLSC 4500. Cytogenetics Concentration Clinical Courses: DGS 4810, 4820, 4830, 4850 or 4997; Molecular Concentration Practicum Courses: DGS 4501, 4502, 4503, 4850 or 4997; and one of the following: DGS 4510, 4512, 4513, 4514, 4515.

**Writing in the Major** - DGS 4234W.

**Computer Technology** - University entry-level competencies have been reviewed and satisfy all program requirements.

**Information Literacy** - Competencies will be met through successful completion of program major courses.

### Diagnostic Genetic Sciences Certificate Program

The Diagnostic Genetic Sciences Certificate Program is open to individuals with a baccalaureate degree in Medical Laboratory Sciences, or the biological or natural sciences, and who meet the specific course prerequisites and academic standards. Students apply to one of two concentrations within this program: Cytogenetics or Molecular Diagnostics. Upon completion, the student receives a certificate from the College of Agriculture, Health and Natural Resources.

Upon successful completion of the Program, students are eligible to sit for the American Society for Clinical Pathology Board of Certification (ASCP BOC) certification examination in their concentration (Cytogenetics or Molecular Biology), immediately upon graduation.

For information about admission, supplemental academic standards, and clinical placement requirements, please see "Department of Allied Health Sciences Professional Majors" at the end of the College of Agriculture, Health and Natural Resources section of this catalog.

## Dietetics

The Dietetics major leads to a Bachelor of Science degree. The program combines theory in the classroom with supervised practice in clinical dietetics, community nutrition, and food service sites off campus to prepare students to sit for the National Registration Examination for Dietetics and earn the credential of RD. Dietitians assess nutritional needs, plan individualized dietary plans, provide counseling and evaluate nutritional care for individuals and groups.

The Dietetics major is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND), 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6695, (800) 877-1600. Students in the Dietetics Coordinated Program will graduate in May of their senior year, but must also complete a six-credit externship immediately thereafter

in order to receive a verification statement certifying that all coursework and supervised practice requirements have been completed. This statement qualifies the student to sit for the national registration examination, which they must pass in order to become a Registered Dietitian. The externship entails six weeks (40 hours/week) of intensive supervised practice experiences. Students will register for the externship as a non-degree student and will incur an additional expense.

### Requirements

The course requirements listed below may also be used to satisfy the University's General Education requirements.

**Mathematics and Science Courses** - CHEM 1124Q and 1125Q or CHEM 1127Q and 1128Q; BIOL 1107; STAT 1000Q or 1100Q; MCB 2000, 2610; PNB 2264 and 2265; CHEM 2241; NUSC 1165, 1167, 2200, 3233, 3234

**Social Sciences** - One 1000-level or higher course in either psychology or sociology

**Professional Courses** - AH 4241, 4242, 4244, DIET 3150, 3155, 3215, 3230, 3231W, 3235, 3250, 3255, 3272, 4272, 4350, 4360, 4365, 4370, 4415, 4435, 4455, 4470, 4475

**Writing in the Major** - DIET 3231W.

**Computer Technology** - University entry-level competencies have been reviewed and satisfy all program requirements.

**Information Literacy** - Competencies will be met through successful completion of program major courses.

### Dietetic Internship

The Dietetic Internship is a certificate program administered by the Department of Allied Health Sciences' Dietetics major in collaboration with Hartford Hospital. The internship provides the student with the performance requirements for entry-level dietitians through a minimum of 1200 hours of supervised practice. The Dietetic Internship is accredited by the Academy of Nutrition and Dietetics Commission on Accreditation for Dietetics Education, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6695, (800) 877-1600. Students enrolled in this program are required to take six credits of didactic coursework at the graduate level to insure competency. Upon completion of the Dietetic Internship the student is eligible to take the National Registration Examination for Dietetics administered by the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. Students must pass this examination in order to be a Registered Dietitian.

For information about admission, supplemental academic standards, and clinical placement requirements, please see "Department of Allied Health Sciences Professional Majors" at the end of the College of Agriculture, Health and Natural Resources section of this catalog.

## Environmental Sciences

The major in Environmental Sciences is based in the physical and biological sciences, but also includes course work in selected areas of the social sciences. The major leads to a Bachelor of Science degree, and may be adopted by students in either the College of Agriculture, Health and Natural Resources or the College of Liberal Arts and Sciences. This curriculum offers a comprehensive approach to the study of environmental problems, including not only a rigorous scientific background, but also detailed analyses of the social and economic implications of environmental issues. The complexity and interdisciplinary nature of environmental science is reflected in the core requirements of the major. These courses, assembled from several different academic departments representing two colleges, provide both breadth and depth, preparing students for careers that deal with environmental issues, and for graduate study in environmental sciences and related fields.

### Required courses in Basic (Natural) Sciences

BIOL 1107 and 1108 or 1110; CHEM 1124Q, 1125Q, 1126Q or 1127Q, 1128Q; MATH 1131Q, 1132Q; PHYS 1201Q, 1202Q, or 1401Q, 1402Q; STAT 1000Q or 1100Q or 3025Q; NRE 1000.

ARE 1150; ECON 1200 or 1201; GEOG 2300; GSCI 1050; and MARN 1002 are prerequisites for several upper division course concentration

options. It is the student's responsibility to ensure that all pre-requisites in the catalog for concentration courses have been satisfied.

### Required Sophomore Seminar Course

A 2000-level environmental sciences sophomore seminar course as approved by the advisor.

### Required Capstone Course

NRE 4000W (three credits). Completion of NRE 4000W satisfies the writing in the major and information literacy exit requirements.

### Required Internship or Research Experience

1-6 credits of internship and/or research experience. Internship and/or research experience must be approved by the student's advisor.

### Area of Concentration

All students majoring in Environmental Sciences must declare and fulfill the requirements of a concentration in a discipline associated with the program before graduation. Approved concentrations are listed below.

#### Sustainable Systems Concentration

Students must complete at least two courses from each of the following Knowledge Competencies. The same course cannot be used to fulfill more than one knowledge competency.

**Resource Management:** EEB 2208; GEOG 3340; MARN 3030; NRE 2010, 2215, 2345, 3105, 3125, 3155, 3305, 3335, 3345/W, 3500, 3535, 4335, 4575. **Ecological Systems:** EEB 2244/W, 3247, 4230W; EEB 3230/MARN 3014; NRE 2455, 3205, 4340.

Students must complete at least one course from each of the following Knowledge Competencies.

**Built Systems:** AH 3175; GEOG 2400; HORT 3765; LAND 3230W; NRE 3265. **Governance and Policy:** AH 3174; ARE 3235, 3434, 3437, 4438, 4462; ECON/MAST 2467; GEOG 3320W; MAST/POLS 3832; NRE 3000, 3201, 3245; POLS 3412; SOCI 3407/W. **Ethics, Values, and Culture:** ANTH 3339; ENGL 3240, 3715; GEOG 3410; HIST 3540, 3542; JOUR 3046; PHIL 3216; SOCI 2701, 2705, 2709W, 3407/W. **Economics and Business:** ARE 3235, 4305, 4438, 4444, 4462, 4464; ECON/MAST 2467; ECON 3466, 3473.

#### Global Change Concentration

Students must complete at least two courses from each of the following Knowledge Competencies. The same course cannot be used to fulfill more than one knowledge competency.

**Climate Change and its Impacts:** GEOG 3400, 4300; GSCI 3010; MARN 3000; NRE 3115, 3146, 4170. **Land and Ocean Use and its Impacts:** EEB 2208; GEOG 3310, 3410; GSCI 3020; GSCI/MARN 3230; HORT 3765; MARN 3001, 3030, 4066; NRE 2215, 2345, 3105, 3115, 3155, 4340; NRE 4135/GSCI 4735. **Natural Science:** CHEM 4370, 4371; EEB 2244/W, 2245/W, 3247; EEB 3230/MARN 3014; EEB/GSCI 4120; GEOG 2300; MARN 2002, 2060, 3003Q, 4030W, 4060; NRE 2455, 3125, 3145, 3205; SOIL 2120, 3410.

Students must complete at least one course from each of the following Knowledge Competencies.

**Methods:** CE 2251; CE/ENVE 3530/GSCI 3710; EEB 3266, 4230W, 4262; GEOG 3500Q; GEOG/GSCI 4230; GEOG/MARN 3505; MARN 3003Q; NRE 2000, 2010, 3305, 3345/W, 3535, 4335, 4475, 4535, 4544, 4545, 4575, 4665; PHYS 2400; STAT 2215Q, 3025Q. **Governance and Policy:** AH 3174; ARE 3235, 3434, 3437, 4438, 4462; ECON/MAST 2467; EVST/POLS 3412; GEOG 3320W; MAST/POLS 3832; NRE 3000, 3201, 3245; SOCI 3407/W.

#### Human Health Concentration

Students must pass all of the following: AH 3021, 3175, 3275; ANSC 4341; MCB 2610.

Students must pass two of the following; totaling six or more credits: ANSC 4642; MCB 2400, 3010, 3011, 3201, 3633, 4211; PVS 2100.

Students must pass one of the following: AH 3570, 3571, 3573, 3574; PVS 4300.

Note: A B.S. in Environmental Sciences can also be earned through the College of Liberal Arts and Sciences. For a complete description of the major in that college, refer to the Environmental Sciences description in the "College of Liberal Arts and Sciences" section of this *Catalog*.

## Environmental Studies

The Environmental Studies major is an interdisciplinary program designed to provide students with the knowledge, skills, and perspectives needed to understand the interactions between human society and the environment. Understanding the ethical and cultural dimensions of our relationship with the environment, as well as the challenges of protecting it, requires insights from multiple perspectives, including the humanities, the social sciences, and the natural sciences. Core courses in the major ensure familiarity with basic principles from these three areas. With this shared core of knowledge, majors will focus their studies on an area of special interest, taking electives and related courses that allow greater specialization. Among the many possibilities are environmental sustainability, issues concerning public policy and environmental justice, and the literary and philosophical legacy of human encounters with the non-human world. A capstone course will allow each student to research a distinct perspective on a contemporary environmental issue. A major in Environmental Studies might lead to a career in a variety of fields, including public policy, environmental education, eco-tourism, marketing or consulting, journalism, or advocacy.

The major leads to a Bachelor of Arts degree in the College of Liberal Arts and Sciences (CLAS) or the College of Agriculture, Health and Natural Resources (CAHNR). The student's choice of colleges should be made in consultation with faculty and advisors based upon the student's interests and career goals.

### Requirements:

#### Introductory Courses

All majors must take three introductory courses: EVST 1000; NRE 1000, GEOG 2300, GSCI 1050 or GSCI 1051; BIOL 1102 or, for those seeking a more advanced background, BIOL 1108; STAT 1000Q or 1100Q or equivalent.

#### Core Courses

(18 credits) All majors must take two of the following courses from each core. Students cannot apply more than one course per department to count within a particular core. Additional core courses taken in the same department can be applied to the additional major requirements beyond the core requirements.

#### Humanities Core

PHIL 3216; HIST 3540 or HIST 3542; ENGL 3240 or ENGL 3715 or JOUR 3046.

#### Social Sciences Core

ARE 3434 or ARE 4462 or ECON 3466; NRE 3000; NRE 3245; POLS 3412.

#### Natural Science Core

EEB 2208, GEOG 3400, AH 3175, GSCI 3010; NRE 4170.

#### Capstone Research Project

EVST 4000W (three credits). All majors must complete a capstone research project, which fulfills the Writing in the Major and the Information Literacy requirements for the major.

Additional requirements for the major: In addition, environmental studies majors in CAHNR must take an additional 15 credits of courses at the 2000 level or above to meet the 36-credit major requirement. These courses must be designed to form a coherent set of additional courses that will provide the student with a focus or additional depth in an area of interest related to the major. They must be chosen in consultation with the student's faculty advisor and be approved by the advisor. Courses listed above that are not used to meet the core requirements may be used to meet this requirement.



**\*Other areas of recommended preparation (not required):****Physical Science:** CHEM 1122, 1127Q; PHYS 1030Q/1035Q.**Earth Science:** GSCI/GEOG 1070; MARN 1002/1003**Economics:** ARE 1110, 1150; ECON 1179, 1200, 1201

Note: A B.A. in Environmental Studies can also be earned through the College of Liberal Arts and Sciences. For a complete description of the major in that college, refer to the Environmental Studies description in the "College of Liberal Arts and Sciences" section of this Catalog.

## Exercise Science

The Department of Kinesiology provides students with the opportunity to pursue an undergraduate degree in areas emphasizing exercise science and exercise research. It has well-equipped laboratories in Exercise Physiology, Exercise Biochemistry, and Sport Biomechanics.

The Department of Kinesiology offers majors in Athletic Training and Exercise Science.

Most students participate in the services offered by the Academic Center for Exploratory Students (ACES) during their freshman and sophomore years. Students who intend to pursue a kinesiology major declare as pre-kinesiology.

### Admission

During sophomore year, students must submit an application and all supporting materials by February 1.

Successful applicants to the Department of Kinesiology generally have completed sufficient credits to be eligible for consideration, have applied by the annual deadline, have competitive aptitude test scores, have accumulated sufficient experience related to their career choice, have written acceptable essays, have submitted required personal recommendations confirming their professional potential, and have earned the most competitive grade point average.

### Requirements

Exercise Science prepares students to analyze sport and exercise performance in a physiological context. The majority of students use this major to prepare for graduate study in exercise physiology. Other students have used this major in preparation for medical school, physician assistant programs, and physical therapy. Students complete coursework in general education, cognate areas, and kinesiology. Requirements include: BIOL 1107, 1108; CHEM 1127Q, 1128Q; 2241 or 2443; COMM 1100; MATH 1060Q or 1131Q; MCB 2000 or 3010; NUSC 1165; PHYS 1201Q, 1202Q; PNB 2264-2265; PSYC 1100; STAT 1000Q or 1100Q; KINS 1160 (credits and topics as approved by advisor), 3099 (credits and topics as approved by advisor), 3320, 3522, 3525, 3530W, 3545, 4500, 4510W.

**Related Electives:** Students select a minimum of 12 credits from the following courses: CHEM 2444 (if CHEM 2443 was taken), CHEM 2445 (if CHEM 2444 was taken or taken concurrently); MCB 2210, 2410, 2610, 3011, 3201, 3219, 4211; NUSC 4250; PVS 4300; PNB 2250, 3251, 3262; PSYC 2200, 3601 (if PSYC 1101 or 1103 was taken).

All students in the Department of Kinesiology will be required to successfully complete two writing intensive courses within the College of Agriculture, Health and Natural Resources. The W courses in each of the major program fields will develop writing skills specific to the content area domain as well as be consistent with the practices of professionals in the areas of athletic training and exercise physiology. Courses that will satisfy the W requirement include: KINS 3099W, 3155W, 3165W, 3530W, 3697W, and 4510W. The information literacy competency requirement for students in the Department of Kinesiology will be satisfied by the successful completion of the W courses within each major.

## Horticulture

*See Sustainable Plant and Soil Systems*

### Individualized Major

The Individualized Major program allows students to create a major that is not otherwise offered at the University of Connecticut. Students pursuing an Individualized Major must meet all university-level and

college-level requirements for graduation and complete at least 36 credits numbered 2000 or above. Requirements for declaring and completing an Individualized Major are listed below:

- Students must be in good academic standing with a minimum GPA of 2.5 to declare an Individualized Major.
- Students must submit a proposed statement of purpose and identify three faculty members who are willing to serve as an advisory committee.
- An Individualized Major has a minimum of 36 credits numbered 2000 or above courses which must: be from two or more departments; include at least 18 credits from departments in the College of Agriculture, Health and Natural Resources; be approved by the student's advisory committee; be taken at the University of Connecticut; have a combined Grade Point Average of at least 2.5; include no more than six credits of Independent Study and Internship; not to be taken on Pass/Fail; meet all requirements of the "36 Credit Group" of the College of Agriculture, Health and Natural Resources

To satisfy the general education requirement for the computer technology competency, Individualized Majors must meet the University's entrance expectations. They will not have to meet any advanced requirement for computer technology.

The writing in the major and information literacy requirements will be satisfied by meeting these requirements for any of the majors within the College of Agriculture, Health and Natural Resources.

## Landscape Architecture

This major provides instruction in site planning and design, landscape history, landscape architectural graphics and presentation. It includes the use of plants and other features to enrich exterior spaces. Through seminars, studio projects and internships, students learn to apply theory to actual case studies. The program is accredited by the American Society of Landscape Architects. For detailed information, please refer to: [www.cag.uconn.edu/plsc/plsc/students/undergrad/landscape\\_architecture.php](http://www.cag.uconn.edu/plsc/plsc/students/undergrad/landscape_architecture.php)

Landscape Architecture majors must pass the following courses:

BIOL 1108 or 1110

CHEM 1122 or 1124Q or 1127Q

HORT 3410; SOIL 2120; LAND 2110, 2120, 2210, 2220, 2410, 3130, 3230W, 3310, 3320, 3330, 3420, 3430, 4294, 4340, 4440, and 4450

One of the following: HORT 2430, 2750, 3765; PLSC 4210; SOIL 3520; EEB 4272; NRE 2415

**Supplementary Scholastic Standards.** Accreditation and space restrictions necessitate that the number of students in the Program of Landscape Architecture be limited. All students choosing the landscape architecture major will be evaluated after they have taken introductory landscape architecture courses LAND 2110 and 2210. Minimum requirements for continuance in the Program of Landscape Architecture are a cumulative grade point average of 2.5 or better and a grade of 3.0 (B) or better in both introductory courses. For students meeting these requirements, faculty evaluation of a portfolio of work produced in introductory courses, student essay and GPA will determine final acceptance into the Program.

Thereafter students must maintain a cumulative grade point average of 2.5 or better, and must earn grades of 2.7 (B-) or better for all major (LAND) courses. Students who receive more than one grade below 2.7 (B-) in major (LAND) courses may be dismissed from the major. Courses may be retaken if space allows, with permission of the instructor, but no course in the Program of Landscape Architecture may be repeated more than once (for a total of two times).

Students successfully completing these courses will have met their general education exit requirements for computer technology and information literacy.

Landscape Architecture majors must take LAND 3230W to fulfill their requirement for writing in the major.

## Medical Laboratory Sciences

Medical Laboratory Scientists apply biological and chemical principles to perform, interpret, and correlate laboratory analyses on body fluids and tissues. Medical Laboratory Scientists are responsible for selecting

appropriate methods and implementing quality assurance for tests designed to promote health, and prevent, diagnose and treat diseases.

The Medical Laboratory Sciences major leads to a Bachelor of Science degree. The MLS Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 North River Road, Suite 720, Rosemount, IL 60018-5119, phone (773) 714-8880. Graduates are eligible for the National Board of Certification examination administered by the American Society for Clinical Pathology (ASCP) immediately upon graduation.

## Requirements

The course requirements listed below may also be used to satisfy the University's General Education requirements.

**Mathematics and Science Courses.** CHEM 1124Q and 1125Q or CHEM 1127Q and 1128Q; CHEM 2241 or CHEM 2443 and 2444; BIOL 1107; MATH 1040Q or 1060Q or 1125Q or above; STAT 1000Q or 1100Q; MCB 2000 and 2610; 2400 or 2410; PVS 4300 or PNB 2264 and 2265 or 2274 and 2275.

**Professional Courses.** AH 2001, 3121, 4241 4244; DGS 4234, 4235; MLSC 3301, 3333, 3365, 4094W, 4301, 4302, 4311, 4312, 4321, 4322, 4341, 4342, 4351, 4352, 4366, 4371, 4372, 4500

**Writing in the Major.** MLSC 4094W.

**Computer Technology.** University entry-level competencies have been reviewed and satisfy all program requirements.

**Information Literacy.** Competencies will be met through successful completion of program major courses.

## Medical Laboratory Sciences Certificate Program

The Medical Laboratory Sciences Certificate Program is open to individuals with a baccalaureate degree in the biological or natural sciences and who met the specific course prerequisites and academic standards. Upon successful completion, students are eligible to sit for the National Board of Certification Examination administered by the American Society of Clinical Pathology (ASCP).

Prospective students are advised to contact the Department of Allied Health Sciences (860-486-2834) for program information and admission requirements.

For information about admission, supplemental academic standards, and clinical placement requirements, please see "Department of Allied Health Sciences Professional Majors" at the end of the College of Agriculture, Health and Natural Resources section of this catalog.

## Natural Resources

This major, offered by the Department of Natural Resources and the Environment, prepares students for careers related to the management of natural resources. Students develop skills in applying modern technology, concepts and principles dealing with sustainable development, environmental protection and resource conservation. In addition to core requirements, all students must complete one or more of the following concentrations: Environmental Sustainability and Conservation (including the option for a pre-approved Education Abroad experience), Fisheries and Wildlife Conservation, Sustainable Forest Resources, or Water Resources and Climate. (For detailed information, please refer to: [www.nre.uconn.edu](http://www.nre.uconn.edu))

**Competency Requirements:** Students successfully completing the courses listed below will have met their General Education information literacy exit requirements for this major. Students are expected to have gained additional computer technology competency in the fields of geographic information systems (GIS) and Global Positioning System (GPS) data collection and processing. Students will gain these competencies by passing NRE 2000. Students passing NRE 4000W will satisfy the writing competency requirement within the major.

All Natural Resources majors must pass the following core requirements: NRE 1000, 2000, 2010, 3000, 4000W, 4094; BIOL 1107 or 1108 or 1110; CHEM 1122 or 1124Q or 1127Q; MATH 1060Q or 1131Q; SOIL 2120 and 2125 or GSCI 1050; PHYS 1201Q or 1401Q; STAT 1100Q

## Environmental Sustainability and Conservation

All of the following: ARE 1150 or ECON 1201; NRE 1235, 2600, 3245, or ARE 3434.

One course from each of the following four groups (the same course cannot be used to fulfill more than one group) or Education Abroad (12 credits or equivalent completed abroad of courses pre-approved by NRE):

**Sustainability Concepts:** ANTH 3339; ENVE 1000; NRE 3265; PLSC 2100; SOCI 2701, 3407/W

**Economics and Social Science:** ANTH 3339; ARE 3235, 4438, 4444; ECON 2467, 3466; GEOG 3320W, 3340, 3410; PHIL 3216; POLS 3239, 3412, 3847; SOCI 2701, 3407/W

**Natural Resources/Ecologic Science:** EEB 2244/W, 3247; EEB 3230/MARN 3014; MARN 3000; NRE 2455, 3105, 3125, 3145, 3146, 3205, 4370; PLSC 2500

**Resource Conservation and Management:** NRE 3155, 3305, 3335, 4165, 4170, 4335, 4475, 4665.

## Fisheries and Wildlife Conservation

All of the following: EEB 2214, 2244/W; NRE 2345, 3335 or 4335, 3345/W or 4575, 4370

One of the following: ANSC 1111, 3121; EEB 3254, 3265, 4200, 4215, 4250, 4260 or 4261; NRE 4340; PSYC/EEB 3201; PVS 2100, 4300

One of the following: EEB 3247; NRE 2455, 3105, 3205

## Sustainable Forest Resources

All of the following: NRE 2345, 2415, 2455, 3125, 3500, 3690, 4475

One of the following: NRE 3535, 4544, 4545, 4575

## Water Resources and Climate

All of the following: NRE 2215, 3125, 3145 or 3146

Five additional courses from among the following groups, including at least one from the Hydrologic Science group and at least one from the Biological/Ecological Science group (whichever of NRE 3145 or 3146 is used to fulfill the above requirement cannot be used to also fulfill this requirement):

**Hydrologic Science:** ENVE 3120; GEOG 3310; GSCI 3020; MARN 3000; NRE 3155, 4135, 4165, 5115

**Biological/Ecological Science:** EEB 3204, 3247; NRE 3105, 3205, 4340

**Atmospheric Science:** GEOG 3400; NRE 3115, 3145, 3146, 4170

**Policy:** ARE 3434; NRE 3245

**Related Skills:** AH 3275; NRE 3535, 4544, 4545, 4575

A minor in Wildlife Conservation is described in the "Minors" section.

## Nutritional Sciences

Students majoring in Nutritional Sciences pursue one of two areas of emphasis: Dietetics or Nutritional Sciences. Each area follows a different curriculum including non-departmental courses, in order to best prepare students for their future goals. Students preparing to become registered dietitians follow the Didactic Program in Dietetics which is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) 216 W. Jackson Blvd., Chicago, IL 60606-6695, (312) 899-5400.

The Nutritional Sciences curriculum is generally more flexible than the Dietetic curriculum. Students in this option integrate the Nutritional Sciences core requirements with additional courses in the laboratory or behavioral sciences. (For detailed information, please refer to: [www.cag.uconn.edu/nutsci/nutsci](http://www.cag.uconn.edu/nutsci/nutsci)).

**Admission requirements.** Students not admitted to the University as Nutritional Sciences majors may petition into this major during the first two weeks of each semester. The following petition requirements must be met for consideration of a major change into the Nutritional Sciences major:

1. Earned at least a C in CHEM 1124Q or CHEM 1127Q and a C- in CHEM 2241 or CHEM 2443
2. Earned at least a B in NUSC 1165 and 2200

**Nutritional Sciences majors** must successfully pass the following courses: NUSC 1165, 2200, 4236, and either 4237W or 4296W; BIOL 1107; CHEM 1124Q and 1125Q or CHEM 1127Q and 1128Q; CHEM 2241, or 2443 and 2444; PNB 2264 and 2265, or BIOL 1108 and PNB 2250, or BIOL 1108 and PVS 2100; MCB 2000 or 3010.

In addition to the courses listed above, a minimum of six credits, numbered 2000 level or above, must be earned from courses in the Department of Nutritional Sciences. Credits earned in field experiences and independent studies cannot be used to meet this six-credit requirement. Specific course recommendations are listed in the *Undergraduate Bachelor Degree Program* brochure in the department.

Students must take either NUSC 4237W or 4296W to fulfill their writing in the major requirement and the advanced information literacy requirement. There are no advanced requirements for computer technology.

A minor in Nutrition for Exercise and Sport and a minor in Food Science are described in the "Minors" section.

**Didactic Program in Dietetics.** Nutritional Science students preparing to apply for a dietetics internship in preparation to become registered dietitians may enroll in the Didactic Program in Dietetics at the University of Connecticut, which is currently granted accreditation by: Accreditation Council for Education in Nutrition and Dietetics (ACEND), 216 W. Jackson Blvd., Chicago, IL 60606-6695; (312) 899-5400, (800) 877-1600.

To declare a concentration in the Didactic Program in Dietetics within the Nutritional Sciences major, students must have a minimum of 60 credits, a cumulative GPA of 2.7 or higher, and have successfully completed the following courses:

- NUSC 1165 and NUSC 2200 with a B grade or better;
- CHEM 1124Q and 1125Q or 1127Q and 1128Q; CHEM 2241 or 2443 and 2444; and
- BIOL 1107, with a C grade or better.

To earn a verification statement, students must meet the above grade requirements; complete the core requirements for all Nutritional Science majors; and earn a Didactic Program in Dietetics GPA of at least 2.7 by successfully completing the following courses:

- NUSC 1167, 3150, 3230, 3233, 3234, 3245, 3250, 3271, 3272, 4272;
- MCB 2610;
- AH 4242 or EPSY 3010; AH 4244;
- STAT 1000Q or 1100Q;
- SOCI 1001 or PSYC 1100

## Pathobiology

Students majoring in Pathobiology focus on animal health and diseases and their relationship to people and the environment. Students can prepare to enter veterinary medical schools or medical schools. Pathobiology majors also pursue careers in biotechnology, biomedical sciences, para-veterinary medicine, and many diverse laboratory and research positions in health fields, and agriculture and natural resources. For detailed information, please refer to: [www.patho.uconn.edu](http://www.patho.uconn.edu).

Pathobiology majors must pass the following courses: PVS 1000, PVS 2100 or PNB 2264-2265 or PNB 2274-2275; PVS 3100 and PVS 4300; MCB 2610; One course in Biochemistry: MCB 2000 or MCB 3010; One course in Genetics: MCB 2400, 2410, or ANSC 3121; One course in Nutrition, Immunology, or Cell Biology: ANSC 1111, NUSC 1165, MCB 2210, 4211, or AH 3121; One of the following courses: PVS 2301, 3201 or 3201W, 3341, 3501, 3700, 4203/5203

Students must pass either PVS 3094W or 3201W to fulfill their writing in the major requirement. The advanced information literacy requirement is fulfilled by passing PVS 3094W or 3201W. There are no advanced requirements for computer technology.

## Resource Economics

*See Applied and Resource Economics*

## Sustainable Plant and Soil Systems

The Sustainable Plant and Soil Systems major, with concentrations in Environmental Horticulture, Sustainable Agriculture, and Turfgrass Science, focuses on the science and practices associated with sustainable plant production and/or use within managed systems. Courses emphasize practices and concepts related to reducing environmental impact during production and in managed land use systems.

Concentrations focus on the production of ornamental and edible crops in controlled environments, greenhouses, nurseries and on farms; management practices for built landscapes and surfaces used for recreational and sporting activities; and the selection and management of ornamental trees, shrubs, grasses, native species, and plants and soils that perform ecosystem services in recreational, urban, and suburban settings to meet functional and aesthetic requirements. The program emphasizes hands-on learning and developing and applying knowledge to solve contemporary problems in individual and team approaches. Students have the opportunity to gain real-world experience through internships.

All students in this major must complete the following courses: BIOL 1108 or 1110; CHEM 1122 or 1124Q or 1127Q; HORT 2560W; PLSC 3810, 3820, 3830, 4210, and 4215; SOIL 2120 and 2125.

The writing in the major requirement is satisfied by HORT 2560W.

### Environmental Horticulture concentration

Students in this concentration must complete the following courses:

1. HORT 2750 and 3640;
2. Two of the following: HORT 3620, 3660, 3670;
3. Two of the following: HORT 2430, 3410, 3560;
4. Four of the following: HORT 3540, 3765; PLSC 2500, 3840, 3990; SOIL 3410; TURF 1100;
5. One of the following: HORT 4650; PLSC 3055, 3210, 3230, 3240, 3250;
6. One of the following: ARE 1150, 3210; ECON 1200, 1201.

### Sustainable Agriculture Concentration

Students in this concentration must complete the following courses:

1. HORT 3620; PLSC 2100, 2500, 3055, 3840, 3990; and SOIL 3620;
2. At least nine credits from the following list: ANSC 1001, 3273; HORT 3640, 3670, 3765, 4650; NRE 4475; PLSC 1125, 1150, 3094, 3230;
3. One of the following: EEB 2227, 2244; NRE 1000, 1235, 2000, 2215, 2600, 3125, 4170;
4. One of the following: AGNR 3350; ANTH 3523; ARE 1110, 3260; NRE 3245, 3674; SOCI 2705;
5. One of the following: ARE 1150, 3210; ECON 1200, 1201.

### Turfgrass Science concentration

Students in this concentration must complete the following courses:

1. ARE 1150; PLSC 3990; SOIL 3520, 3620; TURF 1100, 3200, 3800;
2. Three of the following: HORT 2430, 2750, 3410, 3560, 3620, 3640, 3660, 3670, 3765, 4650; PLSC 3210, 3230, 3240, 3250, 3840; SOIL 3410;
3. Two of the following: ARE 3210; ECON 1200, 1201; HORT 3540.

Students successfully completing these courses will have met their general education exit requirements for information literacy.

## Turfgrass and Soil Science

*See Sustainable Plant and Soil Systems*

## Double Major Option

Students may elect to complete requirements for two major fields of study offered by the College of Agriculture, Health and Natural Resources. A student selecting this option must submit a Double Major Declaration indicating primary and secondary majors. This declaration must include a tentative plan of study and requires approval by the advisors and department heads for both respective major areas of study and the Associate Dean. The

approved declaration will be submitted to the Degree Auditor. The student's final plan of study will include a double major attachment to verify that the requirements have been met for both the primary and secondary majors. The transcript will identify both majors.

**Primary Major.** Students must meet all requirements as listed under "Requirements for a Major" (36 credit group) and all individual major requirements as listed above.

**Secondary Major.** Students must meet all individual major requirements as listed above and successfully complete additional course work numbered 2000 or above *not* used as part of the 36 credit group for the primary major. This group of courses must:

1. total at least 24 credits
2. be numbered 2000 or above
3. be approved by student's advisor and department head
4. be taken at the University of Connecticut
5. include at least 15 credits of College of Agriculture, Health and Natural Resources courses
6. average at least a 2.0 Grade Point Average
7. not include more than six credits of Independent Study and Internship
8. not be taken on Pass/Fail
9. not include more than six credits of S/U coursework

## Allied Health Sciences Professional Majors

The Dietetics, Diagnostic Genetic Sciences and Medical Laboratory Sciences majors are professional majors in the Department of Allied Health Sciences. For program descriptions, please refer to the program listed alphabetically under the College of Agriculture, Health and Natural Resources. General admission and program information is described in this section.

Dietetics, Diagnostic Genetic Sciences, and Medical Laboratory Sciences are competitive junior/senior programs with additional admission requirements, certifications, and health documentation as listed below. Please contact the department for questions and further information on requirements that may vary for each program.

The admission requirements and mandatory documentation and certifications are *only* required of students admitted to the Department of Allied Health Sciences' Professional majors. All other students do not need to complete this documentation unless required to do so as part of an optional internship course.

### Admission

Admission for the Professional majors is competitive. The Professional majors in the Department of Allied Health Sciences are junior/senior programs. Students apply to their major(s) of choice in the spring of their sophomore year. To apply, students must have earned a minimum of 60 credits, by time of matriculation, completed all University General Education requirements, except the one W skill course within the major, and satisfied the prerequisite science courses of the major of application. Students are advised to complete all application procedures as early as possible in their fourth semester, but no later than February 1st annually. Admission is for the fall semester.

**Freshman Admission:** Freshmen are not admitted directly into the professional majors. Students may elect to complete admission requirements and university general education as an Allied Health Sciences major or choose another freshman admit major at the university.

**Guaranteed Admission Policy.** Although freshmen are not admitted directly into the professional majors, the Department of Allied Health Sciences has a Guaranteed Admission Offer. This offer provides freshmen with direct admission in the junior year to the professional major of their choice if the student fulfills the criteria described under each major below. The Guaranteed Admission Offer is made to provide students with a clear and supportive environment in which to complete admission prerequisites and achieve their academic goals in the Department of Allied Health Sciences.

In order to qualify for Guaranteed Admission to the Professional majors in Diagnostic Genetic Sciences, Dietetics, or Medical Laboratory Sciences a student must: (1) have entered the University as a freshman; (2) apply

to the major within two years of their freshman admission; (3) complete three successive semesters of full time study of required course work at the University of Connecticut; (4) earn an Overall Grade Point Average of a minimum of a 3.2 for Diagnostic Genetic Sciences or must earn an Overall Grade Point Average of a minimum of a 3.0 for Dietetics, or Medical Laboratory Sciences, and (5) meet all Admission Requirements and file a Department of Allied Health Sciences Application by the deadline. Students meeting all of these criteria are guaranteed admission to the major.

University of Connecticut students who do not meet the Guaranteed Admission Offer will be reviewed competitively on a space available basis. Transfer Applicants to the professional majors will be reviewed on a space available basis once matriculated University of Connecticut students have been reviewed and offers of admission have been confirmed.

**Transfer Admission.** University transfer admission requires a minimum 2.7 GPA even though professional program admission requires a minimum 2.2 GPA. Transfer students must first be admissible to the University before an offer of admission can be extended by the Department of Allied Health Science. Transfer students may require an additional year to complete requirements depending on how their prior coursework transfers and course availability at time of registration. Students are encouraged to take prerequisites at the University of Connecticut to expedite admission to a professional program.

**Supplemental Academic Standards.** The Department of Allied Health Sciences requires a cumulative grade point average of not less than 2.2 in order to gain admission to the professional majors. Thereafter, students must maintain the following standards of scholastic achievement to continue in the professional major. Students who fail to maintain the minimum grade point averages or minimum course standard in any of these areas are subject to dismissal from the professional program and in some cases the Department of Allied Health Sciences.

1. Students must maintain a minimum semester grade point average of 2.2
2. Students must maintain a minimum cumulative grade point average of 2.2
3. Students must maintain a minimum major grade point average of 2.2
  - a. The Diagnostic Genetic Sciences Major GPA includes the following courses: AH 2001, 3121, 4241 and 4244; DGS 3222, 3223, 3225, 4224, 4234, 4235, 4236, 4246, 4248; and the Cytogenetics Concentration courses (DGS 4810, 4820, 4830, 4850 and 4997), or the Molecular Concentration courses (DGS 4501, 4502, 4503, 4850 or 4997, and one of the following: DGS 4510, 4512, 4513, 4514, or 4515).
  - b. The Dietetics Major GPA includes all courses offered with the following departmental designations: AH, DIET, and the following NUSC courses: 2200, 3233, and 3234.
  - c. The Medical Laboratory Sciences Major GPA includes all courses offered with the following departmental designations: AH, DGS and MLSC. Students receiving a grade less than a "C" in two or more courses with the departmental designations of AH, DGS or MLSC in any given semester are subject to dismissal from the Program and in some cases the Department of Allied Health Sciences.
4. Students must obtain a "C" or better in all courses required for graduation that are in the Department of Allied Health Sciences. Courses vary with program.
5. No student may take a course in the Department of Allied Health Sciences for which another course in the department is a prerequisite unless that student has earned a grade of "C" or better in that prerequisite course.
6. No course in the Department of Allied Health Sciences may be repeated more than once (for a total of two times).

Descriptions and specific course requirements of each of the Professional Majors of Diagnostic Genetic Sciences, Dietetics, and Medical Laboratory Sciences are included in individual programs sections listed in alphabetical order within this section of the *Catalog*.

### Additional Clinical Placement Requirements

**Health.** In addition to pre-entrance University requirements, students admitted to the Professional Majors in the Department of Allied Health

Sciences are required to have a tetanus immunization within the past ten years; physical examination; annual tuberculin test (with chest x-ray for positive reactors); rubella and rubeola titers (with vaccine if titer is negative); and varicella titer. Physical examinations, tuberculin tests and chest x-rays as indicated are planned through the University Student Health Services. In addition to the basic health screening requirements students in all professional majors are required to have Hepatitis B Immunization. Students are responsible for payment of health examinations and laboratory tests not covered by their personal insurance. Students who fail to provide written documentation that they have met the above stated health requirements will not be allowed in the clinical setting.

**CPR.** Dietetics students are required to have Adult or Healthcare Provider cardiopulmonary resuscitation certification upon admission into the professional major. Students in the Diagnostic Genetic Sciences or Medical Laboratory Sciences majors are not required to have CPR certification. CPR certification must be kept current until graduation.

**Clinical Education Certification.** The Department of Allied Health Sciences will provide annual mandatory educational sessions so that students entering a professional major and who are entering the clinical setting are in compliance with both the OSHA Bloodborne Pathogen Standards and are knowledgeable of the requirements for compliance with the Health Insurance Portability and Accountability Act (HIPAA). Students who fail to provide written documentation that they have met both the above stated OSHA and HIPAA requirements will not be allowed in the clinical setting.

**Clinical Experiences.** Each of the professional major curricula of the department requires education experiences in clinical settings. Assignment to clinical placements is contingent upon successful completion of the appropriate prerequisite course work and the judgment of the faculty of the preparedness of the student for safe practice. Additionally, students entering clinical placements must complete clinical documentation to include but not limited to a Medicare Exclusion waiver and in some clinical settings a criminal background check. Students will be notified if they are attending a clinical facility that requires this documentation. Students are responsible for payment of criminal background checks if part of their clinical affiliation.

**Fees and Expenses.** Students can expect fees to approximate those of other University students. The professional majors and internship students have added expenses for texts, uniforms and/or clinical travel. Students on clinical placement or doing an internship as part of their major are responsible for all expenses associated with the clinical/internship. Students are responsible for their own transportation to the clinical agencies/internship sites. They should allow for transportation expenses which could include parking fees, cost of gasoline and cost of air travel/bus/train where necessary. Students are required to pay full fees and tuition during off-campus clinical affiliations and internships. During periods spent full-time in the affiliated areas off-campus, if applicable it is the responsibility of the students to find living quarters and to provide their own maintenance.

**Insurance.** It is mandatory that students in the Department of Allied Health Sciences' Professional majors carry comprehensive health insurance,

either privately or through the University. Additionally, all students in the professional majors or relevant internships are required to carry specific professional liability (malpractice) insurance under the blanket University policy. Students will automatically be billed for this on the University fee bill.

## Pre-Physical Therapy, Pre-Medical, and other Health Related Pre-professional Programs

Students preparing for professional careers in physical therapy, human medicine, dentistry, physician's assistant and other post-baccalaureate health programs may major in Allied Health Sciences, Kinesiology, Nutritional Sciences, or Pathobiology, as well as many other science-based majors throughout the University. Pre-professional programs in the College of Agriculture, Health and Natural Resources are offered as structured options within majors, rather than as official, stand-alone majors. This allows students to consider multiple career goals without compromising their eligibility for admission into competitive professional programs. Physical Therapy at the University of Connecticut is offered at the graduate level. (Consult the Graduate Catalog for more information regarding admission requirements for the University of Connecticut's Doctorate in Physical Therapy Program.)

**Pre-Veterinary Medicine.** Students aspiring to become veterinarians generally major in either Animal Science or Pathobiology at the University of Connecticut. Animal Science includes the study of animal genetics, physiology, nutrition, medicine, products, and behavior. Pathobiology is the study of normal and abnormal biological processes in animals, including courses in anatomy, physiology, diseases, histology, virology, and microbiology. In both majors, the structured curriculum for pre-veterinary students includes courses required for veterinary college admission. Knowledgeable advisors, professional experience, networking opportunities, and – of course – students' success in rigorous course requirements have resulted in a great track record for UConn graduates being admitted to veterinary schools and colleges.

**Honors Programs.** University honors programs are available to qualified students in the College. Please refer to the section of this *Catalog* designated "Honors Programs" for further information.

**Exemptions and Substitutions.** Students requesting an exemption from any University and/or College requirement, or a substitution for a course or requirement, should consult their advisors. Such exemptions or substitutions must be approved by the Department Head and the Associate Dean of the College and may also require approval from the Provost's Office.

**Field Trips and Transportation Costs.** Many courses require off-campus field trips. Students should budget money for participation.

**Graduate Programs.** Most departments provide graduate programs for students interested in greater specialization beyond the baccalaureate. The study may lead to a Master of Science or Doctor of Philosophy degree. Students planning for a graduate program should secure a comprehensive background in the basic sciences. For further information see the announcement of the Graduate School.

# School of Business

John A. Elliott, Ph.D., *Dean*

Lawrence J. Gramling, D.B.A., *Associate Dean*

Undergraduate education in business is designed to impart a broad base of general knowledge, within which students pursue additional knowledge to become exceptional managerial and business leaders. The curricula seek to expand capacities, perspectives, and skills of students who wish direct preparation for careers in either business firms or the public service.

In addition to the business programs leading to the Bachelor of Science, a Management and Engineering for Manufacturing bachelor's degree program is offered jointly with the School of Engineering and is described at the end of the list of business majors in this section of the *Catalog*.

Various minors in business disciplines are described in the "Minors" section. Note: Students who are not majors in the School of Business may earn only one minor in business disciplines and are limited to enrolling in no more than 24 credits of 3000 and 4000-level coursework offered by the School of Business. Coursework at the 1000 and 2000 level is not included in the 24 credit limit, but credits from transfer coursework accepted for business credit at the 3000 and 4000 level are counted toward the 24 credit limit.

**Regional Plan.** In conformity with plans approved by the Board of Trustees of the six New England land grant universities for regionalization of certain fields of specialized education, three majors in the School of Business at the University of Connecticut are identified as regional programs. The Real Estate and Urban Economic Studies major is open to students from all the New England states; the Health Care Management major is open to students from all the New England states except New Hampshire; the Management and Engineering for Manufacturing major is open to students from all the New England states except Vermont. To implement this policy, first priority in admission to the School is given to qualified applicants from those New England states that are members of the compact. Regional students will pay a reduced tuition. Consult the website [www.nebhe.org](http://www.nebhe.org) for information.

**Accreditation.** The School of Business is fully accredited by the AACSB International - The Association to Advance Collegiate Schools of Business, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education.

## Admission and Degree Requirements

**Admission Requirements.** See Admission to the University. The School of Business admits qualified students into a major in the School directly as freshmen. Students not admitted into the School of Business at the time of entry to the University may apply for admission to a major through School of Business procedures. Admission is competitive. Decisions will be based on several criteria including the applicant's academic record, courses completed, and space availability. Students in the School may request a change to their major later by submitting an application to the School of Business Office of Undergraduate Advising and meeting the admission criteria for that major.

School of Business majors will have to present either three years intermediate level of one foreign language (high school) or two years of one foreign language (through intermediate level college) to satisfy the language requirement for the degree.

Students at other post-secondary institutions who are not currently attending or who have never attended the University as an undergraduate degree seeking student must file a separate University application with the Transfer Admissions Office, 2131 Hillside Road, Unit 3088, Storrs, CT 06269-3088. Students wishing to transfer directly into the School of Business must have made substantial progress toward completing the freshman-sophomore, 1000-2000 level requirements, particularly those courses which are prerequisites for the Common Body of Knowledge/Entry Level Business courses (ENGL 1010 or 1011, ACCT 2001, MATH 1070Q and 1071Q, ECON 1201 and 1202, or 1200, STAT 1000 or 1100) and must successfully complete these courses by the end of the term in which they have completed 54 credits or the term after they are admitted to the School of Business. Number of credits earned, grade point average in all courses taken, and space availability will be key considerations in the admissions decision. Students who have completed a minimum of 40 credits may submit an application.

Transfer applicants not accepted directly into the School of Business at the time of entry to the University may apply for admission through the

School of Business admission procedures previously listed. A decision will be made on a space available basis after completion of one full semester at the University. Individuals who have already completed a bachelor's degree should contact the M.B.A., the MS in Accounting, the MS in Business Analytics and Project Management, the MS in Financial Risk Management, or the MS in Human Resource Management programs to consider a graduate, rather than another undergraduate, degree.

All applicants to the School of Business will be considered carefully in order to select the best-qualified candidates. If notified of admission before registration in the spring, students may register for fall semester classes in a business program. All admissions are contingent upon successful completion of any course work for which applicants were registered at the time of application. Successful completion is defined as completing and passing all courses submitted on an application, maintaining a term grade point average (TGPA) consistent with the supplemental dismissal cumulative grade point average standard (CGPA) applied at the end of the sophomore year for time of admission. Successful completion also requires a minimum of at least a 2.0 in the TGPA, the CGPA, and all School of Business courses numbered 2000 and above.

**Scholastic Standing Requirements.** Students admitted to the School of Business will be reviewed at the end of each semester to determine if their academic achievement meets the requirements as established by the faculty and outlined below. All credits used to determine when a student is reviewed at a particular grade point average include course work at UConn and course work accepted by UConn that counts towards a student's degree. The total credits earned includes all non-credit bearing grades except audits and withdrawals. The grade point averages are calculated to include all graded course work applied towards the degree. Students admitted to the School of Business must earn a 2.79 cumulative grade point average by the end of the term in which they achieve a minimum of 24 credits as defined above. In the student's next full-time term, they must achieve a 2.93 cumulative grade point average. Students admitted to the School of Business must earn a 3.0 cumulative grade point average by the end of the term in which they achieve a minimum of 54 credits as defined above. Students in their junior and senior years, must maintain a 2.0 cumulative grade point average. Only students who achieve these cumulative grade point averages, will be permitted to continue as a major in the School of Business. Additionally, students must show substantial progress toward meeting the freshman-sophomore course requirements, especially those courses that are requisites for the 3000 and 4000-level business courses (ENGL 1010 or 1011; ACCT 2001; MATH 1070Q and 1071Q; ECON 1201 and 1202, or 1200; STAT 1000Q or 1100Q) and must successfully complete these courses by the end of their 4th term. This may include some non-degree work completed by the student prior to matriculating to the University of Connecticut.

Students accepted to the School of Business must maintain a minimum at least a 2.0 in their TGPA and all School of Business courses numbered at the 3000 and 4000 level plus ACCT 2001 and 2101. Students who fail to maintain the minimum grade point average in any of these areas or fail to complete specified courses as noted above are subject to dismissal from the School of Business. Students conditionally admitted to the School on the basis of successful completion of courses for which they have indicated they were registered must pass all those courses by the end of that term and meet the 2.0 grade point average for the semester, cumulative, and business courses or be subject to having their acceptance rescinded.

**Bachelor's Degree Requirements.** Upon recommendation of the faculty, the degree of Bachelor of Science is awarded by vote of the Board of Trustees to students who have met the following requirements: (1) Earned a total of 120 credits; (2) earned at least a 2.0 CGPA; (3) earned at least a 2.0 grade point average for all credits in School of Business courses numbered 2000-level and above for which they have been registered; (4) earned at least 50 percent of the business credit hours required for the business degree while a student at the University of Connecticut; (5) earned at least 24 credits in 3000-4000 level courses including MGMT 4900 or 4902 and a required business course satisfying the "writing in the major" general education requirement in the School of Business at the University of Connecticut, with no more than three of these 24 credits in independent study courses and no more than three of these 24 credits in field study internship courses, and no credits from UConn Education Abroad; (6) achieved a cumulative 2.0 grade point average for the total of all departmental major courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships; (7) met all the requirements of the School of Business.

See specific Bachelor of Science requirements including courses which must be taken in residence, in each major. The Management and Engineering for Manufacturing program, jointly offered by the School of Business and the School of Engineering, has its own specific requirements. Please refer to that section.

The degree in business requires a minimum of 120 degree credits of course work. Business courses offered specifically for non-majors (courses with the BADM designation and some courses offered by other schools) cannot be used to satisfy requirements for 3000-4000 level business electives. At least 60 credits presented for the degree must be comprised of courses other than business, including general education course work: no more than nine credits of economics and no more than six credits of statistics may be counted as part of these 60 credits. Students who wish to minor in economics or statistics may do so, but this may require coursework beyond 120 credits to satisfy the requirements of both the major and the minor.

**Regional Campus Majors.** The requirements for majors in Business Administration and in Business Data Analytics may be completed at the Hartford, Stamford or Waterbury campuses. The requirements for majors in Digital Marketing & Analytics and in Financial Management may be completed at the Stamford regional campus. Students in other business majors may complete their General Education Requirements and most of their Business Common Body of Knowledge requirements at the regional campuses before transferring to the Storrs campus.

**Exemption and Substitution.** Students who desire to be excused from course requirements, or to substitute other courses for those prescribed, should consult the Office of Undergraduate Advising. Such exemptions or substitutions must be approved by the dean of the school.

**Transfer Credits.** The transfer of credits for 3000-4000 level courses offered by the School of Business on the basis of work done at schools that do not offer the baccalaureate or schools not accredited by the AACSB International, with the exception of specific agreements with the Connecticut Community Colleges, is permitted only by validation procedures established by academic departments within the School. Typical validation procedures may include successful completion (C or better) of additional prescribed course work at the University of Connecticut or the completion of a departmental examination. Students must receive departmental approval before beginning any validation procedures.

**Grades of Pass/Fail or Audit.** In the School of Business, students may not elect the Pass/Fail or Audit option for any course used to meet the general education distribution requirements, the course requirements for a major, or any course taken within any of the departments of the School.

**Plan of Study.** Major requirements are outlined in the plan of study current at the time of the student's entry or readmission into the School of Business, whichever is later.

## Curricula in Business

### I. University General Education Requirements

The University has adopted General Education requirements in a variety of curricula areas that must be satisfied as part of every bachelor's degree program. These requirements are listed in the General Education Requirements section of this *Catalog*.

### II. Business Critical Required Courses

Business students must complete the following requirements in order to prepare for professional studies that will begin in the junior year. Students should note that many of these courses also fulfill University General Education requirements. **Note:** Please refer to the Curricula in Management and Engineering for Manufacturing listed later in this section.

ACCT 2001; ECON 1200 or both 1201 and 1202; ENGL 1010 or 1011 or ENGL 2011; MATH 1070Q and 1071Q; or MATH 1131Q and 1132Q; or MATH 1131Q and 1070Q; or MATH 1125Q and 1126Q and 1070Q or MATH 1125Q and 1126Q and 1132Q; or MATH 1151Q and 1152Q; or MATH 1151Q and 1132Q; or MATH 1151Q and 1070Q; or MATH 2141Q and 2142Q; or MATH 2141Q and 1152Q; or MATH 2141Q and 1132Q; or MATH 2141Q and 1070Q; STAT 1000Q or 1100Q.

Foreign Language: All students must have (1) passed the third year level course in high school in a single foreign language, ancient or modern; or

(2) two units/levels of a single foreign language in high school PLUS an added year of college courses at a more advanced level in a single foreign language; or (3) completion of two years (four semesters) through the college Intermediate Level.

### III. Business Required Courses

Complete at least one course from each of the following four categories:

**Business Arts and Humanities:** ECON 2102/W<sup>1</sup>; HIST 1201, 1400, 1501/W<sup>2</sup>, 1502/W<sup>2</sup>, 1600, 1800, 3705.

**Business Philosophy:** PHIL 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1175.

**Business Communication:** COMM 1000 or 1100<sup>3</sup>.

**Business Psychology:** PSYC 1100.

**Business International and Diversity and Multiculturalism:** Complete at least one course from the "International" category and one more course from either the "International" or "Diversity and Multiculturalism" category.

**International:** ANTH 1000/W; ANTH/HRTS 3153W; CLCS 2201; GEOG 1700, 2000; HRTS 1007; NRE 2600; PHIL 1106; POLS 1202/W<sup>4</sup>, 1207; WGSS 1124.

**Diversity and Multiculturalism:** AFRA/ANTH 3152; AFRA/POLS 3642; AMST 1201/ENGL 1201/HIST 1503; INTD 2245; PHIL 1107; SOCI 1501/W.

### Additional Requirements

A minimum of 60 credits used toward graduation requirements must be comprised of non-business courses, including general education course work. No more than nine credits of economics and no more than six credits of statistics may be counted as part of these 60 credits. COMM 1100 is recommended for Accounting majors.

**Common Body of Knowledge.** The following Common Body of Knowledge courses are prescribed for all students in this school and should be completed in the junior year: ACCT 2101 (to be taken no later than fifth semester); BLAW 3175; FNCE 3101; MGMT 3101; BADM 4070W (BADM 4075W for Business Administration, Business Data Analytics, Digital Marketing & Analytics, and Financial Management majors only), MKTG 3101; OPIM 3103, 3104

**Capstone Requirement.** All students are required to complete a capstone course sequence. Business Administration, Business Data Analytics, Digital Marketing & Analytics, and Financial Management majors must take MGMT 4902. All other majors must take MGMT 4900. All majors except Accounting must take BUSN 3005.

**Competency Requirements.** All students majoring in Accounting, Business Administration, Business Data Analytics, Digital Marketing & Analytics, Finance, Financial Management, Health Care Management, Management, Management Information Systems, Marketing, and Real Estate/Urban Economics must also fulfill the requirements in the three following competency categories.

**Computer Technology.** The School of Business places special emphasis on the use of information technologies to complete the assignments in many classes. Exit expectations are met through all core business courses, but primarily through the Business Information Systems course (OPIM 3103), which is required of all majors.

<sup>1</sup> Students choosing ECON 2102/W must take care to meet the University requirement of completing Content Areas 1, 2, and 3 courses from six different departments.

<sup>2</sup> HIST 1501/W or 1502/W recommended for students who have not completed high school-level courses in American Government and American History.

<sup>3</sup> COMM 1100 does not fulfill Content Area 2, but is recommended for accounting majors. COMM 1000 is recommended for students interested in pursuing a COMM minor.

<sup>4</sup> POLS 1202/W recommended for students who have not completed a high school-level course in American Government.

**Information Literacy.** The core courses in the School will require students to acquire information about markets and companies. This empirical research is fundamental to sound decision making in a business career. This advanced level of information literacy will specifically be included in FNCE 3101, MKTG 3101, OPIM 3103, and MGMT 4900 or 4902, which are all required.

**Writing in the Major.** Students are required to complete BADM 4070W or BADM 4075W depending on major requirements and one elective “W” course.

Students majoring in Management and Engineering for Manufacturing should consult the competency information listed with the other major requirements.

## Accounting

The undergraduate (four year) program consists of the Bachelor of Science (BS) degree in Business with a major in Accounting. The BS degree combines a general background in business with an appropriate number of Junior-Senior accounting and business law courses to prepare students for successful entry into an accounting career.

**Bachelor of Science Requirements.** Accounting majors are required to achieve a cumulative 2.0 grade point average for the total of all Accounting (ACCT) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

**Residence Requirement.** In addition to the School of Business residence requirements for all majors, an Accounting major must complete ACCT 3005 in residence at the University of Connecticut. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Accounting majors must take: ACCT 3005, 3201, 3202, 3221, 3260, 4203, 4243; BLAW 3277.

**Professional Certification.** Students majoring in accounting may choose a curriculum that prepares them for professional examinations which are part of the certification procedures that lead to designation as a Certified Public Accountant (CPA) or Certified Management Accountant (CMA). Students preparing for the CPA examination should also apply for the MS in Accounting Program. The MS in Accounting is a 30-credit program designed to meet the 150-hour education requirement to earn the CPA designation in Connecticut. Students preparing for the CMA examination should consult with their accounting advisor regarding the appropriate elective courses to take.

**Internships in Accounting.** Many students who major in accounting participate in an internship. Currently, the Accounting Department has internships during both spring semester and the summer. During the period of internship, the students are employed and supervised by firms and participate in various types of accounting or auditing work. Participation in these programs usually occurs during the sixth or seventh semester or the summer between the student’s junior and senior year. This experience contributes to the development and growth of the students who are chosen for the work.

## Business Administration

The Bachelor of Science in Business Administration (BA) major is only available to students at the Hartford, Stamford, and Waterbury regional campuses. The objective of the BA major is to provide a generalized interdisciplinary business degree with special emphases on Finance, Management, Marketing and Business Communications. An advisor approved focus is also possible based on the availability of courses.

**Bachelor of Science Requirements.** BA majors are required to achieve a cumulative 2.0 grade point average in the required advanced Finance, Marketing and Management courses and in all business courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and field study internships.

**Residence Requirement.** Business Administration majors must complete the School of Business residence requirements for all majors. These include earning at least 50 percent of the business credit hours required for the business degree while a student at the University of Connecticut and earning at least 24 credits in 3000-4000 level courses including MGMT 4902 and BADM 4075W, with no more than three of these 24 credits in independent study courses and no more than three of these 24 credits in

field study internship courses. No credits from UConn Education Abroad may fulfill this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Business Administration majors must take: one three-credit 3000- or 4000-level FNCE class; one three-credit 3000- or 4000-level MGMT class; one three-credit 3000- or 4000-level MKTG class; and three three-credit 3000- or 4000-level School of Business courses approved by their advisor.

## Business Data Analytics

The Bachelor of Science in Business Data Analytics (BDA) major is only open to students at the Hartford, Stamford, and Waterbury regional campuses. The objective of the BDA major is to provide a business degree with a special emphasis in the application of information technology to data analytics. An advisor approved focus is also possible based on the availability of courses.

**Bachelor of Science Requirements.** BDA majors are required to achieve a cumulative 2.0 grade point average for the total of all Operations and Information Management (OPIM) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and field study internships.

**Residence Requirement.** In addition to the School of Business residence requirements for all majors, a BDA major must complete OPIM 3505, 3510, and 3511 in residence at the University of Connecticut. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, BDA majors must take: BUSN 3005 and BADM 4075W; OPIM 3505, 3510, 3511 and three three-credit 3000-4000 level School of Business electives.

## Digital Marketing & Analytics

The Digital Marketing & Analytics (DM&A) major equips students with the knowledge and skills to develop and implement digital marketing strategies. The major consists of a core business base and a set of courses that treat digital marketing as an integrated part of a firm’s overall strategy. The major provides students with sufficient depth in both the analytics and strategic aspects of digital marketing to successfully use these tools to meet marketing and firm objectives. The DM&A curriculum is designed to provide School of Business students with a solid grounding in marketing principles, digital marketing strategy, and digital marketing analytics. This major is only open to students at the Stamford regional campus.

### Bachelor of Science Requirements

DM&A majors are required to achieve a cumulative 2.0 grade point average for the total of all Marketing (MKTG) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

### Residence Requirement

In addition to the School of Business residence requirements for all majors, a DM&A major must complete the three required Marketing courses, MKTG 3661, 3665, and 3208 or 3260 in residence at the University of Connecticut. Education Abroad and NSE courses may not be used to meet this requirement.

### Required Major Courses

In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements including MKTG 3101, DM&A majors must take: six credits consisting of two of the following selected business electives MKTG 3208 or 3260 (if not used to fulfill Marketing requirements), 3452, 3625, 3757, 4891; OPIM 3510, 3511; and three credits consisting of one 3000-4000 level business elective. No DM&A major may count more than 22 Marketing credits beyond MKTG 3101 toward those credits presented for degree requirements.

All DM&A majors are encouraged to complete both MKTG 3208 and 3260, one of which will fulfill marketing requirements and one of which will count as a business elective. Other choices of electives should be made in consultation with their advisors based upon the students’ interests and career goals.



## Finance

The Finance major prepares students for careers in the financial services industry and in the finance areas of companies. The major requirements permit students to tailor a curriculum to suit individual interests in finance, health care management, and real estate.

**Bachelor of Science Requirements.** Finance majors are required to achieve a cumulative 2.0 grade point average for the total of all Finance (FNCE) and Healthcare Management and Insurance Studies (HCMI) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

**Residence Requirement.** In addition to the School of Business residence requirements for all majors, a Finance major must complete FNCE 3302 and the three courses used to meet the Focus course requirement in residence at the University of Connecticut. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Finance majors must take: FNCE 3101 and 3302; choose three three-credit Focus courses from FNCE 4209, 4302, 4304, 4305, 4306; and one additional three-credit course from FNCE 3230, 3332, 3333, 3334, 4209, 4304, 4305, 4306, 4895; HCMI 3221, 3240, 3243, 4250, 4325, 4326.

## Financial Management

The Bachelor of Science in Financial Management (FM) major provides a business degree with a focus on professional financial services practice. The curriculum is designed to prepare students to take the first level of the Certified Financial Analyst (CFA) exams that lead to the CFA professional designation for finance and investment professionals. This major is only open to students at the Stamford Campus.

**Bachelor of Science Requirements.** Financial Management majors are required to achieve a cumulative 2.0 grade point average for the total of all Finance (FNCE) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and field study internships.

**Residence Requirement.** Financial Management majors must complete the School of Business residence requirements for all majors. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Financial Management majors must take: FNCE 3303, 4209, 4302, 4410, 4420, and 4440; and choose one three-credit course from FNCE 3230, 3715, 4305, 4306, 4430.

## Health Care Management

The objective of the baccalaureate program with a major in Health Care Management is to provide a conceptual and a practical understanding of the health care management field. This academic program has been designated by the New England Board of Higher Education as a New England Regional Student Program. Qualified residents from New England states other than New Hampshire may enroll in the Health Care Management Program at reduced tuition since the major is not offered at other state universities in the region.

**Bachelor of Science Requirements.** Health Care Management majors are required to achieve a cumulative 2.0 grade point average for the total of all Healthcare Management and Insurance Studies (HCMI) and Finance (FNCE) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

**Residence Requirement.** Health Care Management majors must complete the School of Business residence requirements for all majors. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Health Care Management majors must take: HCMI 3221, 3240, 3243, 4225, 4243, and 4250.

**Internships in Health Care Management.** Students may schedule an Internship in Health Care Management. Internships are usually done during the summer following the junior year of study. The internship option of the

program provides students with the opportunity to obtain experience within an area of health care. Students normally participate in conducting a health care management or insurance project in a health care organization either in Connecticut, another state or another country depending on geographical preference. While students are responsible for securing internship sites, the Programs in Health Care Management may provide guidance in site selection.

## Management

At the core of the Management major is coursework with an emphasis on leadership, entrepreneurial thinking and strategic vision, three of the most prized assets of any successful business leader. Management majors are prepared to understand the “big picture” rather than focus on highly specialized, often rapidly changing, areas of study. Such preparation is especially crucial for those who see themselves as leaders or who see themselves working in the world of business. Management requires an ability to think and act on one’s own with a confidence that only comes from an ability to see and appreciate what most highly focused specialists cannot.

**Bachelor of Science Requirements.** Management majors are required to achieve a cumulative 2.0 grade point average for the total of all Management (MGMT) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

**Residence Requirement.** Management majors must complete the School of Business residence requirements for all majors. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** Management majors must complete a total of 15 MGMT credits (five three-credit MGMT courses) and three credits consisting of one 3000/4000-level course in management or business, in addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements. Management majors may concentrate in Entrepreneurship by completing the Entrepreneurship Concentration courses below.

**Entrepreneurship Concentration Courses.** Of the 15 MGMT credits (five three-credit MGMT courses), required for the Management major, the Entrepreneurship concentration requires three of the five courses to consist of MGMT 3234, 3235, and 4271 or a department-approved experiential learning course.

## Management Information Systems

The objective of this major is to train students in the development and use of business information systems. Graduates will be strong in the traditional functional areas of business (accounting, marketing, finance, and management) and will have a solid understanding of the development of business information systems and information technology.

**Bachelor of Science Requirements.** Management Information Systems (MIS) majors are required to achieve a cumulative 2.0 grade point average for the total of all Operations and Information Management (OPIM) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

**Residence Requirement.** In addition to the School of Business residence requirements for all majors, a Management Information System major must complete OPIM 3211, 3220, 3221, 3222, and one of the two required OPIM electives in residence at the University of Connecticut. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Management Information Systems majors must take: OPIM 3211, 3220, 3221, 3222; choose two three-credit electives from OPIM 3212, 3223, 3777, 3801, 3802, 3803, or 4895.

**Internships in Management Information Systems.** Many students who major in Management Information Systems take part in an internship, usually during the summer following their junior year. During the internship, the students work in various organizations and learn to develop information systems that aid business processes and work with various technologies. This experience provides them with real world knowledge of applications of information systems in business settings, and contributes to their development and growth in their chosen field. The credits from the field study internship (OPIM 4891) may be used to fulfill one elective course requirement.

## Marketing

The Marketing major provides business students with the analytical tools for the following strategic decisions for the firm: which markets and customers to serve, with which products and services, and how it will compete. Students study the management of customers, distribution channels, products and brands, communications, and pricing and the use of information for marketing decisions.

**Bachelor of Science Requirements.** Marketing majors are required to achieve a cumulative 2.0 grade point average for the total of all Marketing (MKTG) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships. A letter grade of “C” or higher must be achieved in each individual course fulfilling the Digital Marketing & Analytics or Professional Sales Leadership concentrations.

**Residence Requirement.** In addition to the School of Business residence requirements for all majors, a Marketing major must complete MKTG 3208, 3260, and 3362 in residence at the University of Connecticut. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Marketing majors must take: MKTG 3208, 3260, 3362; and six credits consisting of two 3000-4000 level courses in marketing. A maximum of three (3) credits of MKTG 4891 or 4899 can be counted toward this requirement.

**Optional Concentrations.** Additionally, marketing majors may complete one concentration in either Digital Marketing & Analytics or Professional Sales Leadership. To complete a concentration in Digital Marketing & Analytics, a student must complete MKTG 3661, 3665, and one from MKTG 3757, 3452, 3625, or 4891, receiving a grade of “C” or better in each course. To complete a concentration in Professional Sales Leadership, a student must complete MKTG 3452 and 3454, receiving a grade of “C” or better in each course.

No Marketing major may count more than 22 Marketing credits beyond MKTG 3101 toward those credits presented for degree requirements.

**Internships in Marketing.** Students are urged to complete a Marketing internship during the summer of their junior year or during their Winter Intersession of their junior or senior year. The internship experience enables students to apply marketing theory in a real-world environment and helps students to better understand the specific sub-fields of marketing they can pursue upon graduation. Students work for advertising agencies, public relations firms, market research companies and sports/event management firms, and for firms engaged in professional selling. The Marketing Department assists students in identifying internship opportunities and Marketing Majors have the option of receiving academic credit for completing an approved internship as MKTG 4891.

## Real Estate and Urban Economic Studies

The objective of the baccalaureate program with a major in real estate and urban economic studies is to provide both a theoretical foundation and a practical understanding of the field as preparation for a career as a real estate professional. This nationally recognized academic program has been designated by the New England Board of Higher Education as a New England Regional Student Program. This allows qualified residents from other New England states to enroll in the real estate program at reduced tuition since the major is not offered at other state universities in the region.

**Bachelor of Science Requirements.** Real Estate and Urban Economic Studies majors are required to achieve a cumulative 2.0 grade point average for the total of all Finance (FNCE) courses for which they have been registered at the University of Connecticut, excluding grades and credits for independent studies and internships.

**Residence Requirement.** Real Estate majors must complete the School of Business residence requirements for all majors. Education Abroad courses may not be used to meet this requirement.

**Required Major Courses.** In addition to the courses outlined in the Common Body of Knowledge and Capstone Requirements, Real Estate majors must take: FNCE 3230; choose two three-credit Primary courses from FNCE 3332, 3333, 3334; BLAW 3274; and two additional three-credit courses from the above list or from: FNCE 3302, 4209, 4304, 4305, 4306; ECON 3439; HCMI 3221; or MKTG 3260.

**Internships in Real Estate.** Students interested in a career in real estate may apply for a summer internship. During the period of the internship the students are employed and supervised by real estate firms and portfolio managers under the direction of staff of the Center for Real Estate and Urban Economic Studies. Participation in the internship program occurs during the summer between the student’s junior and senior year. A written report based on their involvement provides the basis for earning course credit as FNCE 4891, Field Study Internship. The internship provides meaningful practical experience in the field of real estate and helps students clarify their career goals.

## Management and Engineering for Manufacturing

*Jointly offered by the Schools of Business and Engineering granting a single joint Bachelor of Science degree from the Schools of Engineering and Business.*

Requirements for all Management and Engineering for Manufacturing students, both through the School of Business and through the School of Engineering, are the same. Students must work very carefully with a Management and Engineering for Manufacturing advisor. Completion of all major requirements also fulfills all School of Business, School of Engineering, and ABET requirements.

Management and Engineering for Manufacturing majors are required to complete the following:

**Expository Writing:** ENGL 1010 or 1011 (or for Honors Scholars ENGL 2011)

**Quantitative Analysis:** MATH 1131Q and MATH 1132Q; MATH 2110Q and 2410Q; and STAT 1000Q or 1100Q

**Other Courses:** HIST 1400; PHIL 1104; ECON 1200; CHEM 1127Q or 1147Q; PHYS 1501Q and 1502Q; ANTH 1000 or GEOG 1700; one additional Content Area Four Course.

ACCT 2001, 2101; BLAW 3175; CE 2110 and 3110; CSE 1010 or 1100; ECE 2000; ENGR 1000; FNCE 3101; ME 2233, 3221, 3227, and 3263; MEM 1151, 2211, 2212, 3221, 3231, 4225, 4971W, and 4972W; MGMT 3101 and 4900; MKTG 3101; MSE 2101, 2102; OPIM 3652, 3801; a Business Technical Elective course (three credits); an Engineering Technical Elective course (three credits).

Neither OPIM 3103 nor OPIM 3104 may be used to fulfill business-elective credit by MEM majors. ME 3222 may not be used to fulfill engineering-elective credit by MEM majors.

The Business Technical Elective must be from a 3000-level or higher course from one of the following five departments in the School of Business: Accounting, Finance, Management, Marketing, or Operations and Information Management.

The Engineering Technical Elective must be from a 3000-level or higher course from the School of Engineering or from the following list of Allied Health courses: AH 3270, 3570, or 3574.

MEM students who have completed CSE 1010 or 1100 will not be required to take OPIM 3103 and will satisfy the requirements for courses that will have OPIM 3103 as a requisite.

The Management and Engineering for Manufacturing undergraduate program educational objectives are that our alumni/ae: practice their profession with solid engineering and business knowledge and skills and have a total enterprise vision of world class manufacturing and service organizations; compete successfully using lean manufacturing and quality management principles in the design, manufacture of products, and development of services; and apply high professional standards, with up to date knowledge and personal skills, integrating global factors in their approach to engineering and business decisions.

## Information Literacy

In addition to the basic competency achieved in ENGL 1010/1011 or equivalent, all students will receive instructions on how to conduct an effective search for information in the library and how to conduct an effective search on the web for applicable engineering topics in course ENGR 1000 or equivalent. As the student progresses in their program, various courses will require assignments to increase their information literacy competency. The advanced level of information technology

competency will be achieved at the completion of MEM 4971W and 4972W.

### Writing in the Major

MEM 4971W and 4972W are the senior design project courses for the program. All students must write reports on their projects. These courses provide opportunities to write professional reports with appropriate feedback and criticism from two faculty members. The report writing provides instruction in proper report structure for professional work in practice.

Students are encouraged to seek faculty-supervised manufacturing summer internships prior to their junior and senior years. Such internships may be shown on the student records by registering for MEM 3281, with instructor and advisor approval.

MEM students have available a one-semester exchange program with the Industrial Engineering and Management program from Lund University, Sweden.

### Admission

Students who apply to the Management and Engineering for Manufacturing major with admission requirement coursework in transfer must apply through the School of Engineering at [ppc.engr.uconn.edu](http://ppc.engr.uconn.edu). Admission to the Management and Engineering for Manufacturing (MEM) major is competitive. The following requirements must be met for consideration of admission into the MEM major. The following admission requirements must be complete at time of application to be considered for admission:

1. Be in good academic standing (not on probation or eligible for dismissal).
2. Have earned 24 credit hours.
3. Have completed each of the following areas with no grades less than a C (no substitutions).
  - MATH 1131Q; or both MATH 1120Q and 1121Q; or both MATH 1125Q and 1126Q.
  - One of the following: CHEM 1127Q or 1147Q, PHYS 1501Q, or other lab science.
  - One of the following: ACCT 2001; ECON 1200, 1201, 1202; STAT 1000Q, 1100Q.
4. To be admitted to the MEM Program, students must have demonstrated academic success and the potential to maintain a strong enough cumulative GPA to remain in the program.

Incoming freshman students may be admitted into the major by the Office of Undergraduate Admissions at the time of enrollment at UConn, based on their credentials at the time of enrollment. Similarly, a first-semester freshman enrolled in the School of Business or the School of Engineering may freely transfer into the MEM program via [ppc.engr.uconn.edu](http://ppc.engr.uconn.edu), but only prior to the completion of the first semester. After the end of the first semester, all admissions to MEM are subject to the above restrictions.

### Supplemental Academic Standards

After admission into the Management and Engineering for Manufacturing program, students must maintain a high standard of scholastic achievement to continue in the major program. Any student having completed 24 or more credit hours must maintain a minimum 2.79 cumulative grade point average. A student failing to meet this standard is subject to dismissal from the program.

## Other Educational Opportunities

**Field Study Internships.** Internship experiences provide students an opportunity for supervised field work in areas of business and government. Regular internship programs are available on a limited basis in accounting, real estate, health care systems management, management information systems, and management. Individual internships may be arranged in other departments and majors within the School of Business; these are subject to availability and departmental restrictions.

**Pre-Law Studies.** Business students who plan to apply for admission to a school of law may arrange for pre-legal curricular counseling through the Undergraduate Programs Office in the School of Business.

**The Center for International Business Education and Research Programs (CIBER)** is a focal point for international research and outreach activities. It is also a resource center for international business education. In addition, the Center actively sponsors faculty travel and hosts visiting international scholars. It is a resource center for international business education. It is the focal point for facilitating academic-business partnerships on an international basis.

**The Center for Real Estate and Urban Economic Studies (CREUES)** is especially concerned with research on real estate markets and valuation, urban growth and land use structure, and public and private administration of real estate resources. Research interests also include the administration of business firms in construction and development, real estate law, real estate financing, marketing, management, and valuation. The Center operates in conjunction with and supports the school's teaching program in real estate and urban economic studies.

**The Connecticut Center for Entrepreneurship and Innovation (CCEI).** The CCEI is a focal point for expanding the University's emphasis on entrepreneurial education, research, and business partnering. The CCEI offers a multi-faceted high quality program designed to provide assistance to Connecticut's entrepreneurial businesses, to explore their problems and create solutions, to foster supportive feedback from practitioners, and to develop a continuous integrated learning environment for students, faculty and the entrepreneurial community. The Center's vision is to serve as the resource of choice to Connecticut's entrepreneurial business community, while developing innovative and exciting educational opportunities for students, faculty and entrepreneurs. The Center serves as an interdisciplinary home for a number of entrepreneurial initiatives and also facilitates entrepreneurship curriculum development. Furthermore, the Center is a source of student internships, a conduit for external financial support, facilitates student and faculty development, and serves the Connecticut entrepreneurial community.

**Connecticut Information Technology Institute, (CITI),** a unit of the School of Business, provides the influential knowledge community needed to support IT focused academic degree programs and corporate IT development objectives. From enhancing office productivity to advanced development, from short course certification to academic degrees, the CITI knowledge community offers a variety of IT solutions, training, and education. CITI's special events, seminars and courses offer a range of dynamic education and training opportunities. Situated on UConn's campus in downtown Stamford, the location provides unique opportunities to learn and work in close proximity to some of the leading Fortune 500 corporate headquarters. More information can be found at [www.citi.uconn.edu](http://www.citi.uconn.edu).

**The Family Business Program** was created as a result of a business community-University of Connecticut School of Business partnership to provide a resource for family businesses. The Program also is a focal point for research in the area of family business. There are a number of corporate sponsors for this program. Members from all businesses can participate in workshops and round table discussion on issues of interest to family businesses.

**The Stamford Learning Accelerator (SLA)** provides greatly expanded university and business cooperation on experiential learning. Building on the success of the School of Business' other Learning Accelerators that house projects from multiple companies and organizations, the SLA will take this one step further. The SLA is a collaborative, multidisciplinary learning space where programs from many UConn colleges and schools will share space and resources to foster a very wide range of student team projects. The SLA is located in a 9000+ sq. ft. technologically advanced setting at the Stamford Regional Campus.

**Thomas J. and Bette Wolff Family Program in Entrepreneurship.** The Wolff Family Program in Entrepreneurship presently supports an endowed chair in strategic entrepreneurship which encourages cutting-edge research. In addition, the program sponsors the Management Department's Annual Business Plan Competition, which awards \$10,000 in prize money to budding student entrepreneurs. The support for this program is due to the generosity of one of the School's most generous alums, Mr. Thomas J. Wolff.

# Continuing Education

Peter Diplock, Ph.D., *Assistant Vice Provost*  
Jim Hill, Ph.D., *Director*

## Bachelor of General Studies

The Bachelor of General Studies (BGS) degree is designed for returning adults. A student needs at least 60 college credits or an associate's degree from a degree granting regionally accredited college to be considered for admission to the program.

### Admission Requirements

1. An associate's degree or at least 60 college credits from a degree granting regionally accredited college or university. Transfer students with a minimum GPA of 2.7 or a 3.0 in their last 12 credits will meet the criteria for admission.
2. An interview with an academic counselor
3. Official transcripts from all high schools and degree granting regionally accredited colleges and universities previously attended.
4. Completion of the admission application and submission of application fee

### Requirements for the Degree Completion Program for Bachelor of General Studies

1. Earn a minimum of 120 credits towards graduation
2. Fulfill the University of Connecticut General Education Requirements
3. Earn 45 or more credits at the University of Connecticut
4. Earn 30 or more credits at the 2000-level or above from either courses taken at the University of Connecticut or courses that transfer at that level into the University of Connecticut.
5. A University of Connecticut grade point average of at least 2.0.
6. Students are expected to complete degree requirements within eight years of admission unless an extension of time to complete the program is given by the Program Director.

**Writing in the Major.** The University's writing requirement can be met by any 2000-level or above W course within the General Studies major.

**Information Literacy.** Students in the program fulfill this competency area through successful completion of GPS 4278/W, AMST 3265W, or another pre-approved information literacy course.

## Bachelor of General Studies (BGS) Requirements

### Major: General Studies

Students in this major select courses from multiple disciplines and academic departments, and work with their academic advisor to establish a coherent plan of study. Students require 30 credits at the 2000-level and above, and may not have more than 21 credits at the 2000-level and above in any one academic department on their final plan of study. Students may also pursue one or more minors as part of their plan of study.

# School of Engineering

Kazem Kazerounian, Ph.D., *Dean*,

Daniel Burkey, Ph.D., *Associate Dean*

A. Brian Schwarz, *Director of Undergraduate Advising*

## Degrees Offered and Accreditation

### Bachelor of Science in Engineering

The School of Engineering offers four-year programs leading to Bachelor of Science in Engineering (B.S.E.) degrees in:

- Biomedical Engineering\* (128 credits)
- Chemical Engineering\* (128 credits)
- Civil Engineering\* (128 credits)
- Computer Science and Engineering\*# (126 credits)
- Computer Engineering\* (126 credits)
- Electrical Engineering\* (126 credits)
- Engineering Physics (128 credits)
- Environmental Engineering\* (128 credits)
- Materials Science and Engineering\* (128 credits)
- Mechanical Engineering\* (128 credits)

### Bachelor of Science

- The School of Engineering offers four-year programs leading to Bachelor of Science (B.S.) degrees in:
- Bachelor of Science (B.S.) degree (120 credits) in Computer Science#

Bachelor of Science (B.S.) degree (139 credits) in Management and Engineering for Manufacturing\* (jointly offered with the School of Business) and accredited by the Association to Advance Collegiate Schools of Business (AACSB)

The programs shown above that are asterisked (\*), are accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org). The programs shown above with the pound sign (#) are accredited by the Computing Accreditation Commission of ABET.

The School of Engineering and the College of Liberal Arts and Sciences offer a five-year, double-degree *EUROTECH* program leading to a B.S. in Engineering degree and a B.A. degree in German. The program includes German Language courses specially designed to include engineering content, engineering courses taught partly in German, and a six-month internship in a company in Germany.

Students who wish to concentrate their elective work in a second field within the School of Engineering may elect a double major program. This program requires the completion of all requirements in both majors. Students are required to inform the Director of Undergraduate Advising if they change or add a major.

The School of Engineering also offers Minors in Bioinformatics, Biomedical Engineering, Computer Science, Electronics and Systems, Engineering Management, Environmental Engineering, Information Assurance, Information Technology, Materials Science and Engineering, Nanomaterials, and Nanotechnology. Please refer to the “Minors” section of this publication for these and other relevant minor descriptions.

## Admission Requirements

See Admission to the University section of this publication. All students admitted to the School of Engineering are required to take a calculus placement survey prior to attending summer orientation or registering for their first semester. Based on the survey results, students may be required to take additional preparatory course work that may not be counted toward graduation. Students not admitted into the School of Engineering at the time of entry to the University may apply for admission to a major through the School of Engineering, Undergraduate Programs Office. Admission is competitive. Decisions will be based on several criteria including the applicant’s academic record, courses completed, and space availability. Students in the School may request a change to their major later by submitting an application to the undergraduate programs office and meeting the admission criteria for that major.

Admission to Junior Year. Students should declare their major as soon as possible, but no later than the second semester of their sophomore year.

**Supplementary Scholastic Standards.** To be in good academic standing in the School of Engineering, students must maintain a 2.5 cumulative GPA after completing 24 or more credits. Students must maintain a minimum 2.3 cumulative GPA to continue in the School of Engineering. Students who fall below a 2.3 cumulative GPA after 24 credits in residence will be removed from the School of Engineering and moved to the Academic Center for Exploratory Students. Residence means courses completed at one of the UConn campuses and does not include Early College Experience or non-degree courses. Students will have the opportunity to appeal this decision. If a student’s cumulative GPA falls between 2.3 and 2.5, they will be considered on academic probation for the School of Engineering. Students on academic probation will be reduced to a 14-credit load until the cumulative GPA improves to at least 2.5. Students may stay in the School of Engineering while on academic probation with the reduced credit load.

**Scholarships.** The School of Engineering offers academic merit-based scholarships to continuing students. The University offers merit-based scholarships to eligible incoming freshmen.

**Faculty Advisors, Professional Advisors and Student Mentors.** Faculty advisors and Professional advisors are assigned to students entering the School of Engineering according to the student’s major. Faculty advisors and Professional advisors assist students in their course selections, counsel them in meeting their educational and career goals, and advise them in both academic and non-academic issues. The school’s Mentoring, Advising and Tutoring (MAT) Center is staffed by undergraduate students and provides tutoring, coaching and mentoring to all engineering students during the day. Evening tutoring is available in the Mentoring, Advising and Tutoring (MAT) Center.

## School Academic Requirements

Students in the School of Engineering must complete the following requirements:

**General Education Requirements.** The University has adopted General Education Requirements in a variety of curricular areas, which must be satisfied as part of every bachelor’s degree program. Additionally, each student must demonstrate competency in the University of Connecticut’s five fundamental areas. These requirements appear in the “General Education Requirements” section of this *Catalog*.

Additionally, all engineering students are required to complete:

- A *Plan of Study* form submitted during the first semester of the junior year
- MATH 1131Q and 1132Q (or MATH 1125Q, 1126Q, and 1132Q), ENGR 1000 and CSE 1100 or 1010 and PHIL 1104
- All majors, except B.S. in Computer Science majors, are required to complete CHEM 1127Q (or CHEM 1147Q) and PHYS 1501Q and 1502Q or PHYS 1201Q, PHYS 1202Q and PHYS 1230/1530 or PHYS 1401Q and PHYS 1402Q
- The University writing (W) course requirement is fulfilled through required major-specific W course work. Most programs have the required two W courses specified in the curriculum. If there are not two W courses in the program, each student must take a minimum of one W course outside the major to satisfy the University’s General Education writing requirements.

**Credit Restrictions.** The following courses may not be counted for credit toward graduation in the School of Engineering: MATH courses numbered 1120Q and below; MATH 1110; PHYS 1010 and 1030Q; CSE 1000. MATH 1125, only one credit can be used toward the required credits for the degree. No course taken on a Pass/Fail basis may be counted for credit toward graduation or may be used to meet any course requirements of the School of Engineering. Only eight credits for courses numbered CHEM 1124Q, 1125Q, 1126Q, 1127Q, 1128Q, 1147Q, and 1148Q and only eight credits for courses numbered PHYS 1201Q through 1602Q may be applied toward the degree.

**Major Requirements and Normal Sequences.** In addition to the University General Education requirements and the School requirements listed above, the requirements for the specific majors are listed in the following pages. Additionally, students successfully completing these courses will have met their general education computer technology and

information literacy exit requirements for this major. Full program details, normal/updated course sequences, and accreditation requirements can be found in the respective *Guide to Course Selection* for each major.

**Accreditation Graduation Requirements.** These requirements are for the following programs: Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science and Engineering, Electrical Engineering, Environmental Engineering, Management and Engineering for Manufacturing, Materials Science and Engineering, and Mechanical Engineering.

### ABET Requirements

1. Humanities: Minimum 18 credits, including CA 1, CA 2, CA 4 including English 1010, 1011, or 2011
2. Math/Science: Minimum of 32 credits (any CA 3 class), including all courses from CHEM, PHYS, EEB, BIOL, MARN, MATH, MCB, NUSC, NRE, PNB, PLSC, GSCI, GEOG, SOIL, and STAT (unless restricted by program or school)
3. Engineering: Minimum of 48 credits from BME, CHEG, CE, CSE, ECE, ENGR, ENVE, MEM, MSE, ME excluding ENGR 1000 and ENGR 1166

**Accreditation Documentation Statements.** The program educational objectives are intended to be statements that describe the expected accomplishments of graduates during the first several years following graduation from the program. Each program's educational objectives are listed within the actual program.

## Biomedical Engineering

### Bachelor of Science in Engineering

Biomedical Engineering majors are required to complete the following: BIOL 1107;

- BME 2101, 3120, 3500, 3600W, 3700, 4900, 4910;
- CHEM 1128Q (or 1148Q) and 2443;
- CE 2110; ECE 2001W, 3101;
- ENGR 1166;
- MATH 2110Q, 2410Q;
- MSE 2101;
- PNB 2264;
- PHYS 1502Q;
- STAT 3025Q;
- BME/Engineering electives (nine credits minimum BME electives and nine credits minimum engineering electives);
- Elective (three credits).

No more than three credits of independent study can count toward the nine credits of BME electives. The professional requirements and electives are specified in the *Biomedical Engineering Guide to Course Selection*.

The Biomedical Engineering undergraduate program educational objectives are that our alumni/ae: will be engaged in professional practice as biomedical engineers and/or biomedical scientists in occupational settings involving human health and well-being; will advance in their professional careers; and will engage in professional development, or post-graduate education, to continuing their self-development in biomedical engineering or other related fields.

## Chemical Engineering

### Bachelor of Science in Engineering

Chemical Engineering majors are required to complete the following:

- CHEG 2103, 2111, 3112, 3123, 3124, 3128, 3145, 3151, 4139, 4140, 4142, 4143W, and 4147;
- CHEG Electives six credits minimum);
- CHEM 1128Q (or 1148Q), 2443, 2444, 2446;
- ENGR 1166; MATH 2110Q and 2410Q;
- Professional/Engineering Requirements (nine credits); MCB/BIOL/CHEM requirement\*;
- Elective courses five credits).

\*Students may select BIOL 1107/1108; MCB 2000, 2610 or 3010; CHEM 3332, 3563, 3564; or other appropriate classes by petition.

Selection of Professional Requirements courses must include engineering design work as detailed in the *Chemical Engineering Guide to Course Selection*. At least three credits of Professional Requirements must be outside of Chemical Engineering. A maximum of six credits of independent chemical engineering research credits may be applied toward degree requirements.

The Chemical Engineering undergraduate program educational objectives are that our alumni/ae: our graduates will be gainfully employed in chemical engineering or related career paths including industrial, academic, governmental and non-governmental organizations. Our graduates will continue their professional activities and/or training to enhance their careers and/or pursue post-graduate studies.

## Civil Engineering

### Bachelor of Science in Engineering

Civil Engineering majors are required to complete the following:

- CE 2110, 2211, 2251, 2410, 2710, 3110, 3120, 3510, CE 3520 or ENVE 3200, 3610, 4900W and 4920W;
- ENVE 2310;
- CHEM 1128Q or 1148Q;
- ENGR 1166 (section offered by the CEE Department recommended);
- MATH 2110Q and 2410Q;
- Professional Requirements courses (21 credits);
- Science elective (minimum of three credits);
- Elective courses (as needed to reach 128 credits total).

A minimum grade of C- is required in each of the following courses: CE 2110, 2211; CE 2251, 2410, 2710, 3110, 3120, 3510 and 4900W and 4920W; ENVE 2310.

The professional requirements are satisfied by 21 credits of 2000-level or higher courses in engineering, science, or mathematics or MGMT 5335 or OPIM 3801. At least one course each from four of the following different technical areas must be selected:

**Construction Management Engineering:** CE 4210

**Environmental/Sanitary Engineering:** ENVE 3220, 4310

**Geotechnical Engineering:** CE 4510, 4530, 4541

**Hydraulic/Water Resources Engineering:** ENVE 4810, 4820

**Structural Engineering:** CE 3630, 3640

**Surveying/Geodetic:** CE 4410

**Transportation Engineering:** CE 4710, 4720, 4750

No course that was used to meet another Civil Engineering course requirement may double count as a Professional Requirement. Courses taken from the above list but not used to fulfill the four technical area requirements may be used to satisfy remaining professional requirements. Following is a list of suggested courses that may also be considered for the professional requirements: CE 2120; CE 3520 or ENVE 3200 (if both taken); CE 3610 or ENVE 3220 (if both taken); CE 3630 or CE 3640 (if both taken); CE 4610, 4730, 4740; EEB 3247; ECE 2000; GSCI 3710.

The science elective may be satisfied by BIOL 1107; EEB 2208; GEOG 1300, 1302, 2300; GSCI 1050, 1051; MARN 1002; NRE 3105; PSYC 1100. Other courses in areas complementary to Civil Engineering, such as biology, ecology, geology, or natural resources, may also be approved.

The Civil Engineering undergraduate program educational objectives are to prepare our alumni/ae with the knowledge and skills needed to: actively contribute to the advancement practice and profession of

engineering practice in the public or private sectors in the technical areas of environmental, geotechnical, structural, transportation, and water resources engineering; recognize the importance of, and follow a path that can lead to licensure as professional engineers who design and construct solutions to civil engineering problems in the natural and built environments; and adopt and continuously practice life-long learning through post-graduate and professional education.

## Computer Engineering

*Offered jointly by the Departments of Computer Science and Engineering and Electrical and Computer Engineering*

### Bachelor of Science in Engineering

Computer Engineering majors are required to complete the following:

- CSE 1729, 2100, 2102, 2300W, 2500, 3666, 4300;
- ECE 2001, 3101, 3201, 3221, 3401, 3421, 4099W, 4901, 4902;
- MATH 2110Q, 2210Q and 2410Q;
- STAT 3345Q;
- Professional Requirements courses (nine credits);
- Design Laboratory courses (six credits including ECE 3411);
- Elective course (three credits)

Further details and course sequences are given in the Computer Engineering Guide to Course Selection.

The Computer Engineering program combines coursework in computer science and electrical engineering providing a program that focuses on the design of computer hardware and digital systems.

The Computer Engineering undergraduate program educational objectives are that our alumni/ae: make technical contributions to design, development, and manufacturing in their practice of computer engineering, advance in their professional career and engage in professional development or post-graduate education to pursue flexible career paths amid future technological changes.

## Computer Science

### Bachelor of Science

Computer Science majors are required to complete the following Computer Science and Engineering (CSE) courses: CSE 1010, 1729, 2100, 2304, 2500, 3000, 3100, 3500, 4939W and 4940;

Computer Science majors must complete one of the following concentrations:

#### Algorithms and Theory

CSE 3502 and three of the following: CSE 3802, 4500, 4702, 4704, 5500, 5820

#### Systems and Networks

CSE 3300 and three of the following: CSE 4300, 4302, 4709, 5300

#### Cybersecurity

CSE 3502 and two of the following: CSE 4702, 4707/5850, 5852

#### Bioinformatics

CSE 3800 and three of the following: CSE 3810, 4095 (as Big Data Analytics), 5810, 5820, 5860

#### Software Design and Development

CSE 2102 and three of the following: CSE 4102, 4701, 5103, 5104

#### Computational Data Analytics

CSE 4095 (as Big Data Analytics) and three of the following: CSE 4095 (as Dynamic Data Visualization) or OPIM 4895 (as Data Visualization), CSE 4701 or OPIM 3221, CSE 4705, CSE 5095 (as Discrete Optimization) or OPIM 3803, CSE 5713 or OPIM 3802

## Unspecialized

Three of the following: CSE 2102, 3300, 3502, 3800, 4095 (as Big Data Analytics); and any other 2000-level or higher CSE course not used to fulfill another major requirement

Students may propose an individually-designed concentration to fit their academic or career interests. This will be a minimum of 12 credits at the 2000+ level, proposed by the student and approved by the student's advisor and the CSE Department Undergraduate Committee. The expectation is that such a concentration will have a strong unifying theme. This may include non-CSE courses, but the student will still be subject to the required 43 CSE credits.

All Computer Science majors must also complete the following:

- MATH 2210Q, and *either* MATH 2110Q *or* 2410Q;
- Either STAT 3025Q or STAT 3375Q;
- One two-semester laboratory course sequence from *either* chemistry (CHEM 1127Q-1128Q, 1137Q-1138Q or 1147Q-1148Q) *or* physics (PHYS 1401Q-1402Q, 1501Q-1502Q or 1601Q-1602Q);
- One additional science course (from BIOL 1107, 1108, or 1110; CHEM 1127Q, or 1128Q; PHYS 1401Q, 1402Q, 1502Q, 1601Q, or 1602Q) but not in the same department as the two semester sequence;
- Additional CSE courses as required to reach 43 credits in CSE courses;
- Elective courses to reach a minimum of 120 credits.

Further details and course sequences are given in the Computer Science Guide to Course Selection.

The Computer Science program combines a rigorous education in computer science with added coursework in an area outside of computing, in the sciences, business or humanities. With a background that combines computer science and a non-computing discipline, our graduates have the breadth of understanding to apply computer science to other disciplines, which is particularly valuable as computing has become a key aspect of nearly all endeavors.

The Computer Science undergraduate program educational objectives are that our alumni/ae: practice as computing professionals in various areas of computer science or the related areas to which it applies; advance in their professional practice; and enhance their skills and embrace new computing technologies through self-directed professional development or post-graduate education.

## Computer Science and Engineering

### Bachelor of Science in Engineering

Computer Science and Engineering majors are required to complete the following: CSE 1010, 1729, 2100, 2300W, 2304, 2500, 3000, 3100, 3500, 3504, 4939W and 4940; ECE 2001

Computer Science and Engineering majors must complete one of the following concentrations:

#### Algorithms and Theory

CSE 3502 and three of the following: CSE 3802, 4500, 4702, 4704, 5500, 5820.

#### Systems and Networks

CSE 3300 and three of the following: CSE 4300, 4302, 4709, 5300

#### Cybersecurity

CSE 3502 and two of the following: CSE 4702, 4707/5850, 5852

#### Bioinformatics

CSE 3800 and three of the following: CSE 3810, 4095 (as Big Data Analytics), 5810, 5820, 5860

#### Software Design and Development

CSE 2102 and three of the following: CSE 4102, 4701, 5103, 5104

## Computational Data Analytics

CSE 4095 (as Big Data Analytics) and three of the following: CSE 4095 (as Dynamic Data Visualization) or OPIM 4895 (as Data Visualization), CSE 4701 or OPIM 3221, CSE 4705, CSE 5095 (as Discrete Optimization) or OPIM 3803, CSE 5713 or OPIM 3802

### Unspecialized

Three of the following: CSE 2102, 3300, 3502, 3800, 4095 (as Big Data Analytics); and any other 2000 level or higher CSE course not used to fulfill another major requirement

Students may propose an individually-designed concentration to fit their academic or career interests. This will be a minimum of 12 credits at the 2000+ level, proposed by the student and approved by the student's advisor and the CSE Department Undergraduate Committee. The expectation is that such a concentration will have a strong unifying theme. This may include non-CSE courses, but the student will still be subject to the required 43 CSE credits.

All Computer Science and Engineering majors must also complete the following:

- MATH 2110Q, 2210Q, and 2410Q;
- One of MATH 3160, STAT 3025Q, 3345Q, or 3375Q;
- Additional CSE courses as required to reach 50 credits in CSE courses;
- Elective courses to reach a minimum of 126 credits.

Further details and course sequences are given in the Computer Science and Engineering Guide to Course Selection.

The Computer Science and Engineering program combines a rigorous education in computer science with added emphasis on the physical and architectural underpinnings of modern computer system design. With a background that spans computer science and computer engineering, the graduates are able to address computing systems across the hardware-software spectrum.

The Computer Science and Engineering undergraduate program educational objectives are that our alumni/ae: practice as computing professionals in various areas of computer science or computer engineering, advance in their professional practice; and enhance their skills and embrace new computing technologies through self-directed professional development or post-graduate education.

## Electrical Engineering

### Bachelor of Science in Engineering

Electrical Engineering majors are required to complete the following:

- CSE 1102 or ENGR 1166 (students who take a non-EE version of ENGR 1166 must also take ECE 1101);
- CSE 2300W;
- ECE 2001, 3001, 3101, 3111, 3201, 3211 or 3212 or 3231, 3221 or 4201, 4099W, 4111 or 4112, 4211 or 4225, 4901 and 4902;
- MATH 2110Q, 2210Q and 2410Q;
- STAT 3345Q or MATH 3160;
- Professional Requirements courses (12 credits);
- Design Laboratory courses six credits);
- Elective courses seven credits).

Further details and course sequences are given in the Electrical Engineering Guide to Course Selection.

The Electrical Engineering program educational objectives are that our alumni/ae: make technical contributions to design, development, and manufacturing in their practice of electrical engineering; advance in their professional career; and engage in professional development or post-graduate education to pursue flexible career paths amid future technological changes.

## Engineering Physics

*Offered jointly by the Physics Department of the College of Liberal Arts and Sciences and the School of Engineering*

### Bachelor of Science in Engineering

Engineering Physics majors can concentrate in either Electrical, Materials Science, or Mechanical Engineering. Students choose the college/school that they wish to graduate from and must satisfy the course requirements of either the College of Liberal Arts and Sciences or the School of Engineering to complete their degree.

Engineering Physics majors are required to complete the following: CHEM 1128Q or 1148Q; PHYS 2300, 2501W, 3101, 3201, 3202, and 3401; MATH 2110Q, 2410Q, and 3410

**Electrical Engineering:** ECE 2001W, 3101, 3111, 3201, 4111, 4211, 4901, and 4902; CSE 2300W; MATH 2210Q; PHYS 3300; STAT 3345Q, Elective courses four credits).

**Mechanical Engineering:** ME 2233, 2234, 3220, 3227, 3242, 3250, 3253, 4972 and 4973W; CE 2110, 3110; STAT 3345Q; ME Elective Courses six credits); PHYS Elective courses six credits).

**Materials Science and Engineering:** MSE 2001, 2002, 2053, 3001, 3002, 3003, 3004, 3055 and 3056, 4003W, 4901 and 4902W; CHEG 3156; PHYS 4150 and 4210; MSE Elective Courses (six credits); Physics Elective Courses (three credits).

The professional requirements and electives are specified in the *Engineering Physics Guide to Course Selection*.

The Engineering Physics undergraduate program educational objectives are that our alumni/ae: contribute to current and future scientific and technological developments in the areas of physics and electrical, mechanical and materials science engineering; excel in engineering and physics careers and responsible citizenship in industry, government, academia and other professional practices; and engage in professional development or graduate education to pursue flexible career paths.

## Environmental Engineering

### Bachelor of Science in Engineering

Environmental Engineering majors are required to complete the following:

- CE 2110, 2211, CE 3120/ENVE 3120 (or CHEG 3123);
- CHEG 2111;
- CHEM 1128Q (or 1148Q);
- ENGR 1166;
- CE 2251; ENVE 1000, 2310, 3200, 3220, 3230, 3270, 4210, 4310, 4810 or 4820, 4910W, 4920W;
- MATH 2110Q and 2410Q;
- ENVE 4320 and one of the following: NRE 3105, 3205, 3155;
- NRE 4135 (or GSCI 3710/ENVE 3530);
- Elective course six credits);
- Professional Requirements courses (12 credits).

Professional Requirements include at least one course each to strengthen four of the following nine focus areas: Data Collection and Analysis, Renewable Energy, Systems Analysis, Environmental Chemistry, Environmental Biology, Water Resources, Geoenvironmental Processes, Atmospheric Processes, and Management and Policy. Three credits of Professional Requirements may be replaced with the two-semester sequence, ENVE 4886 and 4896. The following courses may be used to meet the Professional Requirements:



- **Data Collection and Analysis:** CE 2410, 4410; GEOG 2500; ME 3263; NRE 3535
- **Renewable Energy:** ME 3270, 3285; Engineering courses offered as Special Topics in Renewable Energy
- **Systems Analysis:** CHEG 3151, 4147; CE 4210
- **Environmental Chemistry:** CHEM 2241, 4370; MARN 4030W; NRE 3155; SOIL 3410, 4420
- **Environmental Biology:** MARN 3016; MCB 2610; NRE 3105, 3205
- **Water Resources:** ENVE 4810, 4820; NRE 3125, 4135, 4165
- **Geoenvironmental Processes:** CE 3510, 4530; ENVE 3530; NRE 4165
- **Atmospheric Processes:** GEOG 3400; ME 3239; NRE 3145, 3146
- **Management and Policy:** AH 3275, 4570; ARE 3434, 4462; EEB 3205; GEOG 3320W, 3340; LAND 3230W; MEM 2221; NRE 3245

No course that was used to meet another Environmental Engineering requirement may double count as a Professional Requirement. Environmental Engineering Honors students are required to take ENVE 4886 and 4896.

The Environmental Engineering undergraduate program educational objectives are to impart our alumni/ae with the knowledge and skills needed to: actively contribute to the practice and profession of engineering in the public and/or private sectors in the technical area of environmental engineering; follow the path that leads towards, becoming licensed professional engineers, assessing the impact of human activities on the environment, designing and constructing solutions to minimize and mitigate such impacts, and tending to the natural environment as our life support system; and practice lifelong learning through post-graduate and professional education.

## Management and Engineering for Manufacturing

*Jointly offered by the Schools of Business and Engineering granting a single joint Bachelor of Science degree from the Schools of Engineering and Business.*

### Bachelor of Science

Requirements for all Management and Engineering for Manufacturing students, both through the School of Business and through the School of Engineering, are the same. Students must work very carefully with a Management and Engineering for Manufacturing advisor. Completion of all major requirements also fulfills all School of Business, School of Engineering, and ABET requirements.

Management and Engineering for Manufacturing majors are required to complete the following:

**Expository Writing:** ENGL 1010 or 1011 (or for Honors Scholars, ENGL 2011)

**Quantitative Analysis:** MATH 1131Q and MATH 1132Q; MATH 2110Q and 2410Q; and STAT 1000Q or 1100Q

**Other Courses:** HIST 1400; PHIL 1104; ECON 1200; CHEM 1127Q or 1147Q; PHYS 1501Q and 1502Q; ANTH 1000 or GEOG 1700; one additional Content Area Four Course.

ACCT 2001, 2101; BLAW 3175; CE 2110 and 3110; CSE 1010 or 1100; ECE 2000; ENGR 1000; FNCE 3101; ME 2233, 3221, 3227, and 3263; MEM 1151, 2211, 2212, 3221, 3231, 4225, 4971W, and 4972W; MGMT 3101 and 4900; MKTG 3101; MSE 2101, 2102; OPIM 3652, 3801; a Business Technical Elective course (three credits); an Engineering Technical Elective course (three credits).

Neither OPIM 3103 nor OPIM 3104 may be used to fulfill business-elective credit by MEM majors. ME 3222 may not be used to fulfill engineering-elective credit by MEM majors.

The Business Technical Elective must be from a 3000-level or higher course from one of the following five departments in the School of Business: Accounting, Finance, Management, Marketing, or Operations and Information Management.

The Engineering Technical Elective must be from a 3000-level or higher course from the School of Engineering or from the following list of Allied Health courses: AH 3270, 3570, or 3574

MEM students who have completed CSE 1010 or 1100 will not be required to take OPIM 3103 and will satisfy the requirements for courses that will have OPIM 3103 as a requisite.

The Management and Engineering for Manufacturing undergraduate program educational objectives are that our alumni/ae: practice their profession with solid engineering and business knowledge and skills and have a total enterprise vision of world class manufacturing and service organizations; compete successfully using lean manufacturing and quality management principles in the design, manufacture of products, and development of services; and apply high professional standards, with up to date knowledge and personal skills, integrating global factors in their approach to engineering and business decisions.

### Information Literacy

In addition to the basic competency achieved in ENGL 1010/1011 or equivalent, all students will receive instructions on how to conduct an effective search for information in the library and how to conduct an effective search on the web for applicable engineering topics in ENGR 1000 or equivalent. As the student progresses in their program, various courses will require assignments to increase their information literacy competency. The advanced level of information technology competency will be achieved at the completion of MEM 4971W and 4972W.

### Writing in the Major

MEM 4971W and 4972W are the senior design project courses for the program. All students must write reports on their projects. These courses provide opportunities to write professional reports with appropriate feedback and criticism from two faculty members. The report writing provides instruction in proper report structure for professional work in practice.

Students are encouraged to seek faculty-supervised manufacturing summer internships prior to their junior and senior years. Such internships may be shown on the student records by registering for MEM 3281, with instructor and advisor approval.

MEM students have available a one-semester exchange program with the Industrial Engineering and Management program from Lund University, Sweden.

### Admission

Students who apply to the Management and Engineering for Manufacturing major with admission requirement coursework in transfer must apply through the School of Engineering at [ppc.engr.uconn.edu](http://ppc.engr.uconn.edu). Admission to the Management and Engineering for Manufacturing (MEM) major is competitive. The following requirements must be met for consideration of admission into the MEM major. The following admission requirements must be complete at time of application to be considered for admission:

1. Be in good academic standing (not on probation or eligible for dismissal).
2. Have earned 24 credit hours.
3. Have completed each of the following areas with no grades less than a C (no substitutions).
  - MATH 1131Q; both MATH 1120Q and 1121Q; or both MATH 1125Q and 1126Q.
  - One of the following: CHEM 1127Q or 1147Q, PHYS 1501Q, or other lab science.
  - One of the following: ACCT 2001; ECON 1200, 1201, 1202; STAT 1000Q, 1100Q.
4. To be admitted to the MEM Program, students must have demonstrated academic success and the potential to maintain a strong enough cumulative GPA to remain in the program.

Incoming freshman students may be admitted into the major by the Office of Undergraduate Admissions at the time of enrollment at UConn, based on their credentials at the time of enrollment. Similarly, a first-semester freshman enrolled in the School of Business or the School of Engineering may freely transfer into the MEM program via [ppc.engr.uconn.edu](http://ppc.engr.uconn.edu), but only prior to the completion of the first semester. After the end of the first semester, all admissions to MEM are subject to the above restrictions.

## Supplemental Academic Standards

After admission into the Management and Engineering for Manufacturing program, students must maintain a high standard of scholastic achievement to continue in the major program. Any student having completed 24 or more credit hours must maintain a minimum 2.79 cumulative grade point average. A student failing to meet this standard is subject to dismissal from the program.

### Materials Science and Engineering

#### Bachelor of Science in Engineering

Materials Science and Engineering majors are required to complete the following:

- CHEM 1128Q or 1148Q;
- ENGR 1166;
- MATH 2110Q and 2410Q;
- CE 2110 and 3110;
- MSE 2001, 2002, 2053, 3001, 3002, 3003, 3004, 3055, 3056, 4001, 4003W, 4004, 4005, 4901W, and 4902W;
- Professional requirement courses (12 credits);
- Technical Elective courses (nine credits).

Elective sequences that satisfy the (12 credit) MSE concentrations in Electronic Materials, Metallurgy, Biomaterials, Nanomaterials, and Energy Materials as well as recommended Professional and Technical Electives are listed below.

**Electronic Materials Concentration:** PHYS 3401, 3150, 4210; MSE 4241, 5317

**Metallurgy Concentration:** Four courses from the following: MSE 3020, 3032, 3034, 3036, 4021, 4034, 4038, ME 3228

**Biomaterials Concentration:** At least one of the following: MSE 3700; BME 4701, 4710. The additional required credits can come from the previous list or from the following: BIOL 1107; MCB 2210; CHEM 2443; a BME special topics course taught as Regenerative Medicine and Engineering; MSE 4095 biomaterials research in faculty labs\* (three credits total, may be split across multiple terms); additional courses with biomaterials content taught by various departments.\*

(\*Must be approved by biomaterials advisor)

**Nanomaterials Concentration:** At least one of the following: MSE 4240, 4241; ENGR 3195 when taught as Nanoscience and Society. The additional required credits can come from the previous list or from the following: ENGR 4243, 4244; PHYS 2300, 3401, 3402; CHEM 3563, 3564; MSE 4095 nanomaterials research in faculty labs\* (three credits total, may be split across multiple terms); additional courses with nanomaterials content taught by various departments\*

(\*Must be approved by nanomaterials advisor)

**Energy Materials Concentration:** MSE 4800 and 4801; two elective courses chosen from CHEG 5363; CHEM 3563; ME 3270; and ME 3285

Recommended Professional Elective courses: 12 credits from: any 3000 or 4000 level MSE elective course, BME 3700 and 4701; CHEG 3156; ME 3217 and 3228. Only one 3-credit independent study course may be used as a professional elective. Students with CGPA of 3.2 or greater may elect letter-grade graduate courses.

Technical Elective Requirement: Nine credits, selected from all 2000, 3000, and 4000 courses in the basic sciences, mathematics, and in any engineering discipline other than Materials Science and Engineering are accepted as technical electives. At least three credits must be selected from the basic sciences or mathematics: Mathematics (MATH), Biological Sciences (BIOL), Chemistry (CHEM), Molecular and Cell Biology (MCB), Physics (PHYS), and Statistics (STAT).

Selection of courses is detailed in the *Materials Science and Engineering Guide to Course Selection* at [www.mse.engr.uconn.edu/undergraduate-program/curriculum-and-course-guide](http://www.mse.engr.uconn.edu/undergraduate-program/curriculum-and-course-guide).

The Materials Science and Engineering program educational objectives are that within three to five years after graduation, in their professional careers and/or graduate programs, our alumni/ae will have: progressed in responsible professional positions and/or will have attained or will

be successfully moving toward attaining post-graduate degrees; earned recognition for applying and continually expanding special, in-depth competencies in materials design, selection, characterization, and/or processing; earned recognition for applying and continually expanding professional skills of critical and cooperative thinking, communication, and leadership; and become engaged with and contributing to professional societies and collaborating with the MSE Program Faculty in providing opportunities for current and potential MSE majors.

### Mechanical Engineering

#### Bachelor of Science in Engineering

Mechanical Engineering majors are required to complete the following:

- CE 2110, 2120, and 3110;
- ECE 2000 or 2001/W;
- ENGR 1166;
- MATH 2110Q and 2410Q;
- ME 2233, 2234, 3220, 3227, 3242, 3250, 3253, 3255, 3263, 3264, 4972, and 4973W;
- MSE 2001 or 2101;
- ME Requirement (nine credits);
- Professional Requirements (six credits);
- Electives (five credits).

All mechanical engineering students are required to have at least six credits of work in the mathematical sciences and sciences beyond those courses specifically required in the program. The course credits can be met at any course level. Those at the 2000 level and above can be used to meet the professional requirements of the program. Restrictions on courses are noted in the following:

All MATH 2000-level and above courses except MATH 2720W, and 2794W; all STAT courses except STAT 1000Q; all BIOL, EEB, MCB, and PNB courses; all CHEM courses except CHEM 1101; all GSCI courses, all MARN courses may be used.

Concentration requirements: nine credits (three courses, 2000 level and above); no course grades of less than C; plan of study for concentration; must take courses from subset of identified courses.

**Aerospace Concentration:** Three courses from: ME 3239, 3251, 3275, 3280, 5311\*, 6160\* or 3295 Special Topics taught as any of these: Acoustics, Aerospace Control Systems, Computer Aided Engineering, or Propulsion

**Energy and Power Concentration:** Three courses from: ME 3239, 3270, 3275, 3280, 3285, 5311\*, 6160 or Special Topics 3295 when taught as any of these: Fuel Cells, Micro-Nanoscale Energy Transport and Conversion, Propulsion, or Sustainable Energy

\* Offered as combined Undergraduate/Graduate courses. Students may opt to take the graduate course or take it as ME 3295 Special Topics

**Dynamic Systems and Control Concentration:** Three courses from: ME 3214, Special Topics 3295 when taught as any of these: Aerospace Control Systems, Acoustics, Advanced Vibrations, Intelligent Material Systems and Structures, Linear Automatic Control Systems, or Mechatronics, ME 5160, 5180, 5210, 5420, 6330, or 5895 Special Topics when taught as Mechatronics

**Design and Manufacturing Concentration:** Three courses from: ME 3217, 3221, 3222, 3224, 3225, 3228, 5511, 5155, 5150, 5210, 5220 or Special Topics 3295 when taught as any of these: Advanced Manufacturing, Analytical and Applied Kinematics, Computer Aided Engineering, Geometric Modeling, Intelligent Material Systems and Structures, Principles of Machining and Machine Tools, or Principles of Optimum Design

Details on the ME and Professional Requirements are specified in the *Guide for Mechanical Engineering Majors*.

The faculty of the Mechanical Engineering program at the University of Connecticut strives to continuously improve our undergraduate program in Mechanical Engineering. The program's educational objectives are that our graduates: will be gainfully employed in Mechanical Engineering or related career paths including industrial, academic, governmental and non-governmental organizations and will continue their professional development by engaging in professional activities and/or training to enhance their careers and/or pursue post-graduate studies.

# School of Fine Arts

Anne D'Alleva, Ph.D., *Dean*

Alain Frogley, D. Phil, *Associate Dean*

Thomas Meacham, Ph.D., *Associate Dean*

Colleen Bridgeman, B.S., *Assistant Dean*

Eva Gorbants, M.A., *Assistant Dean*

The School of Fine Arts encompasses the Departments of Art and Art History, Digital Media and Design, Dramatic Arts and Music. The curricula in each department afford not only an intensive professional education, but a liberal university education as well.

**Admission Requirements.** See Admission to the University and Department Guidelines.

**General Education Requirements.** The University Senate has adopted General Education Requirements in a variety of curricular areas that must be satisfied as part of every bachelor's degree program. These requirements appear in the "General Education Requirements" section of this *Catalog*.

Courses may be used to meet both School of Fine Arts and University requirements.

**Supplementary Scholastic Standards.** Fine Arts students (with the exception of Art History and Theatre Studies majors and Digital Media and Design students enrolled in the Bachelor of Arts program) must enroll in a minimum of six credits in major department courses (Art and Art History, Dramatic Arts, or Music or Digital Media and Design courses for students enrolled in the Bachelor of Fine Arts program) each semester of full-time study unless an exception is granted by the Director of Advising. Students who fail to comply with the minimum credit requirement are subject to dismissal from the school.

## Bachelor's Degree Requirements

Upon the recommendation of the faculty, the various bachelor's degrees are awarded by vote of the Board of Trustees to students who have met the following requirements:

1. Earned at least 120 credits applicable toward the degree;
2. earned at least a 2.0 grade point average for all calculable course work;
3. met all the requirements listed above for the specific degree taken.

## Exemptions and Substitutions

Students who desire to be excused from any of the requirements or courses should consult the pertinent department head and Eva Gorbants, Assistant Dean.

**Minors.** The School of Fine Arts offers interdisciplinary minors in Digital Arts and Global Arts and Culture. They are described in the "Minors" section of this *Catalog*.

## Art and Art History

### Degrees offered

Bachelor of Fine Arts in Art

Bachelor of Arts in Art History

### Competency Requirements

**Information Literacy and Writing in the Major.** Students must successfully complete at least one Art History W course.

**Computer Technology.** Students must meet University entrance standards. **Note:** Each Bachelor of Fine Arts Studio Art Major must own a personal portable computer that meets or exceeds posted departmental performance standards.

**Minors.** The Art and Art History Department offers minors in Art History and Studio Arts. They are described in the "Minors" section of this *Catalog*.

## Art

### Bachelor of Fine Arts Areas of Concentration

Graphic Design

- Illustration/Animation
- Painting
- Photography
- Printmaking
- Sculpture/Ceramics
- Individualized

### Admission

Portfolio Review

### Common Curriculum

All B.F.A. students share a common curriculum of 39 credits:

**Drawing:** ART 1030, 1040

**Foundation Courses:** Studio Concepts: ART 1010

**Criticism and Interpretation:** ART 1020

**Basic Studios\*:** Painting (ART 2310), Photography (ART 2410), Printmaking (ART 2510), Sculpture (ART 2610)

**Art History:** Twelve credits in Art History, one a 1000-level offering to be taken in the first two years of study. Not more than two 1000-level Art History courses may be used toward the Art History requirement for the B.F.A. degree.

**Senior Project:** ART 4901

\*Note: All basic studios should be completed no later than the completion of the fifth term. Studio Art minimum requirement is 66 credits, a minimum of 30 of which must be at the 3000 level or higher.

### Areas of Concentration

All concentrations consist of a minimum of 18 credits of 2000-level or higher courses, with area requirements specified below.

**Graphic Design:** ART 2011, 2110, 2120, 3110, 3120, 4110.

**Illustration/Animation:** ART 2010, 2011, 2110, 2210, 3010, 3210 (repeated once), 3350, 3370 or 3020.

**Painting:** ART 2010, 3310, 3330; and nine additional credits in the 3000-level courses in the painting area to be determined by student interest and faculty advisement.

**Photography:** ART 2420, 3420, and 4410 (may be repeated once); ARTH 3460, 3560 plus 12 additional credits in any of the 3000-level studio courses in the photography area to be determined by student interest and faculty advisement.

**Printmaking:** ART 2010, 3010, 3510, 3520, and 3530 (may be repeated up to 18 credits).

**Sculpture/Ceramics:** ART 2010, 3630, 3640, 3650, 3660 plus six additional credits in any of the 3000-level courses in the three-dimensional area to be determined by student interest and faculty advisement.

**Individualized Studies:** A program of at least 30 credits (including ART 4901) on the 3000-level or higher, drawn from two or more areas, in consultation with area faculty. Students must file an approved Individualized Studies proposal.

**Remaining Credits.** Any remaining credits of the required 78 in art and art history may be filled by repeating some courses where permitted, taking relevant concentration courses, or taking electives in studio art.

**Independent Study.** Open to fifth semester students with a minimum departmental grade point average of 3.0 and no outstanding incompletes for any other 3999. A maximum of six credits total.

**Internships and Co-ops.** Fifth semester students with a minimum major GPA of 3.0 have an opportunity for a placement in art for credit, either a Studio Internship (ART 3991) or Co-operative Education in Art (ART 3990).

## Additional Graduation Requirements

- Senior Project (C or better)
- Exhibited work in annual BFA Exhibition

The Department of Art and Art History reserves the right to retain student work for exhibition purposes and classroom demonstrations.

## Art History

### Bachelor of Arts in Art History

The Art History program's special strengths include an interdisciplinary range of courses that address chronological breadth as well as issues of gender, identity formation, and theory and criticism in the visual arts. Members of the Art History faculty collaborate closely with colleagues in programs in Women's Studies, Latin American Studies, Medieval Studies, American Studies, African American Studies, European Studies, Asian American Studies, and Human Rights. Graduates go on to graduate study as well as careers in museums, galleries, and a range of arts-related settings both in the U.S. and abroad. Majors are encouraged to participate in Education Abroad Programs and many have used internship opportunities at museums and galleries to build professional expertise and broaden their career options.

The undergraduate art history major requires the following Art History courses:

- Six credits at the introductory, 1000 level: ARTH 1128, 1137, 1138, 1140, 1141, or 1162 and 24 credits of art history at the 2000 level and above to include:
- three to six credits of art history at the 2000 level
- one three-credit course from each of Groups A, B, and C listed below
- a three-credit capstone seminar; and
- six to nine additional credits of art history at the 3000 level

#### A: Ancient, Medieval or Renaissance art

ARTH 3140, 3150, 3210, 3220, 3230, 3240, 3260, 3330, 3340, 3360, 3610\*, 3620\*

#### B: Art from the 19th-century to the present

ARTH 3020, 3035, 3050\*, 3430, 3440, 3445, 3450, 3460, 3510, 3530, 3560, 3630\*, 3640\*, 3645 \*

#### C: Art from global perspectives

ARTH 3015, 3050\*, 3500, 3610\*, 3620\*, 3630\*, 3640\*, 3645\*, 3715, 3720, 3730, 3740, 3745, 3760

\*Courses marked with an asterisk (\*) may be used to fulfill just one requirement.

**Additional Requirements.** Art History students also take six credits of studio art at any level for which they meet the prerequisites and 12 credits at the 2000 level or above of related courses outside the major as approved by the major advisor.

\*\*Art history majors must complete at least 45 credits numbered 2000 level or higher as part of their total 120 credits required for graduation.

## Digital Media and Design

### Degrees offered

Bachelor of Fine Arts in Digital Media and Design

Bachelor of Arts in Digital Media and Design

### Admission

60 second video, and Portfolio Review, and/or interview at the department's request.

### Competency Requirements:

**Information Literacy and Writing in the Major.** Basic information literacy skills will be addressed in DMD 1000, 1030 and 2010. Students must successfully complete DMD 3010W.

**Computer Technology** Students must meet University entrance standards. Each student must own a personal portable computer that meets or exceeds

posted departmental performance standards. Refer to [dmd.uconn.edu/computer-specifications](http://dmd.uconn.edu/computer-specifications) for current standards.

### Bachelor of Fine Arts Areas of Concentration

- 2D Animation
- 3D Animation
- Digital Game Design
- Web Design/Interactive Media Design

### Bachelor of Arts Areas of Concentration

- 2D Animation
- 3D Animation
- Digital Game Design
- Digital Humanities
- Digital Media Strategies for Business
- Web Design/Interactive Media Design

### Bachelor of Fine Arts Requirements

All B.F.A. students share a common curriculum of 43 credits: DMD 1000, 1030, 1070, 2010, 2020, 2200, 3010W, 3020, 3040 (twice); 4015 (twice, for a total of two credits); 4025 (two credits); six credits of DMD 4081 and/or DMD 4075; ART 1030; one Basic Studio\* for three credits from ART 2010, 2210, 2410, 2510, 2610.

\*Note: The basic studio requirement should be completed no later than the fourth term.

Courses in related group outside DMD (12 credits)

1000/2000/3000-level courses. These courses should be related to the student's DMD concentration but need not be in a single department or program. In consultation with the academic advisor, the student will select courses designed to develop a core competency in humanities and complementary social sciences consistent with his or her interests and career goals. This chosen area of competency also provides the foundation for the student's Senior Thesis. Competency areas might include History, Creative Writing, Architecture, Electrical Engineering, Psychology, Computer Science, etc. These same courses may be used to satisfy other University requirements if appropriate.

### Areas of Concentration (21 credits)

2000/3000/4000-level courses including all necessary prerequisites within area of DMD concentration.

- **2D Animation Requirements:** a minimum of 21 credits of DMD 2000-level or higher courses including DMD 2210, 3030, 3200, 3205, 3210, 3220, 3230, 4340, or others as approved by the advisor.
- **3D Animation Requirements:** a minimum of 21 credits of DMD 2000-level or higher courses including DMD 2300, 2310, 2320, 3030, 3205, 3310, 3350, 4310, 4340, or others as approved by the advisor.
- **Digital Game Design Requirements:** a minimum of 21 credits of DMD 2000-level or higher courses including DMD 2310, 2500, 2530, 2542, 2550, 3030, 3035, 3230, 3530, 3540, 3560, 4536, 4545, or others as approved by the advisor.
- **Web Design/Interactive Media Design Requirements:** a minimum of 21 credits of DMD 2000-level or higher courses as approved by the advisor.

### Independent Study

(DMD 3099) Open to fifth semester students with a minimum departmental grade point average of 3.0 GPA and no outstanding incompletes for any other independent study courses. Limited to a maximum of 18 credits total.

### Internships

(DMD 4081) Fourth semester students with a minimum major GPA of 3.0 will have an opportunity, on a competitive basis, to make application for placement into an external (or potentially internal) internship.

**Additional Graduation Requirements.**

- Senior Project (2.0 or better required for graduation) or an Internship (satisfactory report)
- Exhibited work in annual Senior Show

**Bachelor of Arts Requirements**

All B.A. students share a common curriculum of 27 credits: DMD 1000, 1030, 1070, 2010, 2200, 3010W, 3020, 3040 (two semesters).

**Courses in related group outside DMD (12 credits)**

1000/2000/3000-level courses. These courses should be related to the student's DMD concentration but need not be in a single department or program. Competency areas might include History, Creative Writing, Architecture, Electrical Engineering, Psychology, Computer Science, etc.

These same courses may be used to satisfy other University requirements if appropriate.

**Areas of Concentration (18 credits)**

2000/3000/4000-level courses including all necessary prerequisites within area of DMD concentration. All students must choose one of the concentrations listed below.

- **2D Animation Requirements:** a minimum of 18 credits of DMD 2000-level or higher courses including DMD 2210, 3200, 3205, 3210, 3220, 3230, 4340, or others as approved by the advisor.
- **3D Animation Requirements:** a minimum of 18 credits of DMD 2000-level or higher courses including DMD 2300, 2310, 2320, 3205, 3310, 3350, 4310, 4340, or others as approved by the advisor.
- **Digital Game Design Requirements:** a minimum of 18 credits of DMD 2000-level or higher courses including DMD 2310, 2500, 2530, 2542, 2550, 3035, 3230, 3530, 3540, 3560, 4536, 4545, or others as approved by the advisor.
- **Digital Humanities Requirements:** a minimum of 18 credits of DMD 2000-level or higher courses including DMD 2700, 4086 or others as approved by the advisor, and one of the following in consultation with the academic advisor: GEOG 2500, HIST 3102, or SOCI 3201. When selecting courses in the related group outside of DMD, the student will select courses designed to develop a core competency in humanities and complementary social sciences consistent with his or her interests and career goals. This chosen area of competency also provides the foundation for the student's Senior Thesis. Competency areas might include Latino Studies, Human Culture and Cognition (Anthropology), Comparative Literature and Cultural Studies, Urban and Community Studies, History, Literary History and Studies (English), etc.
- **Digital Media Strategies for Business Requirements:** a minimum of 18 credits of DMD 2000-level or higher courses including DMD 2700, 2710, 3040, 3440, 3470, 3720, 3730, or others as approved by the advisor.
- **Web Design/Interactive Media Design Requirements:** a minimum of 18 credits of DMD 2000-level or higher courses as approved by the advisor.

**Independent Study**

(DMD 3099) Open to fifth semester students with a minimum departmental grade point average of 3.0 GPA and no outstanding incompletes for any other independent study courses. Limited to a maximum of 18 credits total.

**Internships**

(DMD 4081) Fourth semester students with a minimum major GPA of 3.0 will have an opportunity - on a competitive basis - to make application for placement into an external (or potentially internal) internship.

Note: The Digital Media and Design Department reserves the right to retain student work for exhibition purposes, online program promotion, and classroom demonstration.

**Supplemental Academic Standards**

- Digital Media and Design majors must maintain a minimum cumulative grade point average of 2.7 for all graded coursework at the University of Connecticut.
- Digital Media and Design majors must maintain a minimum cumulative grade point average of 3.0 based on all courses required within the Digital Media and Design majors.

At the end of each semester, students with a grade point deficiency will be placed on departmental scholastic probation. During the subsequent semester, the student will have the opportunity to improve their standing. In the event that the student's standing does not rise to the minimum level, they will be subject to dismissal from the Digital Media and Design major.

**Dramatic Arts****Degrees Offered**

Bachelor of Fine Arts in Acting, Design/Technical Theatre and Puppetry: preparation for successful careers in performing arts.

Bachelor of Arts in Theatre Studies: study of theatre within a liberal arts curriculum.

Both programs are also considered as preparatory for graduate level studies.

The department also offers the Master of Arts and the Master of Fine Arts degrees. Consult the *Graduate Catalog* for details.

**Admission**

Prospective Acting majors: one contemporary and one Shakespeare verse monologue - total of four minutes

Prospective Design/Technical major: interview and portfolio review

Prospective Puppetry Arts majors: audition and interview

Prospective Theatre Studies majors: departmental application/essay

**Requirements - B.F.A.**

To fulfill their departmental writing in the major requirement, students in all three B.F.A. programs must complete one of the following three courses: DRAM 3131W, 4135W, or 4711W.

Basic information literacy skills required for B.F.A. Dramatic Arts students will be addressed in DRAM 1206, 1701 or 1710. Other information-gathering skills will also be addressed in the required DRAM 4711W course and in the two courses each student must select from the 3000-4000 level Theatre History/Literature options (DRAM 3130, 3131, 3138, and 4135W).

**All B.F.A. students in Dramatic Arts (Acting, Design/Technical, and Puppetry majors) must complete the following courses:** DRAM 2130, 2131, and six credits selected from DRAM 3130, 3131/W, 3132, 3133, 3137, 3138, 3139, 3611, 4135W, or 4711W.

Additional course requirements for the B.F.A. major programs include:

**Acting majors must also complete:**

- DRAM 1215
- Two credits of DRAM 1282
- Three credits of DRAM 3182
- DRAM 1701, 1702, 1801, 1802, 1901, 1902, 2701, 2702, 2810, 2812, 4701, 4702, 4703, 4704, 4705, 4811, 4911, 4912, 4931

There is no computer competency requirement for Acting majors beyond the University's entrance expectations.

**Design/Technical majors must also complete:**

- One credit of DRAM 1282
- All 57 credits from: DRAM 1201, 1202, 1209, 1210, 1216, 1217, 1218, 2130, 2131, 2141, 3199 (12 credits), 3201, 3220, 3301, 3401, 3501.
- Nine credits from DRAM 3103, 3202, 3302, 3402, 3502, 3602, 3603, 3604

Beyond the University's entrance expectations, Design/Technical majors require computer competencies that are addressed in the following required

courses: DRAM 1202, 1210, 3220 and 3501. Those intending to specialize in lighting design may also elect DRAM 3502.

Note: Each Bachelor of Fine Arts Student in the Design/Technical area, and any other student taking any of the digital design courses, must own a personal portable computer that meets or exceeds posted departmental performance standards.

For more information on this requirement, go to [drama.uconn.edu](http://drama.uconn.edu).

#### **Puppetry majors must also complete:**

- Two of the following courses: DRAM 1216, 1217, 1218
- One credit of DRAM 1282
- Nine credits from: DRAM 3201, 3301, 3401, 3402, 3501
- 18 credits from: DRAM 3601, 3602, 3603, 3604 (courses may be repeated for credit with a change in course content)
- All 30 credits from: DRAM 1201, 1202, 1209, 1210, 1710, 2130, 2131, 2141, 2902, 3619
- DRAM 3182 (four credits to be selected from the following areas: acting, construction, costuming, lighting, painting, properties, puppetry performance, and running crew).

Beyond the University's entrance expectations, Puppetry majors require computer competencies that are addressed in the following required course: DRAM 3501.

#### **Requirements - B.A. - Theatre Studies**

To fulfill their departmental Writing in the Major requirement, Theatre Studies majors complete one of the three following courses: DRAM 3131W, 4135W, or 4711W.

Basic information literacy skills required for Theatre Studies majors will be addressed in DRAM 1710. Other information-gathering skills will also be addressed in the required DRAM 4711W course and in the two courses each student must select from the 3000-4000 level Theatre History/Literature options (DRAM 3130, 3131W, 3138, and 4135W).

#### **Common Curriculum (30 credits)**

- Two of the following courses: DRAM 1216, 1217, 1218
- DRAM 1282, 1710, 2130, 2131, 2141, 4711W
- Two three-credit courses in Dramatic Literature

#### **Related Group (12 credits)**

3000/4000-level courses. These courses should be related (if applicable) to the student's Theatre Studies concentration, yet these courses do not need to be from a single department or program. Competency areas might include History, Creative Writing, Journalism, Communications, Business, etc.

These same courses may be used to satisfy other University requirements if appropriate.

#### **Areas of Concentration (18 credits)**

2000/3000/4000-level courses including all necessary prerequisites within area of Theatre Studies concentration. Concentrations are not mandatory for the B.A. degree in Theatre Studies, but majors may opt to choose one of the concentrations listed below. If a concentration is not chosen, then students will take 18 Dramatic Arts credits at the 2000-4000 level with advisor consultation.

- **Stage Management Requirements:** A minimum of 18 credits of DRAM 2000-level or higher courses including DRAM 2711, 3199, 3301-3302, 3333, 3402, 4122, or others as approved by the advisor.
- **Dramaturgy Requirements:** A minimum of 18 credits of DRAM 2000-level or higher courses including DRAM 3130, 3131, 3132, 3133, 3141, 3142, 3199, or others as approved by the advisor.
- **Playwriting Requirements:** A minimum of 18 credits of DRAM 2000-level or higher courses including DRAM 3141, 3142, 3145-

3146, 3199, 3302, 3310, 4151, 4152, or others as approved by the advisor.

- **Theatre Administration Requirements:** A minimum of 18 credits of DRAM 2000-level or higher courses including DRAM 2711, 3103, 3121, 3199, 4122, or others as approved by the advisor.
- **Theatre Directing Requirements:** A minimum of 18 credits of DRAM 2000-level or higher courses including DRAM 2711, 3141, 3199, 3301-3302, 3310, or others as approved by the advisor.

#### **Independent Study (DRAM 3199)**

Open to students with a minimum departmental grade point average of 2.25 GPA and no outstanding incompletes for any other independent study courses. Limited to a maximum of 18 credits total.

#### **Additional Graduation Requirements**

Senior project (2.0 or better required for graduation) or an internship (satisfactory report).

**Minors.** The department also offers a minor in Dramatic Arts. It is described in the "Minors" section of this *Catalog*.

## **Music**

### **Degrees Offered**

#### **Bachelor of Music**

Bachelor of Music with an emphasis in composition, performance or theory.

#### **Bachelor of Arts in Music**

Bachelor of Arts in Music, which can be taken without emphasis, with a Music History Emphasis or with a Jazz Emphasis.

#### **Bachelor of Science in Music Education**

Bachelor of Science in Music Education as a component of the five-year Integrated Bachelor's/Master's degree, conferred by the Neag School of Education. Students seeking a degree in music education enter the University of Connecticut as "pre-teaching in music education" students in the Department of Music. Admission requires the same procedures as for other music degree programs, including an audition and aural skills assessment. During their second year music education students apply for admission to the teacher-education program in the Neag School of Education and, if accepted, subsequently enter that school. Upon completion of the teacher-education program, students graduate with three degrees: the Bachelor of Arts in Music, the Bachelor of Science in Music Education, and the Master of Arts in Curriculum and Instruction. See the Neag School of Education section of this catalog for details and degree requirements.

The department offers the M.A., M.Mus., D.M.A., and Ph.D. degrees. Consult the *Graduate Catalog* for details.

### **Admission**

On-site audition and aural skills assessment. Consult the Department's website for details: [music.uconn.edu](http://music.uconn.edu). All students are admitted to the Bachelor of Arts in Music and are subsequently considered for admission into the Music Education or Bachelor of Music programs upon enrollment at the University.

### **Common Curriculum**

1. Completion of the following courses: MUSI 1101, 1103, 1222, 1311, 1312, 1313, 1314, 3311, 3313, 3401, and 3405. MUSI 1103 is required of all music students during the first fall semester of residence during which it substitutes for MUSI 1101, Convocation.
2. Convocation (MUSI 1101), Private Lesson (MUSI 1222 or 3222), and Ensemble (MUSI 1110, 1111, or 1112) are required each

semester of a student's residency in music as a declared music major, subject to the following exceptions:

- a. Students pursuing the Bachelor of Arts with no emphasis may reduce these residency requirements to six semesters, which need not be consecutive;
  - b. Students pursuing the Bachelor of Music or Bachelor of Arts with voice as their primary instrument may substitute MUSI 1119 for MUSI 1111 in the last two semesters of their residency;
  - c. B.M. Theory and Composition students need seven semesters of private lessons;
  - d. B.A. and B.M. keyboard students need four semesters of ensemble.
3. Four performances representing the student's primary instrument. (See specific guidelines under additional requirements.)
  4. Students pursuing the Bachelor of Arts with no emphasis must complete piano proficiency equivalent to MUSI 1231 Class Piano Level 2. Students seeking any other music degree or concentration must complete piano proficiency equivalent to MUSI 1231 Class Piano Level 4.
  5. Students with a keyboard emphasis must complete four semesters of MUSI 1241 (B.M. and B.S. keyboard students must complete four semesters of MUSI 1241 before promotion to 3000 level or above applied study).

The University's information literacy requirement will be met through participation in MUSI 1103 and MUSI 3322W, 3410W, or 3421W.

The University's writing in the major requirement will be met through participation in MUSI 3322W, 3410W, 3421W, or any 3000-level or above W course that has been approved for this major.

The University's computer technology requirement will be met by MUSI 1103 and by MUSI 1110, 1111, or 1112 for all students. For students in the B.A. with a Jazz Emphasis, a further technology requirement is met by MUSI 3631, Jazz Arranging. For B.M. with an emphasis in theory, a further technology requirement is met by MUSI 3331 and 3351.

### Additional Requirements

*(All B.A. degree programs)*

1. 9 credits outside Music Department in addition to general education requirements
2. Minimum of 42 credits of music courses, of which 14 must be at the 2000 level or above.
3. Four performances in recital or convocation, as a soloist, chamber musician, or accompanist.

### Jazz Emphasis

1. MUSI 3312 and 3314.
2. MUSI 3409.
3. MUSI 1601, 3601, 3631, 3632
4. For the last four semesters of this degree program, Jazz Ensemble (MUSI 1115) fills the remaining four credits (one credit per semester) of the large ensemble requirement.
5. Two semesters of applied study in jazz are counted against the eight required semesters of applied study (MUSI 1222). Jazz lessons are

taught in either the third or fourth year of the degree program by members of our current jazz faculty.

### Music History Emphasis

1. MUSI 3312 and 3314.
2. MUSI 3409.
3. Music History courses: MUSI 4489, and three courses chosen from MUSI 3410W, 4471 and 4473: one of these three courses must be 4471 or 4473, and one must be on a pre-1700 topic.
4. Music Theory courses: Two courses from MUSI 3321, 3322W, 3361, 3371Q.
5. Foreign language:
  - **Option A:** Two semesters of German, if another language is taken to fulfill the group requirement (students will take 1000-level courses in German for four credits).
  - **Option B:** If German is taken as a group requirement, then an additional two semesters will be required (students will take 2000-level or above courses in German for three credits).

### Additional Requirements

*(Bachelor of Music Degrees)*

1. MUSI 3312 and 3314.
2. MUSI 3409 and one additional 3000-level music history course.
3. Completion of MUSI 3321 and 3322W.
4. Four performances in convocation or recital, exclusive of any degree recitals. Students with an emphasis in performance must appear as soloist a minimum of three times, the other option being a chamber musician. Students with a theory or composition emphasis may appear as a soloist, chamber musician, or accompanist.

In addition, completion of the following courses:

### Composition Emphasis

- a. MUSI 1601, 3371Q, 4731 and 4979.
- b. Completion of the following composition courses: MUSI 3331, 4333 (two semesters), 3351, 3631.

### Performance emphasis: Instrumental

- a. MUSI 3222 (four semesters), MUSI 3232, 4731, 4732 or 4733, 4979.
- b. Two of the four following courses: MUSI 3331, 3351, 3361 or 3371Q.
- c. Four semesters of MUSI 1113, Small Ensemble.
- d. A half recital during the junior year as a prerequisite for MUSI 4979. Promotion to MUSI 3222 is a prerequisite for the half recital.
- e. A total of 81 credits in music.

### Performance emphasis: Vocal

- a. MUSI 1119 (four credits), 1251, 1252, 2253, 2254, 3222 (four semesters), 3231, 4731, 4732, 4979, two courses from MUSI 3721, 3722, 3723, or 3724; and piano courses necessary to acquire proficiency in playing piano accompaniments as determined by jury.
- b. A half recital during the junior year as a prerequisite for MUSI 4979. Promotion to MUSI 3222 is a prerequisite for the half recital.
- c. A total of 88 credits in music.

### Theory emphasis

- a. MUSI 3331, 3351, 3361, 3371Q, 4731, and one or two courses (minimum of two credits) from 1601, 3601, 3631 or 3421W
- b. MUSI 4999 Independent Study (Senior project/paper).
- c. A total of 79-82 credits in Music.
- d. A minimum grade point average of 3.33 in theory courses.

# College of Liberal Arts and Sciences

Jeremy Teitelbaum, Ph.D., *Dean*

Dipak K. Dey, Ph.D., *Associate Dean*

Davita Silfen Glasberg, Ph.D., *Associate Dean*

Andrew Moiseff, Ph.D., *Associate Dean*

Shirley Roe, Ph.D., *Associate Dean*

Katrina Higgins, Ph.D., *Assistant Dean*

## Admission Requirements

The college requires 16 high school units including:

- Four years of English
- Three years of mathematics, with four preferred
- Two years of a single foreign language, with three preferred
- Two years of a laboratory science
- Two years of social science

The Transfer Admissions Office reviews credits from other institutions. Unless exempted by the Dean or the Assistant Vice Provost, students shall take all of their course work at the University during the last two semesters.

## Bachelor's Degree Requirements

To graduate a student must:

- earn a minimum of 120 credits.
- earn at least 45 credits numbered 2000 or above.
- meet the College of Liberal Arts and Sciences (from the list that follows) General Education and concentration requirements.
- have an overall grade point average of at least 2.0 and a grade point average of at least 2.0 in the courses presented in satisfaction of major requirements.

**Field of Concentration.** Only courses taken at the University of Connecticut meet the requirement. Students may not use Pass/Fail courses to meet these requirements. Exceptions are made by the dean of the college.

1. **Major and related groups.** The field of concentration includes both the major and related groups; it must total at least 36 credits, all numbered 2000 or above. At least 24 credits in one department, or with the permission of the head of the student's major department, in two related departments, make up the major group. At least 12 credits in courses closely related to the student's major, but outside the major department, make up the related group. Students must earn an overall grade point average of at least 2.0 and a grade point average of at least 2.0 in the courses presented in satisfaction of major requirements.
2. **Double Major Program.** Students may earn a double major by selecting two majors within the College. A minimum of 48 credits without overlap is required to earn both majors. Therefore, students may not be able to double major if the two majors they choose require the same courses and prevent them from earning 48 credits without overlap. Acceptance into the Double Major program requires the Dean's approval. Students shall choose one of the two majors as their primary major and shall receive one degree appropriate to that major. (Note: students cannot choose one major from the College of Liberal Arts and Sciences and a second from another school or college. This combination is only possible through the Additional Degree program, explained in the "Academic Regulations" section of this Catalog.)

**Plan of Study.** Students shall file with the department of their major, after approval by their major academic advisor, a tentative plan of study on a form provided by the advisor. Students must file the tentative plan of study by the beginning of advance registration in their fifth semester. Students shall file a final plan of study with the Registrar by the end of the fourth week of the semester in which they expect to graduate. The advisor and the department head shall approve the final plan of study. Students completing a double major must file a plan of study for each major.

## Bachelor of Arts (B.A.) and Bachelor of Science (B.S.)

As well as satisfying all University General Education requirements, students must also satisfy the following requirements for a Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degree. To determine whether a given major can lead to the B.A., the B.S., or both, consult the descriptions of majors.

**Foreign Languages:** All students must have either (1) passed a third-year high school-level course in a single foreign language, (2) high school work and an added year of intermediate level college courses, or (3) two years of a single foreign language through the intermediate level in college.<sup>1</sup>

**Expository Writing:** All students must take English 1010 or 1011, and two W courses with at least one such course approved for use in the major field of study at the 2000 level or above. No student who has not passed the writing component of W courses may pass the course.

**Quantitative Reasoning:** Three Q courses, at least one of which must be in Mathematics or Statistics. Students should contact the Q-advising contours, accessible on-line, and their advisers to determine the adequacy of their preparedness for specific Q-courses. Q courses may be used to satisfy other degree requirements.

**Computer Competency:** Unless an additional requirement is specified in a major, the Computer Technology Competency exit requirement for students in the College of Liberal Arts and Sciences does not go beyond the University's entrance requirement.

The courses in the University General Education content areas one, two, and three and the areas indicated below must be taken in at least eight different academic units.

### Bachelor of Arts (B.A.):

Five courses, including one from each of the areas A-D and a fifth course from any area A-E. Courses must be from at least four different academic units.

### Bachelor of Science (B.S.):

Four courses, including one course from each of the areas A-D. Courses must be from at least four different academic units.

- A. **Arts:** AFRA/DRAM 3132; AFRA/FINA 1100; ART 1000; ARTH 1128, 1137, 1138, 1141, 1162; CHIN 3250W; CLCS 1002, 1110, 3211; DRAM 1101, 1110; FREN 1171; GERM 1171, 3261W, 3264W; ILCS 1149, 3258W, 3260W; MUSI 1001, 1002, 1003, 1004, 1005, 1021, 1022, 1112; SPAN 1010, 3250; WGSS 1104
- B. **Literature:** CAMS 1101, 1102, 1103; CLCS 1101, 1102; ENGL 1101/W, 1103/W, 1503, 1616/W, 2100, 2101, 2274W, 2401, 2405, 2407, 2408/W, 2409, 2411/W, 3629, 3633/W; FREN 1176, 3230, 3234\*, 3261W\*, 3262W\*, 3270W; GERM 1140W, 3252W, 3254W, 3255W; HEJS 1103, 3279; HIST/MAST 2210; ILCS 1101, 1158, 3255W; MAST 1200; LLAS/SPAN 1009; SPAN 1007, 3232\*
- C. **History:** AMST 1700; AASI/HIST 3531; ECON 2101/W, 2102/W; GEOG/URBN 1200; HIST 1100/W, 1201, 1203/WGSS 1121, 1206, 1250, 1300, 1400, 1501/W, 1502/W, 1800, 1805, 2401, 2402, 3705, 3841, 3842, 3845; HIST/LLAS 1570, 3609, 3635, 3660W; HIST 1600/LLAS 1190, HIST 3674/LLAS 3220; HIST/SCI 2206; HIST/URBN 3650; HIST 1203/WGSS 1121; MAST 1200
- D. **Philosophical/ethical analysis:** GERM 1175; HRTS 3200/W, 3250/W; HRTS/PHIL 2170W; LING 1010; PHIL 1101, 1102, 1103, 1104, 1105/W, 1106, 1107, 1175, 3220; POLS 1002
- E. **World cultures:** ANTH 1001W, 3401, 3450W; ARAB 1121, 1122; AASI 3201; CHIN 1121, 1122; CLCS 1103W, 2201; FREN 1169, 1176, 1177, 3210\*, 3211\*, 3218, 3224, 3235, 3267\*, 3268/W\*;

<sup>1</sup> A B+ or better in CAMS 1172: Intensive Intermediate Ancient Greek will fulfill the intermediate second language requirement of the student's degree program.



GERM 1169, 2400, 3251, 3258; ILCS 1160, 1170; INTD 3260; NURS 2175; SPAN 1008, 1010

### Bachelor of Science (B.S.), All of the following:

One of the Chemistry Sequences: CHEM 1124Q, 1125Q, 1126Q; CHEM 1127Q, 1128Q; CHEM 1137Q, 1138Q; CHEM 1147Q, 1148Q

One of the Mathematics Sequences: MATH 1125Q, 1126Q, 1132Q; MATH 1131Q (or 1151Q), 1132Q (or 1152Q); MATH 2141Q, 2142Q

One of the following: BIOL 1107, 1108, 1110

One of the Physics Sequences: PHYS 1201Q, 1202Q; PHYS 1401Q, 1402Q; PHYS 1501Q, 1502Q; PHYS 1601Q, 1602Q

\* indicates foreign-language prerequisite

## Internships

Many departments and programs in the College offer experiential learning in the form of internships, also called “field study” or “practicum”. The College recognizes the important role that internships play in our curriculum but also requires that standards for internships be met so that student interns receive the intended educational benefits. Thus the following restrictions apply: No credit may be given retroactively for internship work undertaken without being properly enrolled in the internship course in advance. A student may count no more than fifteen internship credits towards a bachelor’s degree in CLAS and each credit for internship work must entail at least forty-two hours of work per semester or term. The required number of hours of work must be stated clearly in the learning contract or work plan for the internship signed by both the instructor of record and the internship supervisor. Additional departmental restrictions may also apply.

## Africana Studies

Taking as its central mission the study of peoples of African descent on the continent and in the diaspora, the Africana Studies major seeks a nuanced and interdisciplinary understanding of the human experience. The Africana Studies major does so through the humanities, arts, and social sciences, with particular emphasis on continuities and discontinuities across geography and time. Its broad educational objectives are to engender among all students an intellectual appreciation of black lives and their saliency for all human experience; to deepen students’ critical analytic skills; and to value social equality, democracy, and humanitarianism. The Africana Studies major strives to provide students with substantive knowledge of the black world and its linkages to national as well as pre-, sub-, supra-, and transnational processes. Students play an active role in the Africana Studies Institute’s mission to facilitate respect and positive intersocial relationships within the university community. Completion of the B.A. in Africana Studies prepares the student for work in government, community agencies, international organizations, business, journalism and communications, or for graduate studies that lead to careers in research and teaching.

To satisfy the Africana Studies major, the student must complete twenty-seven credits in AFRA courses, with at least one three-credit course in each of groups A, B, and C. Students must also complete 12 credits of related courses from Group D. Variable Content courses may be applied to distribution groups determined by course content and advisor consent. All majors must take AFRA 3211 and AFRA 4994W; the latter is generally taken senior year.

**Group A - History:** AFRA/HIST 3564, 3568, 3620, 3752, 3753; AFRA/HIST/HRTS 3563

**Group B - Social and Political Inquiry:** AFRA 3025; AFRA/ANTH 3152; AFRA/HRTS/SOCI 3505, 3825; AFRA/POLS 3252, 3642, 3647; AFRA/POLS/WGSS 3652; AFRA 3033/PP 3033/POLS 3633; AFRA/PSYC 3106; AFRA/SOCI 3501

**Group C - Literature and the Arts:** AFRA/DRAM 3131/W; AFRA/DRAM 3132; AFRA/ENGL 3214W, 3216W

### Group D - Related Courses

**History:** HIST 3510, 3554; HIST/HRTS 3201, 3202; HIST 3575/HRTS 3221/LLAS 3221; HIST 3674/LLAS 3220; HIST/URBN 3541; HIST/WGSS 3561, 3562

**Literature and the Arts:** ANTH 3450W; ARTH 3645, AASI/ENGL 3212; COMM 4422; COMM/LLAS 4320; ECON 2444; ENGL 3210, 3218/W, 3609, 4203W; FREN 3218; MUSI 3421W

**Social and Political Inquiry:** AASI 3221/HRTS 3571/SOCI 3221; AASI 3222/HRTS 3573/SOCI 3222; COMM 3321/LLAS 3264/WGSS 3260; ECON 2444; HDFS 2001; HRTS/POLS 3807; HRTS/SOCI 3421, 3429; INTD 3584; POLS 2998, 3406, 3255; POLS 3662/LLAS 3270; POLS/URBN 3632W; POLS/WGSS 3216; SOCI 2827, 3503, 3701; WGSS 2267

**Variable Content:** AFRA 3295, 3299, 3898

AFRA 4994W, 3214W, or 3216W satisfies the Information Literacy Competency and Writing in the Major requirements.

A minor in Africana Studies is described in the “Minors” section.

## American Studies

The American Studies Program at the University of Connecticut provides students with the opportunity to gain a critical understanding of the American experience while allowing individual students to define what aspects of that experience they would like to explore. Although our required courses focus largely on the United States, the field is now understood as comprising the study of issues and subjects from throughout the Western Hemisphere. Among the goals of the American Studies curriculum is to promote an awareness of complex cultural, political, and economic structures at the root of the social organizations that have existed throughout the history of what has come to be known as the “New World.” Other areas of concentration may include, for example, the ways in which literary, musical, and visual artists have articulated cultural concerns, our changing understandings of the geography and ecology of the Western Hemisphere, or issues of cultural and ethnic diversity.

**Prerequisite:** AMST 1201

**Core Courses:** 15 credits (one course from 1, 2, 3, 4 and 5 below.)

1. One course from the following: AFRA/HIST 3564; AFRA/HIST/HRTS 3563; HIST 3502, 3504, 3510, 3516, HIST/WGSS 3561, 3562.
2. ENGL 2201 or 2203
3. POLS 2607 or 3602 or 3802 or 3817 or ECON 2102
4. One 2000-level or above course that deals with Latin America, Canada, or the Caribbean.
5. AMST/ENGL 3265W: Seminar in American Studies: three credits (W). This seminar will provide an in-depth study of a historical period, event, or cultural movement from an interdisciplinary perspective. Students will produce a substantial essay on a topic approved by the instructor.

### Track Requirement: Nine credits

Students must choose a “Track” from the four American Studies tracks. They must take three 2000-level or above courses from within this track.

- **Track I – History, Culture, and Society:** AFRA/ANTH 3152; AFRA/HDFS/WGSS 3042; ANTH 3026, 3027, 3902, 3904; ANTH 3041/LLAS 3241; AASI 3578/HIST 3530; HDFS 2001, HDFS 3442/LLAS 3250; HDFS 3240/SOCI 3459; HIST 3101W, 3502, 3504, 3510, 3520, 3522, 3540, 3542, 3551, 3554, 3555; 3570; HIST/AFRA 3564; HIST/AFRA/HRTS 3563; HIST/LLAS 3660W; HIST/URBN 3541; HIST/WGSS 3561, 3562; SOCI 3221, 3501, 3511W, 3601, 3651, 3825; WGSS 2267, 3264, 3268
- **Track II – Literature and the Arts:** ARTH 3440, 3450; AFRA/DRAM 3131; DRAM 4151; ENGL 2201, 2203, 3207/W, 3210, 3212, 3214, 3216W, 3218, 3240, 3801W, 3803W
- **Track III – Political Science, Economics, and the Law:** BLAW 3175; COMM 3400; ECON 2102, 2126, 3468; HDFS 3530; HIST 3516, 3550, 3551, 3555; JOUR 3020; NRE 3245; PHIL 3226; POLS 2607, 2622, 3032, 3414, 3432, 3437, 3442, 3447, 3602, 3625, 3627, 3642, 3662, 3802, 3812, 3817, 3827, 3842, 3847; SOCI 3841
- **Track IV – The Americas:** ANTH 3021, 3029, 3042; ARTH 3630, 3645; GEOG 4710; HIST 3607, 3608W, 3609, 3610, 3620, 3635,

3640, 3643; LLAS 3575, 3579, 4994W; POLS 3235; SPAN 3201, 3204, 3233, 3234, 3260, 3265, 3266

A number of these courses are cross-listed in the catalog, but in most cases they appear on this list only once. Many are offered as “W” courses, and some may have departmental prerequisites.

Other courses, such as “Special Topics” courses, may be used to fulfill American Studies requirements with the approval of the Director of American Studies. (If possible, students should seek such permission before taking the course.) All courses must be taken for three credits.

The Core Courses may not be used to fulfill the 9-credit track requirement. A second core course from the same group, however, may be so used.

AMST/ENGL 3265W satisfies the Information Literacy Competency and Writing in the Major requirements.

**Related Courses:** 12 Credits. Students will take four related courses. The approval of these courses as germane to the American Studies major will be left to the discretion of the advisor.

A minor in American Studies is described in the “Minors” section.

## Anthropology

Anthropology studies human beings of all times and places. It examines human biological, cultural and social similarities and differences, and tries to explain them. Because of its broad perspective – which stresses writing, critical thinking, and social analysis – anthropology provides an excellent preparation for a variety of professional and business careers. Anthropology can also be an integral part of the training for life that is the goal of the University’s liberal arts program.

All must take the following major courses:

- A. ANTH 1000 or 1006 or 1500.
- B. ANTH 2000, 2501 and 2502.
- C. At least one course in an ethnographic area (ANTH 3021, 3026, 3027, 3028, 3029, 3030, 3038, 3041, 3042).
- D. At least one information literacy course (ANTH 3003, 3004, 3200 or 3506W).
- E. At least three additional anthropology courses at the 2000 level or above, two of which may not be ethnographic area (Requirement C) courses.
- F. A minimum of 12 credits of related courses (2000 level or above) must be approved by the major advisor.

To satisfy the writing in the major competency, one of the courses above must be a 2000 level or above ANTH W course. At least 24 2000-level or above Anthropology credits need to be completed with an average GPA of 2.0 or higher.

Minors in Anthropology, Native American and Indigenous Studies, and Religion are described in the “Minors” section.

## Biology

The biological sciences are organized into three departments: the Department of Ecology and Evolutionary Biology (EEB), the Department of Molecular and Cell Biology (MCB), and the Department of Physiology and Neurobiology (PNB). Introductory level courses are listed under General Biology (BIOL). Other courses are listed separately under individual departments.

The Bachelor of Science degree is generally recommended for students planning a scientific career in biology, but the Bachelor of Arts degree in Biological Sciences allows a richer liberal arts program and provides good preparation for many careers, including subsequent graduate study.

**Credit restriction:** In no case may students receive more than 12 credits for courses in biology at the 1000 level.

### Biological Sciences Major

The requirements for the major in Biological Sciences are designed to ensure a sound and broad background in biology, with opportunities to explore related fields. Biological Sciences majors must take BIOL 1107 and 1108, but majors interested primarily in botany may wish to take BIOL 1110 in addition or may substitute BIOL 1110 for BIOL 1108. Students

wishing to complete this major must take at least 24 credits of 2000-level courses from EEB, MCB, and PNB. It is strongly recommended that at least four courses include laboratory or field work. In addition to laboratory work associated directly with courses, an Independent Study course in any of the three biology departments will provide majors with a means of gaining specific research experience. A maximum of three independent study credits from among EEB 3899, MCB 3899, MCB 3989, MCB 4989, and PNB 3299 may count toward the 24-credit requirement. Courses chosen for the major must include at least one course or course sequence from each of the following three groups:

1. MCB 2000, 2210, 2400, 2410, 2610, or 3010
2. EEB 2244/W or 2245/W.
3. PNB 2250, or 2274-2275. (Note: PNB 2274-2275 must be taken in sequence to be counted towards the Biology major.)

To satisfy the writing in the major and information literacy competency requirements, all students must pass at least one of the following courses: EEB 2244W, 2245W, 3220W, 4230W, 4276W, 4896W, 5335W; MCB 3841W, 4026W, 4997W; PNB 3263WQ, 4296W; or any W course approved for this major.

A maximum of eight 2000-level or above transfer credits in EEB, MCB, or PNB may count toward the major with approval of the respective department.

A minor in Biological Sciences is described in the “Minors” section.

Majors are also offered in Ecology and Evolutionary Biology, Molecular and Cell Biology, Physiology and Neurobiology, and Structural Biology and Biophysics. These majors are described in separate sections in the *Catalog*.

## Chemistry

Programs in the Department of Chemistry may lead to either the Bachelor of Arts or the Bachelor of Science degree. In addition, the American Chemical Society (ACS) certifies two more rigorous Bachelor of Science options.

The B.A. degree is appropriate for students who are interested in chemistry but do not wish to pursue a career as a laboratory scientist. The B.S. degrees prepare students to pursue graduate study in Chemistry or to find employment in technologically oriented industries.

Prospective majors with a good high school chemistry background should take CHEM 1137Q and 1138Q in their first year. Other prospective majors should take CHEM 1127Q-1128Q or 1124Q-1125Q-1126Q or 1147Q-1148Q (Honors).

Chemistry majors must complete the following mathematics and physics sequences: MATH 1131Q and 1132Q (or 1125Q, 1126Q and 1132Q) MATH 2110Q (or 2130Q) and MATH 2410Q (or 2420Q) PHYS 1201Q-1202Q, and 1230 (or 1401Q-1402Q; or 1501Q-1502Q; or 1601Q-1602Q)

Failure to complete these sequences by the end of the fourth semester may delay completion of the degree.

Requirements for the B.A. and B.S. degrees are as follows:

### Bachelor of Science

At least 35 credits of Chemistry courses numbered 2000 and above must be successfully completed for the Bachelor of Science in Chemistry in addition to the College B.S. requirements.

#### Chemistry option

The requirements include CHEM 2443, 2444, 2445, (Organic), 3210, 3214, 3215 (Inorganic), 3332, 3334 (Analytical), and 3563, 3564, 3565W (Physical).

#### Chemistry option (ACS certified)

American Chemical Society certification requires an additional course in biochemistry (MCB 3010, or MCB 2000), and one advanced chemistry course chosen from CHEM 3189, 3442W, 3661, 4196W, 4370, 4371, 4551, or a CHEM 5000 level course.

#### Environmental Chemistry option (ACS certified)

The requirements include those listed above for the ACS certified B.S. degree in Chemistry with the exception of CHEM 3215. In addition, the sequence CHEM 4370-4371 is required.

## Bachelor of Arts

At least 28 credits of Chemistry courses numbered 2000 or above must be successfully completed for the Bachelor of Arts in Chemistry in addition to the College Bachelor of Science requirements. The requirements include those listed above for the B.S. degree Chemistry option with the exception of CHEM 3215 and 3334.

### Other requirements

The grade point average in all of the required chemistry courses must be at least 2.300 for the ACS certified degree.

All B.S. students are strongly encouraged to participate in undergraduate research through one or more semesters of CHEM 3189, preferably with a capstone thesis (CHEM 4196W) in the final semester.

To satisfy the computer technology competency, all students must take CHEM 3565W. Other courses that will further enhance competency in computer technology include but are not limited to 3215, 3332, 3334, and 3564.

To satisfy the information literacy competency, all students must take CHEM 3565W. Other courses that further enhance competency in information literacy include 3170W, 3189, 3215, 3334, 3442W, and 4196W.

To satisfy the writing in the major requirement, all students must take CHEM 3565W. Other courses that will further help students develop writing skills in chemistry include 3170W, 3442W, and 4196W.

A minor in Chemistry is described in the "Minors" section.

## Cognitive Science

Cognitive Science is the study of how intelligent beings (including people, animals, and machines) perceive, act, know, and think. It explores the process and content of thought as observed in individuals, distributed through communities, manifested in the structure and meaning of language, modeled by algorithms, and contemplated by philosophies of mind. Its models are formulated using concepts drawn from many disciplines, including psychology, linguistics, logic, communication sciences/disorders, computer science, anthropology, and philosophy, and they are tested using evidence from psychological experiments, clinical studies, field studies, computer simulations, and neurophysiological observation.

This program is intended to prepare students for graduate training in cognitive science and related disciplines or to work in the information sciences. The distribution requirements ensure that students will acquire a truly interdisciplinary education. The research and formal systems requirements provide basic knowledge concerning the experimental and theoretical foundations of cognitive science. Finally, majors are encouraged to learn about theory building and testing in a variety of natural and physical sciences. One way to achieve this is to fulfill the requirements of the Bachelor of Science degree.

### General Requirements

The requirements for the cognitive science major include 40 2000-level or above credits, no more than 21 of which may be taken in any one department. There are several 1000-level courses that are required preparation for the 2000-level and above requirements. These courses should be taken during the first four semesters and may fulfill general education requirements.

A maximum of six 2000-level or above transfer credits may count toward the major with approval of advisor. Students must earn a grade of C- (1.7) or higher in each course that is counted toward the major.

### Core Courses (16 credits)

COGS 2201, 3584 and four of the following courses: ANTH 3002; CSE 4705; LING 2010Q; PHIL 3250/W; PSYC 2501; SLHS 4245/W.

### Research Courses (six credits)

**Statistics** (one of the following for at least three credits): PSYC 2100Q or 2100WQ; STAT 2215Q, 3025Q (Calculus level)

**Research Methods** (one of the following for at least three credits): ANTH 3004 (if elected for three credits); LING 3110; PSYC 3250W, 3251/W, 3253, 3450W, 3550W, 3551W, 3552

**Formal Systems Courses (three credits):** CSE 2300W, 2500, 35002, 35022, 3802; LING 3310Q2, 3410Q2, 3511Q2; MATH 2210Q, 2410Q, 3160, 3210, 3230, 3412; PHIL 2211Q, 3214

### Advanced courses (12 credits)

Must include courses from at least three departments. Can include core courses not needed to satisfy the core course requirement.

ANTH 3200, 3250; CSE 3500<sup>2</sup>, 3502<sup>2</sup>, 4095; LING 3310Q2, 3410Q2, 3511Q<sup>2</sup>; 3610W; PHIL 2210/W, 2212/W, 3241, 3247/W, 3249/W, 3256/W; PNB 3251; PSYC 2200, 2400, 2500, 3100/W, 3440, 3470/W<sup>3</sup>, 3500, 3501, 3502; SLHS 2204, 4254/W

### Electives (3-6 credits)

One or two additional courses (from above lists or other related courses from any department), chosen with the approval of the advisors.

### Competency and Writing Requirements

The exit requirements for computer technology and information literacy will be met by satisfaction of the Research Methods Requirement. The exit requirements for writing in the major are met by taking any W course on the Plan of Study. Students in the program will have an advisor and an associate advisor, each in different departments contributing to the cognitive science program. Students will consult with both of them to plan a course of study.

A minor in Cognitive Science is described in the "Minors" section.

## Communication

The Department of Communication offers an undergraduate major in Communication. The Communication major is designed to educate students about human communication behavior from a scientific standpoint. It concentrates on the empirical investigation of human communication, stressing developments in communication theory and research. The major emphasizes interpersonal, mass, new communication technologies, nonverbal, organizational, intercultural and international communication. Training in the basic theories, principles, practices and research methods of Communication can qualify students for a variety of positions in the communication and media industries, such as: business, advertising, public relations, marketing, electronic media, government/politics, and promotion.

Students must apply to the Department of Communication to become a Communication major. Applications are accepted for Fall and Spring semesters and the deadline for applications is the end of the second week of classes. Forms can be obtained from any communication advisor, or from the department website [comm.uconn.edu/ug-prog/info/comm-major](http://comm.uconn.edu/ug-prog/info/comm-major), and from Communication faculty members at the Stamford Regional Campus.

The decision to admit students to the major will depend on several criteria:

- Successful completion of at least 54 credits, or successful completion of 40 credits plus current enrollment that should result in at least 54 credits by the end of the current semester.
- Cumulative GPA
- Completion of COMM 1000 with a grade of "C" or better.
- The applicant's academic record and space availability are also considered.

Prior to acceptance into the Communication major, students with fewer than 70 credits may declare themselves a Pre-Communication major online at [ppc.uconn.edu](http://ppc.uconn.edu) or at the College of Liberal Arts and Sciences Academic Services Center ([clasadvising.uconn.edu](http://clasadvising.uconn.edu)). The Pre-Communication designation indicates an intention to apply to the major. It does not ensure acceptance into the Communication major or give students priority in registering for Communication courses. Pre-Communication majors must still apply to become Communication majors by following the process described above.

<sup>2</sup> The following courses may be used to fulfill both the Formal Systems and Advanced Courses requirements: CSE 3500, 3502; LING 3310Q, 3410Q, 3511Q. In this event, two electives are required.

<sup>3</sup> PSYC 3470 is a variable topics course and may only be counted toward the major with advisors' approval.

Students interested in the Communication major should complete COMM 1100 and COMM 1300 before junior year, if possible. COMM 1300 is a prerequisite for many 2000-level media courses and is advised for all students, particularly those interested in media production, communication technology, marketing, public relations, or advertising.

Successful completion of a BA degree in Communication requires the following:

1. Acceptance as a Communication major.
2. COMM 1000, 1100, 3000Q.
3. At least two (2) of the following Core courses: COMM 3100, 3200, 3300. Students are welcome to take all three Core courses.
4. A total of 24 credits in Communication at the 2000 or above level (typically eight courses).
5. A minimum of five theory courses including a W course in Communication at the 2000 or above level. Communication offers applied and theory courses:
  - a. Applied courses include the following: COMM 4800, 4820, 4940, 4991 and, 4992. Applied courses are optional and students are not required to take any applied courses, though they are highly recommended for a variety of career paths. As long as students have met the above requirements, they may take additional applied courses, but only two may be applied towards the minimum 24 credits of upper level Communication courses required for the major.
  - b. Theory courses are the remaining COMM courses numbered 2000 or above including the Core courses.
6. Related Courses: 12 credits required. Related courses can be uniquely tailored to the needs of the student but must be approved by a Communication advisor.

Note: All students are encouraged to do at least one internship (COMM 4991). Internships can be taken during the academic year or summer. Students must have completed 12 credits in Communication courses at the 2000 level or above to be eligible for internship credit.

To satisfy the information literacy competency, all students must pass COMM 1000, 1100, and 3000Q. Other courses that will further enhance competency in information literacy include COMM 1300, 3100, 3103, 3200, 3300, 3321, 3400, 3450, 3600, 4089, 4100, 4120, 4220W, 4230, 4320, 4330, 4410W, 4450W, 4451W, 4460, and 4500. To satisfy the writing in the major requirement, students must pass at least one course from COMM 2310W, 4220W, 4410W, 4450W, 4451W, 4660W, 4930W, 4996W, or any 2000-level or above W course approved for this major. For students interested in media and public relations careers, journalism courses are recommended for additional writing competency.

A minor in Communication is described in the “Minors” section.

## Ecology and Evolutionary Biology

Students majoring in Ecology and Evolutionary Biology may opt for either a Bachelor of Arts degree or Bachelor of Science degree. Both B.A. and B.S. degree candidates must complete the following courses in addition to the general CLAS requirements for these degrees:

- BIOL 1107, and BIOL 1108 or 1110
- CHEM 1127Q and 1128Q; or CHEM 1124Q, 1125Q, and 1126Q

Requirements for the EEB Major (B.S. or B.A.)

1. Both of the following core courses: EEB 2244 or 2244W and EEB 2245 or 2245W
2. At least one of the following animal diversity courses: EEB 2214, 3254, 3265, 3269, 3273, 4200, 4250, 4252, 4274, 4275, or 4260 and 4261
3. At least one of the following plant diversity courses: EEB 3203, 3204, 3220/W, 3240, 3250, 3271, 4272
4. A course in physiology - EEB 4215, PLSC 4210, or PNB 2250.
5. At least two of the following courses with extensive laboratory or field work, which may include courses used to satisfy the animal or plant diversity requirement: EEB 3203, 3204, 3221, 3230, 3240,

3247, 3250, 3254, 3265, 3271, 3273, 4120, 4200, 4230W, 4250, 4252, 4261, 4272, 4274, 4275, 4276 or 4276W.

6. Students are encouraged to complete a course in statistics.
7. At least 24 credits of EEB courses at the 2000 level or above, which may include courses in I-V above. A maximum of three independent study credits from EEB 3899 may count toward the 24 credit requirement.
8. Related Course Requirements: At least 12 credits of 2000-level or above science courses outside EEB, which must include MCB 2410. One semester of organic chemistry is recommended.
9. To satisfy the Writing in the Major and Information Literacy competency requirements, all students must pass at least one of the following courses: EEB 2244W, 2245W, 3220W, 4230W, 4276W, 4896W, 5335W

A minor in Ecology and Evolutionary Biology is offered. A minor in Bioinformatics is offered jointly by the School of Engineering and the College of Liberal Arts and Sciences. Both programs are described in the “Minors” section of this *Catalog*.

## Economics

A student majoring in economics should acquire a thorough grounding in basic principles and methods of analysis, plus a working competence in several of the specialized and applied fields. Examples of such fields are industrial organization, law and economics, money and banking, international trade and finance, public finance, labor economics, health economics, urban and regional economics, and economic development.

Economics majors must earn twenty-four credits in courses at the 2000 level or above, including two intermediate theory courses (ECON 2201 and 2202), plus at least nine credits in either quantitative skills courses (ECON 2301-2328) and/or courses at the 3000 level or above. No more than six credits in ECON 2499 and/or 3499 may be counted toward the required 24 credits in economics courses at the 2000 level or above. ECON 2481 does not count toward fulfilling the major requirements.

Economics majors are also required to pass twelve credits in 2000-level or above courses in fields related to economics or to fulfill a minor related to economics. In addition, all Economics majors must take STAT 1000Q or 1100Q and one of the following: MATH 1071Q, 1110Q, 1126Q, 1131Q, 1151Q or 2141Q. MATH 1125Q or higher is recommended, and STAT 1100Q is recommended over STAT 1000Q. Students may substitute more advanced MATH and STAT courses with consent of the faculty advisor.

The intermediate theory courses (ECON 2201 and 2202) should be taken early in the student’s major program. Recommended courses for economics majors include ECON 2311 and ENGL 3003W. The department has special requirements for economic majors in the University Honors Program and for majors who qualify for the department’s Economics Scholars and Quantitative Certificate Programs.

Course work in economics serves a wide variety of vocational objectives. An economics major (supplemented by a rigorous calculus and statistics course sequence) is excellent preparation for graduate work in economics, which qualifies a person for academic, business, or government employment. Majors and others with strong economics training are attractive prospects for business firms and government agencies, and for professional graduate study in business or public policy. An economics background is especially desirable for the study and practice of law.

Economics majors satisfy the computer technology competency by passing either STAT 1000Q or 1100Q in addition to meeting the University-wide computer entrance expectations.

Economics majors satisfy the information literacy competency by passing at least one W course in Economics. Students may gain enhanced competence in information literacy by taking ECON 2311, 2312W, 2326, or 2327.

Economics majors satisfy the writing in the major requirement by passing at least one W course in Economics.

A minor in Economics is described in the “Minors” section.

## English

To satisfy the English major, the student must present for the degree thirty credits of English courses numbered 2000 or above and including the following:

- A. Introduction to Literary Studies (three credits) ENGL 2600. This course should be taken within a semester of declaring the major or at its next offering.
- B. Literary History (nine credits): One course from group 1, one course from group 2, and a third course from group 1, 2, or 3:
  1. Survey and period courses before 1800: 2100, 3111, 3113, 3115.
  2. Survey and period courses after 1800: 2101, 2201, 2203, 2301, 3117, 3118, 3123, 3124, 3207.
  3. Multi-period, multicultural, and ethnic literature courses: 2274W, 3120, 3122, 3210, 3212, 3214, 3216W, 3218, 3220, 3320, 3605, 3607, 3629.
- C. Methods (three credits). One course from the following: 2401, 2405, 2407, 2408, 2409, 2411, 3235W, 3240, 3265W, 3318, 3403, 3420, 3422, 3601, 3603, 3609, 3613, 3617, 3619, 3621, 3623, 3625, 3631, 3633/W, 3635, 3650, 3651.
- D. Major Author (three credits). One course from the following: 3501, 3503, 3505, 3507, 3509.
- E. Advanced Study (three credits). One from the following: 4101W, 4201W, 4203W, 4301W, 4302W, 4401W, 4405W, 4407W, 4600W, 4601W, 4613W, 4965W. These courses also satisfy the departmental requirements for Writing in the Major and Information Literacy.
- F. Elective courses (nine credits). In addition to courses used to satisfy requirements A-E above, nine credits must be chosen from English courses numbered 2000 or above. Course numbers used to satisfy requirements A-E may be used toward satisfaction of requirement F only when they designate a second or third section of a course repeated for credit with a change of topic.

### Distribution Requirements:

At least two courses must concern literature written before 1800. Courses satisfying this requirement are 2100, 3111, 3113, 3115, 3301, 3495, 3501, 3503, 3505, 3507, 4965W.

At least one course must concern ethnic or postcolonial literatures in English. Courses satisfying this requirement are 2301, 3120, 3122, 3210, 3212, 3214, 3216W, 3218, 3220, 3318, 3320, 3605, 3607, 3629, 4203W, 4301W, 4302W.

No more than three credits from the following courses may count toward the English major: 3003W, 3010W, 3012, 3013, 3091, 3692, 3701, 3703, 3707, 3709, 3711, 3713.

**Concentrations offered for English majors:** Irish Literature, Creative Writing, and Teaching English.

**Education Abroad in London:** The Department of English sponsors programs in London occurring on an as-offered basis.

A minor in English is described in the "Minors" section.

## Environmental Sciences

The major in Environmental Sciences is based in the physical and biological sciences, but also includes course work in selected areas of the social sciences. The major leads to a Bachelor of Science degree, and may be adopted by students in either the College of Agriculture, Health and Natural Resources or the College of Liberal Arts and Sciences. This curriculum offers a comprehensive approach to the study of environmental problems, including not only a rigorous scientific background, but also detailed analyses of the social and economic implications of environmental issues. The complexity and interdisciplinary nature of environmental science is reflected in the core requirements of the major. These courses, assembled from several different academic departments representing two colleges, provide both breadth and depth, preparing students for careers that deal with environmental issues, and for graduate study in environmental sciences and related fields.

## Required courses in Basic (Natural) Sciences

- BIOL 1107 and 1108 or 1110;
- CHEM 1124Q, 1125Q, 1126Q or 1127Q, 1128Q;
- MATH 1131Q, 1132Q;
- PHYS 1201Q, 1202Q or 1401Q, 1402Q;
- STAT 1000Q or 1100Q or 3025Q;
- NRE 1000.

ARE 1150; ECON 1200 or 1201; GEOG 2300; GSCI 1050; and MARN 1002 are prerequisites for several upper division course concentration options. It is the student's responsibility to ensure that all prerequisites in the catalog for concentration courses have been satisfied.

### Required Sophomore Seminar Course

A 2000-level environmental sciences sophomore seminar course as approved by the advisor.

### Required Capstone Course

NRE 4000W (three credits). Completion of NRE 4000W satisfies the writing in the major and information literacy exit requirements.

### Required Internship or Research Experience

1-6 credits of internship and/or research experience. Internship and/or research experience must be approved by the student's advisor.

### Area of Concentration

All students majoring in Environmental Sciences must declare and fulfill the requirements of a concentration in a discipline associated with the program before graduation. Approved concentrations are listed below.

#### Sustainable Systems Concentration

Students must complete at least two courses from each of the following Knowledge Competencies. The same course cannot be used to fulfill more than one knowledge competency.

**Resource Management:** EEB 2208; GEOG 3340; MARN 3030; NRE 2010, 2215, 2345, 3105, 3125, 3155, 3305, 3335, 3345/W, 3500, 3535, 4335, 4575. **Ecological Systems:** EEB 2244/W, 3247, 4230W; EEB 3230/MARN 3014; NRE 2455, 3205, 4340.

Students must complete at least one course from each of the following Knowledge Competencies.

**Built Systems:** AH 3175; GEOG 2400; HORT 3765; LAND 3230W; NRE 3265. **Governance and Policy:** AH 3174; ARE 3235, 3434, 3437, 4438, 4462; ECON/MAST 2467; GEOG 3320W; MAST/POLS 3832; NRE 3000, 3201, 3245; POLS 3412; SOCI 3407/W. **Ethics, Values, and Culture:** ANTH 3339; ENGL 3240, 3715; GEOG 3410; HIST 3540, 3542; JOUR 3046; PHIL 3216; SOCI 2701, 2705, 2709W, 3407/W. **Economics and Business:** ARE 3235, 4305, 4438, 4444, 4462, 4464; ECON/MAST 2467; ECON 3466, 3473.

#### Global Change Concentration

Students must complete at least two courses from each of the following Knowledge Competencies. The same course cannot be used to fulfill more than one knowledge competency.

**Climate Change and its Impacts:** GEOG 3400, 4300; GSCI 3010; MARN 3000; NRE 3115, 3146, 4170. **Land and Ocean Use and its Impacts:** EEB 2208; GEOG 3310, 3410; GSCI 3020; GSCI/MARN 3230; HORT 3765; MARN 3001, 3030, 4066; NRE 2215, 2345, 3105, 3115, 3155, 4340; NRE 4135/GSCI 4735. **Natural Science:** CHEM 4370, 4371; EEB 2244/W, 2245/W, 3247; EEB 3230/MARN 3014; EEB/GSCI 4120; GEOG 2300; MARN 2002, 2060, 3003Q, 4030W, 4060; NRE 2455, 3125, 3145, 3205; SOIL 2120, 3410.

Students must complete at least one course from each of the following Knowledge Competencies.

**Methods:** CE 2251; CE/ENVE 3530/GSCI 3710; EEB 3266, 4230W, 4262; GEOG 3500Q; GEOG/GSCI 4230; GEOG/MARN 3505; MARN 3003Q; NRE 2000, 2010, 3305, 3345/W, 3535, 4335, 4475, 4535, 4544, 4545, 4575, 4665; PHYS 2400; STAT 2215Q, 3025Q. **Governance and Policy:** AH 3174; ARE 3235, 3434, 3437, 4438, 4462; ECON/MAST

2467; EVST/POLS 3412; GEOG 3320W; MAST/POLS 3832; NRE 3000, 3201, 3245; SOCI 3407/W.

### Human Health Concentration

Students must pass all of the following: AH 3021, 3175, 3275; ANSC 4341; MCB 2610.

Students must pass two of the following; totaling six or more credits: ANSC 4642; MCB 2400, 3010, 3011, 3201, 3633, 4211; PVS 2100.

Students must pass one of the following: AH 3570, 3571, 3573, 3574; PVS 4300.

Note: A B.S. in Environmental Sciences can also be earned through the College of Agriculture, Health and Natural Resources. For the complete requirements, refer to the Environmental Sciences description in the “College of Agriculture, Health and Natural Resources” section of this Catalog.

## Environmental Studies

The Environmental Studies major is an interdisciplinary program designed to provide students with the knowledge, skills, and perspectives needed to understand the interactions between human society and the environment. Understanding the ethical and cultural dimensions of our relationship with the environment, as well as the challenges of protecting it, requires insights from multiple perspectives, including the humanities, the social sciences, and the natural sciences. Core courses in the major ensure familiarity with basic principles from these three areas. With this shared core of knowledge, majors will focus their studies on an area of special interest, taking electives and related courses that allow greater specialization. Among the many possibilities are environmental sustainability, issues concerning public policy and environmental justice, and the literary and philosophical legacy of human encounters with the non-human world. A capstone course will allow each student to research a distinct perspective on a contemporary environmental issue. A major in Environmental Studies might lead to a career in a variety of fields, including public policy, environmental education, eco-tourism, marketing or consulting, journalism, or advocacy.

The major leads to a Bachelor of Arts degree in the College of Liberal Arts and Sciences (CLAS) or the College of Agriculture, Health and Natural Resources (CAHNR). The student’s choice of colleges should be made in consultation with faculty and advisors based upon the student’s interests and career goals.

### Requirements

#### Introductory Courses

All majors must take four introductory courses: EVST 1000; NRE 1000, GEOG 2300, GSCI 1050 or GSCI 1051; BIOL 1102 or, for those seeking a more advanced background, BIOL 1108; STAT 1000Q or 1100Q or equivalent.

#### Core Courses (18 credits)

All majors must take two of the following courses from each core. Students cannot apply more than one course per department to count within a particular core. Additional core courses taken in the same department can be applied to the additional major requirements beyond the core requirements.

#### Humanities Core

PHIL 3216; HIST 3540 or 3542; ENGL 3240 or 3715 or JOUR 3046.

#### Social Sciences Core

ARE 3434 or 4462 or ECON 3466; NRE 3000; NRE 3245; POLS 3412

#### Natural Science Core

EEB 2208, GEOG 3400, AH 3175, GSCI 3010; NRE 4170

#### Capstone Research Project

EVST 4000W (three credits). All majors must complete a capstone research project, which fulfills the Writing in the Major and the Information Literacy requirements for the major.

#### Additional requirements for the major

In addition, environmental studies majors in CLAS must take nine credits of electives at the 2000 level or above, plus an additional 12 credits of related courses, approved by the student’s advisor. These courses must be

designed to form a coherent set of additional courses that will provide the student with a focus or additional depth in an area of interest related to the major. They must be chosen in consultation with the student’s faculty advisor and be approved by the advisor. Courses listed above that are not used to meet the core requirements may be used to meet this requirement. Total credits (2000 level or above): 30, plus 12 credits of related courses.

#### \*Other areas of recommended preparation (not required):

- **Physical Science:** CHEM 1122, 1127Q; PHYS 1030Q/1035Q.
- **Earth Science:** GSCI/GEOG 1070; MARN 1002/1003
- **Economics:** ARE 1110, 1150; ECON 1179, 1200, 1201.

Note: A B.A. in Environmental Studies can also be earned through the College of Agriculture, Health and Natural Resources. For a complete description of the major in that college, refer to the Environmental Studies description in the “College of Agriculture, Health and Natural Resources” section of this *Catalog*.

## Geography

Geography is a multidimensional discipline that analyzes the interactions between people and their environments. Our geographers teach courses and engage in research on a wide range of relevant and timely topics such as urban sprawl, the nature and impact of migration, globalization of the economy and international trade, the spatial prevalence of disease, regional development, global climatic change, environmental degradation and restoration, watershed and landscape change, and the analysis and display of spatial data using geographic information systems (GIS) technology.

Coursework in geography enables graduates to find employment in the private and public sectors while providing both the regional and global perspective required of informed citizens. B.A. students have gone on to work as urban and regional planners, marketing specialists, environmental program managers, location analysts, and transportation planners. The B.S. degree prepares students to pursue a technologically oriented career as geographic information systems specialists. Students with an undergraduate degree in geography are also prepared to move on to graduate school to pursue M.A. and Ph.D. degrees that enable them to teach at the college level or to secure higher ranking positions in the public and private sectors.

**Bachelor of Arts.** The B.A. degree requires 24 credits in 2000-level or above geography courses and 12 credits of related course work in other departments. B.A. majors must complete a basic core of three courses: GEOG 2100 or 2200, 2300, and one methods course (choice of GEOG 2500, 2510, 3110, 3500Q, or 3510), and 15 additional credits, including at least one “W” course in geography chosen in consultation with their departmental advisor.

**Bachelor of Sciences.** The B.S. degree requires 31 credits in 2000 or higher level geography courses and 12 credits of closely related course work in other departments. B.S. majors must complete a basic core of six courses: GEOG 2100, 2300, 2500, 2505, 3500Q, 3510, and one methods course (choice of GEOG 2510, 3110, 3505) and six additional credits, including at least one “W” course in geography chosen in consultation with their departmental advisor.

The writing in the major requirement for Geography can be met by passing any of the following geography courses: GEOG 3320W, 3330W, 4110W, or 4200W.

The information literacy requirement in Geography can be met by passing any of the following geography courses GEOG 3320W, 3330W, 4110W, or 4200W.

The computer technology exit requirement in Geography can be met by passing one of the following courses: GEOG 2500, 2510, 3110, 3500Q, or 3510.

A minor in Geographic Information Science is described in the “Minors” section.

## Geoscience

The major in Geoscience is designed for students interested in the science of the Earth, with special emphasis on environmental change over geologic time scales, natural hazards, rocks and fossils, planetary science, paleoclimate variability, surface processes, mountain building, and the link between Earth’s physicochemical conditions and the evolution of life.

Students may obtain a Bachelor of Arts degree or a Bachelor of Science degree.

Geoscience majors (B.A. and B.S.) must successfully complete the following course of study:

- I. All of the following core courses: GSCI 3010, 3020, 3030, 3040.
- II. One of the following capstone courses: GSCI 4050W, 4996W.
- III. At least 14 additional credits of 3000-level and 4000-level GSCI courses. No more than three credits can be from GSCI 4989, 4990, 4991, 4999.
- IV. At least 12 credits at the 2000 level or above in related areas. The suitability of courses will be determined by the student's advisor. Courses cross-listed with geoscience courses may not be used to satisfy this requirement.

Geoscience majors satisfy the writing in the major, information literacy competency, and computer technology competency requirements by passing GSCI 4050W or GSCI 4996W.

A minor in Geoscience is described in the "Minors" section.

## History

The study of history aims at the understanding and disciplined reconstruction of past human activities, institutions, ideas, and aspirations in the light of present knowledge and in the hope of usefulness for the future. History belongs both to the humanities and to the social sciences. It is studied both for its own sake and for the light it throws on the present problems and future prospects of particular societies and of humankind in general.

A major in history in combination with work in foreign languages, philosophy, literature, and the social sciences provides a broad foundation for informed citizenship. History majors find employment in many fields of human endeavor from arts and business to public service and education. Specialization in history is especially valuable as pre-professional training for law, government, diplomacy, and journalism and for library, archival, and museum administration.

**Requirements for the Major in History:** Undergraduate majors are required to take at least 27 credits at the 2000 level or above, which must include one three-credit course from each of Groups A, B, and C, and two three-credit courses from Group D. All majors must take HIST 2100 in the semester following their declaration as majors, and all majors except Honors students must take HIST 4994W in their senior year. Honors students should take in sequence 4999 and 4997W. Under certain circumstances and with advisor approval, honors majors may substitute 4994W for 4999. With the consent of the undergraduate major's advisor, graduate level courses may be used to fulfill the distribution requirement. HIST 2100 and 4994W satisfy the information literacy competency. HIST 4994W or 4997W satisfy the writing in the major requirements.

**Group A - Ancient, Medieval, and Early Modern:** HIST 3300 (ANTH 3513), 3301 (CAMS 3253), 3320 (CAMS 3254), 3325 (CAMS 3255), 3330 (CAMS 3256, HEJS 3218), 3335 (CAMS 3250), 3340 (CAMS 3243), 3350, 3360, 3361, 3370, 3371, 3400, 3420, 3460, 3470, 3704.

**Group B - Modern Europe:** HIST 2206 (SCI 2206), 2240, 2401, 2402, 3201 (HRTS 3201), 3203 (HDFS 3423), 3205, 3207 (HRTS 3207), 3412, 3416 (WGSS 3416), 3418 (HEJS 3203), 3421, 3426, 3430, 3440, 3451, 3456, 3463, 3471.

**Group C - United States:** HIST 2206 (SCI 2206), 3201 (HRTS 3201), 3204W, 3206, 3502, 3504, 3510, 3516, 3519, 3520, 3522, 3530 (AASI 3578), 3531 (AASI 3531), 3540, 3541 (URBN 3541), 3542, 3544 (MAST 3544), 3550, 3551, 3554, 3555, 3560 (WGSS 3560), 3561 (WGSS 3561), 3562 (WGSS 3562), 3563 (AFRA 3563, HRTS 3563), 3564 (AFRA 3564), 3568 (AFRA 3568), 3570, 3575 (LLAS 3221, HRTS 3221), 3660W (LLAS 3660W), 3674 (LLAS 3220). Either HIST 3520 or 3522, but not both, may be counted for credit toward the major.

**Group D - Africa, Asia, Latin America, and Middle East:** HIST 3201 (HRTS 3201), 3202 (HRTS 3202), 3206, 3575 (LLAS 3221, HRTS 3221), 3607, 3608W, 3609, 3610, 3619 (AFRA 3619, LLAS 3619), 3620 (AFRA 3620), 3621, 3622 (AFRA 3622, LLAS 3622, WGSS 3622), 3635, 3640, 3643, 3660W (LLAS 3660W), 3674 (LLAS 3220), 3704, 3705, 3712, 3752 (AFRA 3752), 3753 (AFRA 3753), 3760, 3808 (AASI 3808), 3809 (AASI 3809), 3812 (AASI 3812), 3822, 3832, 3863, 3875 (AASI 3875, LLAS 3875).

**Courses with Variable Content** (HIST 3095, 3098, 3100W, 3101W, 3102, 3991, 3993, 4989, 4994W, 4997W, 4999, or a graduate level History course) may be applied to any of the four distribution groups as determined by course content and with Advisor consent. No more than six credits of HIST 3991 will count toward the major requirements.

A minor in History is described in the "Minors" section.

## Human Development and Family Studies

Students in the Human Development and Family Studies major must complete the following requirements: HDFS 1070; PSYC 1100, 1103 (or 1101); SOCI 1001 or HDFS 1060; and STAT 1000Q or 1100Q (Note: These courses may also fulfill University General Education requirements.) Students must meet the computer technology, information literacy, and writing competency requirements through satisfactory completion of HDFS 2004W and one of the following: HDFS 3311/W, 3540/W, 4007W, 4087W, or 4181W.

The major in Human Development and Family Studies requires 43 credits at the 2000 level or above including 31 credits in Human Development and Family Studies and 12 credits in courses related to but outside the major department. A student completing requirements for a major must have a grade point average of 2.0 or better in the credits that count toward the major in Human Development and Family Studies. Students are allowed much flexibility in tailoring their major to meet their particular interests and educational goals. Most students choose to focus their work in one or more of the following concentrations: Early Childhood Development and Education, Childhood and Adolescence, Family Relationships: Services and Counseling, Family in Society: Social Policy and Planning, Adult Development and Aging

This major must include all of the following required courses: HDFS 2001, 2004W, 2100, 2200 and 2300.

This major must include the completion of one of the following courses: HDFS 3520, 3530, 3540, 3550.

This major must include completion of one of the following courses as a second W: HDFS 3311W, 3540W, 4007W, 4087W, or 4181W.

This major also must include at least 12 credits from the following courses: HDFS 3042, 3083\*, 3092\*\*, 3095, 3098, 3101, 3102, 3103, 3110, 3120, 3122, 3123, 3125, 3240, 3249, 3250, 3252, 3261, 3268, 3277, 3310, 3311/W, 3319, 3340, 3341, 3342, 3343, 3420, 3421, 3423, 3430, 3431, 3433, 3442, 3473, 3510, 3520, 3530, 3540/W, 3550, 4004, 4007W, 4255. These 12 credits may include elections from HDFS 3520, 3530, 3540/W, or 3550 if not applied to satisfaction of the foregoing requirement.

\* No more than six credits can be counted toward the 12 selected credits.

\*\* No more than three credits can be counted toward the 12 selected credits.

## Minors

A minor in Gerontology is administered under the auspices of the Center on Aging. Please refer to its description in the "Minors" section of this *Catalog*.

## Honors Program

The Human Development and Family Studies Honors Program offers motivated students a way of enhancing their studies while providing distinction to their academic records through more in-depth study and the opportunity for independent projects or research. Human Development and Family Studies majors with an overall GPA of 3.2 or higher and a GPA in the major of 3.5 or higher are eligible to apply to the Honors Program in Human Development and Family Studies. Students should apply as early as possible, and applications will not be accepted after the first semester of a student's junior year. Honors Scholars who complete the required honors course work and an approved honors thesis project, as well as maintain the required GPA, will graduate with a degree with Honors. For more information on this program, contact the Human Development and Family Studies Honors Advisor.

## Human Rights

The field of concentration in Human Rights gives students an understanding of the legal instruments, norms, and institutions that constitute contemporary human rights law, as well as the social movements, cultural practices, and literary and artistic representations that have and continue to imagine the human rights ethic in various ways. In recent years, the human rights

dimensions of many of the most vexing and pertinent issues at the global, national, and local level have gained prominence - including the problems of environmental deterioration, economic inequality, and ethnic and religious conflict. Students who major in Human Rights will be better equipped not only to understand the complex nature of these and other issues, but also to develop and pursue novel approaches toward a better world. In addition to studying the manifold histories, theories, and practices of human rights in a systematic and comprehensive manner, students majoring in Human Rights will also develop more specialized methodological and topical expertise in a second discipline.

To complete the Major in Human Rights, students are required to complete an additional, primary major offered in the College of Liberal Arts and Sciences or an additional degree program offered in another University School or College. For students completing a double major within the College of Liberal Arts and Sciences, a minimum of 48 credits without overlap is required to earn both majors and students will receive one degree appropriate to their primary major. For students completing a dual degree, at least 30 degree credits more than the degree with the higher minimum-credit requirement must be completed (a minimum of 150 credits) and students will receive a Bachelor of Arts in Human Rights along with another degree appropriate to their second program.

It is recommended that Human Rights majors declare their primary major by the end of their third semester.

**Recommended:** HRTS 1007

**Requirements for the Major in Human Rights:** Undergraduate majors must complete a total of 36 credits: nine credits of core courses with at least one course in each of groups A, B and C; 12 credits of elective courses from the lists of core courses or elective courses; 12 credits of related courses as approved by the Director of the Human Rights Major; and HRTS 4291 or 4996W.

## Core Courses

### A. Institutions and Laws

HIST/HRTS 3202; HRTS 3200/W, 3420; POLS/HRTS 3212; SOCI/HRTS 3831

### B. History, Philosophy, and Theory

ECON 3128; ENGL/HRTS 3631; HIST/HRTS 3201, 3207; PHIL/HRTS 3220/W; POLS/HRTS 3042

### C. Applications and Methods

BADM or BLAW 3252; BADM or BLAW or HRTS 3254; DRAM/HRTS 3139; ENGR or HRTS 3257; HRTS 3149/W, 3250/W, 3475; POLS/HRTS 3256/W, 3428, 3430; SOCI/HRTS 3835/W, 3837/W

## Elective Courses

Any HRTS course numbered 2000 or above; ANTH/HRTS 3028/W, 3153W; ANTH 3150/W; ANTH/WGSS 3350; ARTH/HRTS 3575; ECON 2126, 2127/W, 3473/W; ENGL/HRTS 3619; ENGL 3629; HIST/AASI 3531; HIST/WGSS 3562; HIST/HRTS/AFRA 3563; HIST 3100W, 3570; LLAS/HRTS 3221/HIST 3575; PHIL/HRTS 2170W, 3219; PHIL 2215, 3218; POLS/HRTS 3418/W; POLS 3255, 3807; POLS/ENGR/HRTS 3209; SOCI/AASI 3221/HRTS 3571; SOCI/AASI 3222/HRTS 3573; SOCI/HRTS 3421/W, 3429/W, 3801/W; SOCI 3503/W; SOCI/HRTS/AFRA 3505, 3825; WGSS/HRTS 2263

The following courses satisfy the Information Literacy Competency and Writing in the Major requirements: ANTH/HRTS 3028W, 3150W, 3153W; ECON 2127W, 3473W; HRTS 3149W, 3200W, 3250W, 4996W; HRTS/PHIL 2170W, 3219W, 3220W; POLS 3418W; POLS/HRTS 3256W; SOCI 3421W, 3429W, 3503W, 3801W; SOCI/HRTS 3835W, 3837W.

A minor in Human Rights is described in the "Minors" section.

## Individualized Major

The Individualized Major Program allows a student to create a major that is not otherwise offered at the University of Connecticut. In order to submit a proposal for admission to the program, a student must: be in good academic standing, have a minimum grade point average of 2.0, and have third semester standing or higher. It is recommended that the student not have begun his or her final 30 credits of study.

The proposed individualized major must be coherent in theme, have academic merit, and include at least 36 credits, numbered 2000 or higher, from two or more departments in the University. At least 18 credits shall come from departments of this College. The major may include up to six credits of independent study and six credits of field work. The student may include the individualized major in a double major plan of study, but at least 24 credits of the individualized major plan must not overlap with the student's other major and its related field courses. To graduate, the student must earn a grade point average of 2.5 or better in the 36 credits of the individualized major.

Individualized majors may contribute to Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degrees.

**Capstone:** All students with approved individualized major plans of study must register for UNIV 4600W Capstone Course (or UNIV 4697W Senior Thesis for honors and other students writing a thesis) during their last academic year. (Double majors and additional degree students may meet the capstone requirement by substitution if they register for a capstone course or thesis in the final year of their other major.)

**Writing in the major requirement:** In addition to the capstone, all students must nominate one other course numbered 2000 or higher in which they will write in a relevant academic discipline (where feasible, this course should be a W course). (Double majors and additional degree students may choose to satisfy the exit level writing in the major competency outside the Individualized Major.)

**Information literacy competency:** All majors must include the capstone and one research methods or research course in their plans of study. (Double majors and additional degree students may choose to satisfy the information literacy competency outside the Individualized Major.)

**Computer technology competency:** The University's basic entrance expectations are adequate for Individualized Majors in general. However, if more advanced computer technology competency is required for an individualized major, the student's proposal must specify how this will be achieved.

The individualized major is administered by the Individualized and Interdisciplinary Studies Program. Please see our website ([iisp.uconn.edu](http://iisp.uconn.edu)) for more information.

## Journalism

This department offers professional preparation for students who are planning careers in journalism. It also offers other students the chance to improve their writing, interviewing and research skills and to learn about the news media.

Students in writing courses are expected to produce work of professional quality and to publish that work when possible.

Students who major in journalism should also take related courses in history, economics, political science and other liberal arts disciplines as a sound preparation for news reporting. The department strongly urges students to complete a second major. Students also should gain professional experience before graduation, either through part-time jobs, the Co-operative Education Program or the department's internship program. Internships are available at newspapers, radio and television stations, magazines, online publications and political press offices.

In addition to satisfying the requirements of the College, majors must complete 27 credits in journalism at the 2000 level or above, including JOUR 2000W, 2001W, 3002, 3020 and 3030; the three credit portfolio sequence (JOUR 2111, 3111, and 4111); and one of the following courses: JOUR 3000, 3012, 3013, 3041, 3045, 3046, 4035, or other advanced courses if accepted with the consent of the department. JOUR 1002 is a prerequisite for JOUR 3002.

A journalism education is, by definition, an education in writing and information literacy. A journalism major will fulfill the writing in the major requirement and the information literacy competency by completing the department's core courses (JOUR 2000W, 2001W, 3002, 3020 and 3030).

Students will fulfill the computer technology competency by (a) meeting the university's expectations in computer operation basics, word processing, presentation software, spreadsheets, database basics, graphics and multimedia, Internet basics and electronic communication, and (b) completing JOUR 2111, 3030, 3111, and 4111.



Journalism majors are advised to consult with their advisors about additional computer skills that may be helpful to them, based on individual career plans. Students who major in journalism will be expected to own basic digital audio and imaging equipment for use in classes and professionally. The department's website, [journalism.uconn.edu](http://journalism.uconn.edu), lists current requirements.

Students must apply to the Journalism Department to become majors. They must do so by the end of the third full week of classes in the fall or spring semester. A student who is not accepted initially may reapply in subsequent semesters. Forms can be obtained online or in the Journalism Department Student Resource Room, 457 Oak Hall.

Students must meet the following two requirements:

1. Successful completion of at least 39 credits. (Students who are members in good standing of the University Honors Program may apply after completing 23 credits at UConn.)
2. Cumulative GPA of at least 2.8, or successful performance on a timed writing exercise administered by the department. Applicants taking the test must show mastery of the fundamental tools of writing, including spelling, grammar and syntax. The applicant's academic record and goals also will be considered.

## Latino and Latin American Studies

The interdisciplinary major in Latino and Latin American Studies offers an understanding of hemispheric relationships between the peoples and cultures of Latin America and the Caribbean, and those of the United States. It explores interconnected histories and contemporary economic, social, and political challenges including migration, transnational communities, and economic development. Completion of the B.A. in Latino and Latin American Studies prepares the student for work in government, community agencies, international organizations, business, journalism and communications, or for graduate studies that lead to careers in research and teaching.

The major in Latino and Latin American Studies consists of a minimum of 37 credit hours of course work, including a required 2-course sequence in writing, research, and methodology (seven credits); an experiential learning component (six credits); a capstone project (three credits); three electives in LLAS (nine credits), and four related courses (12 credits).

Related courses may include LLAS courses provided that they are cross-listed with another discipline. In addition, intermediate proficiency in a language spoken in Latin America, though not a prerequisite for major study, must be demonstrated for completion of the major for students focusing on Latin America, and proficiency in Spanish is strongly suggested for those focusing on Latinos in the United States.

Prerequisite for the major: A 1000-level introductory course on Latino or Latin American Studies.

### Required Courses (16 credits)

1. Critical Methodology sequence of LLAS 2011W and 2012
2. Experiential Learning Requirement. Choose six credits from:
  - a. Community immersion project (combination of Independent Study LLAS 3999, Field Work LLAS 4212, or service-learning courses that involve Latino American community)
  - b. Urban Semester with Latino Studies focus (INTD 3584 and INTD 3594 or 3590, the internship itself); additional credits can count as related courses, or towards the capstone)
  - c. Study abroad courses or internship in Latin American or Caribbean Studies
3. Capstone project: LLAS 4994W or comprehensive project through Urban Semester (three credits)

### Elective Courses (nine credits)

Elective courses must have a LLAS designation, and must fall within content area of chosen concentration, either Latino or Latin American Studies.

### Related Courses (12 credits)

Language Requirement. Intermediate proficiency in a language spoken in Latin America is required for students focusing in Latin America, and

proficiency in Spanish is strongly suggested for students focusing on Latinos in the United States. Proficiency can be demonstrated in one of the ways below:

- Take at least one 3000-level or above course in literature, culture, film or the arts in the target language
- Pass equivalent language exam
- Requirement waived for native speakers.

Education Abroad. While study abroad is not mandatory, we strongly encourage all Latino and Latin American Studies majors to spend at least a semester in Latin America or the Caribbean. For further information on academic programs in the region, contact El Instituto or the Education Abroad Office.

Information literacy and writing in the major competencies will be satisfied by completion of the core courses LLAS 2011W and LLAS 4994W.

Minors in Latin American Studies and Latino Studies are described in the "Minors" section.

## Linguistics

The Department of Linguistics offers two joint majors, one together with the Department of Philosophy in Linguistics and Philosophy, and the other with the Department of Psychology in Linguistics and Psychology. For either major, a minimum of four courses (twelve credits) at the 2000 level or above from each department is required.

### Linguistics and Philosophy

For the Linguistics and Philosophy joint major, required linguistics courses are LING 3110, 3410Q, and at least two additional LING courses at the 2000 level or above; and required philosophy courses are PHIL 3241 and at least three additional PHIL courses at the 2000 level or above. For this joint major, exit requirements for computer technology and information literacy will be satisfied by passing LING 3110. The exit requirement for writing in the major will be satisfied by passing any W course in LING or PHIL at the 2000 level or above that has been approved by the student's advisor for inclusion in the plan of study.

### Linguistics and Psychology

For the Linguistics and Psychology joint major, specifically required linguistics courses are: LING 2010Q and 3110, and at least two out of the other 2000-level or above linguistics courses; and specifically required psychology courses are: PSYC 2100Q or 2100WQ and 3500, and at least two out of PSYC 2400, 2500, 2501, 3501, 3550W, and 3552. All students in the Linguistics/Psychology Major are strongly encouraged to take LING 5010/PSYC 5500 in their senior year. A minimum of four courses (12 credits) at the 2000 level or above from each department is required. For this joint major, exit requirements for computer technology and information literacy will be satisfied by passing LING 3110. The exit requirement for writing in the major will be satisfied by passing any W course in LING or PSYC at the 2000 level or above that has been approved by the student's advisor for inclusion in the plan of study.

A minor in Linguistics is described in the "Minors" section.

Other students interested in Linguistics should consider forming their major group from the courses in another field, and using courses in linguistics for their related group, as described under "Field of Concentration," item 1.

## Literatures, Cultures and Languages

The Department of Literatures, Cultures and Languages offers courses in Arabic, Chinese, French, German, Hebrew, Italian, Spanish, Classical Languages (Ancient Greek, Latin, and Biblical Hebrew) and selected critical languages. Students may major in Chinese Studies, Classics and Ancient Mediterranean Studies, French and Francophone Studies, German Studies, Italian Literary and Cultural Studies, Judaic Studies, and Spanish Studies. A student may double major in two of the above majors. Students will gain knowledge of the Literature, Culture, and applied Language skills that are required for teaching, business, diplomatic or governmental work, and research in graduate or undergraduate study of the culture and literature that is associated with these languages.

Education Abroad is required (or strongly encouraged, please see descriptions) for the majors in modern languages for at least one semester or approved equivalents. The department sponsors University of Connecticut programs in France; Italy; Spain; Germany; and Tianjin, China. Many other programs are available in Africa, Asia, Latin America, and Europe through Education Abroad. Such coursework is normally most valuable during the junior year, but qualified sophomores and seniors are also eligible. Students interested in Education Abroad should consult with their advisors.

Courses numbered in the 2000 level or above are open to freshmen and sophomores if they meet the prerequisites for the course. In the modern languages coursework is conducted in the foreign language unless otherwise indicated.

**Minors:** The Department of Literatures, Cultures and Languages offers minors in Classics and Ancient Mediterranean Studies, Chinese, French, German, Italian Cultural Studies, Italian Literary Studies, and Spanish Studies. Related minors in European Studies, Judaic Studies, Latin American Studies, Latino Studies, and Middle Eastern Studies may be of interest to students. Please see the “Minors” section of this *Catalog*.

## Chinese

The Chinese major requires a minimum of 36 credits in courses at the 2000- level or above, including 24 credits in Chinese and 12 credits of related courses from programs other than Chinese. A minimum of 12 major credits must consist of Chinese courses taken in residence. Only six may be transfer credits. AP credits may not be used toward the major.

Chinese majors must complete a minimum of twelve courses:

- A. Four language courses from the following: CHIN 3210, 3211, 3220, 3240, 3260, or another CHIN course approved by the advisor.
- B. Four content courses from the following: CHIN 3230, 3260, 3270, 3271, 3282, or another CHIN course approved by the advisor.
- C. Four related courses from the following: HIST 3822, 3832, 3863, HIST/AASI 3808, 3809; HIST 3530/AASI 3578; POLS 3245, PHIL 3264, AASI 3201, 3220, 3221; AASI/ENGL 3212, SOCI 2827, DRAM 2131 or any other related courses from programs other than Chinese, with the advisor’s consent.

Enrollment in an Education Abroad program in a Chinese-speaking country or region is required for all Chinese majors. With the advisor’s consent, any of the above courses may be replaced by an appropriate CHIN 3293 course from study abroad programs.

Up to 12 credits taken in study abroad programs may count toward the major.

Students can enroll in either UConn-sponsored or non-UConn-sponsored programs. In either case, students must consult with the advisor to determine which courses will receive credits.

To satisfy the Information Literacy Competency and Writing in the major requirements, all students must take a W course as specified by the advisor.

A minor in Chinese is described in the “Minors” section.

## Classics and Ancient Mediterranean Studies

The major in Classics and Ancient Mediterranean Studies allows students to pursue an interest in the Greek, Latin, and Ancient Hebrew/Biblical world. Students may choose to pursue a traditional, language-oriented (Greek or Latin) concentration in Classics or a concentration in Ancient Mediterranean Studies. Students who concentrate in Classics may take courses in Ancient Mediterranean Studies in addition to their language and literature requirements. Those who concentrate in Ancient Mediterranean Studies may also pursue some relevant language study (Greek, Latin, or Biblical Hebrew). Either concentration will lead to a major in Classics and Ancient Mediterranean Studies.

### Concentration in Classics

Students must complete a minimum of eight courses from the following:

- A. At least two courses involving reading in Greek and/or Latin: CAMS 3101, 3102, 3232, 3293\*, 3295\*, 3298\*, 3299\*. (CAMS 3101 and

3102 are topics courses, which may be retaken for credit with a change in subject matter.)

- B. At least one writing course on Classical literature in English translation: CAMS 3241W, 3242W.
- C. At least two other courses dealing with the ancient world: CAMS 3207, 3208, 3211, 3212, 3213, 3221, 3224, 3225, 3226, 3227, 3243, 3244, 3245, 3250, 3251, 3253, 3254, 3255, 3256, 3257, 3293\*, 3295\*, 3298\*, 3299\*. (These may be cross-listed under Art History, History, Hebrew and Judaic Studies, and Philosophy). HEJS 3201 and INTD 3260 may also be included.

\*May count toward major only with consent of advisor.

To satisfy the writing in the major and information literacy competencies, all students must take CAMS 3241W or 3242W.

### Concentration in Ancient Mediterranean Studies

Students must complete a minimum of eight courses from the following:

- A. At least one writing course on Classical literature in English translation: CAMS 3241W, 3242W.
- B. At least six other courses dealing with the ancient world: CAMS 3101, 3102, 3207, 3208, 3211, 3212, 3213, 3221, 3224, 3225, 3226, 3227, 3243, 3244, 3245, 3250, 3251, 3253, 3254, 3255, 3256, 3257, 3293\*, 3295\*, 3298\*, 3299\*. (These may be cross-listed under Art History, History, Judaic Studies, and Philosophy.) HEJS 3201 and INTD 3260 may also be included. (CAMS 3101 and 3102 are topics courses, which may be retaken for credit with a change in subject matter.)

\*May count toward major only with consent of advisor.

To satisfy the writing in the major and information literacy competencies, all students must take CAMS 3241W or 3242W.

A minor in Classics and Ancient Mediterranean Studies is described in the “Minors” section.

## French

The French major requires a minimum of 30 credits in 2000 level or above French courses and 12 credits in 2000-level or above “related courses” from departments other than French. All majors must complete the following courses: FREN 3211, 3261W, 3262W, 3268W, 3269 and 3257. Students may follow the French for the Global Community track or the French Cultural and Literary Studies track.

French majors pursuing the French for the Global Community track must complete 12 credits, distributed as follows: FREN 3215, 3216 or 3222; FREN 3217; FREN 3218; FREN 3224 or 3274

French majors pursuing the French Cultural and Literary Studies track must complete 12 credits, distributed as follows: FREN 3210, 3223 or 3224; FREN 3218, 3230, 3231, 3234, 3235; FREN 3220, 3221 or 3222; FREN 3272

Study abroad in our Paris program is required for all French majors. Any of the above courses may be replaced, with advisor approval, by an appropriate FREN 3293 course from study abroad in Paris.

### Education Abroad in Paris

French majors must complete at least a semester in the Education Abroad program in a Francophone culture. Students participating in the Paris program attend the University of Paris, and may earn a full academic year’s credit at the University of Connecticut and a maximum of 15 credits toward the major in French. The department encourages interdisciplinary work in this program, and wishes students to take courses in other disciplines wherever possible.

To satisfy the writing in the major and information literacy requirements, all majors must take FREN 3261W, 3262W, and 3268W.

A minor in French is described in the “Minors” section.

## German

Students majoring in German have a choice between a concentration in German literature or German studies. For the concentration in German

literature the following courses are required: 1) 3233, 3234, 4246; 2) three from among the following literature courses: 3254W, 3255W, 3293 (on a literary topic), 3294 (on a literary topic), and 3295 (on a literary topic); 3) one from 3200, 3231, 3245, 3261W, 3265, 3292, 3293 (on a non-literary topic), 3294 (on a non-literary topic) and 3295 (on a non-literary topic); and 4) one of the following courses taught in English: 3251, 3258, or 3264W. (Only one course taught in English is allowed toward the literature major.)

For the concentration in German studies the following courses are required: 1) 3233, 3234, 4246; 2) either 3251 or 3258; 3) three from 3200, 3231, 3245, 3261W, 3264W, 3265, 3292, 3293 (on a non-literary topic) and 3294 (on a non-literary topic) and 3295 (on a non-literary topic); 4) one of the following literature courses: 3254W, 3255W, 3293 (on a literary topic), 3294 (on a literary topic) and 3295 (on a literary topic) (Only two courses taught in English are allowable toward the German studies major.)

To satisfy the Information Literacy Competency requirement, the following courses are required:

1. one of GERM 3233, 3234; and
2. one of GERM 3254W, 3255W, 3261W, 3264W; and
3. GERM 4246.

To satisfy the writing in the major requirement, all majors must take one of the following courses: GERM 3254W, 3255W, 3261W, 3264W.

## Eurotech

In collaboration with the School of Engineering, the German Section offers Eurotech, a carefully structured five-year, double-degree program enabling students who have been admitted to the School of Engineering to earn both a B.A. in German and a B.S. in Engineering. The program includes German language courses specially designed to include engineering content, engineering courses partly taught in German, and a six-month internship in a German-speaking company. There is a special emphasis on environmental engineering and pollution prevention. Eurotech students may substitute GERM 3220, 3221, and 3222 for one of the courses in category 3 required of majors in German literature; and for one of the courses in category 2 required of majors in German Studies.

## Education Abroad in Austria and Germany

The University of Connecticut sponsors a variety of programs in Salzburg, Regensburg and a number of universities in the State of Baden-Württemberg that allow students to follow their own concentration and interests. Students also have the possibility of work-study programs and internships.

A minor in German is described in the “Minors” section.

## Italian Literary and Cultural Studies

This major focuses on Italian literary studies but also allows students to take advanced coursework in Italian language, communication, and cultural studies. (All 3000-level coursework on Italian cinema may also be counted towards the minor in Film Studies). Italian courses comprise two main groups:

### Group 1 (Literature)

ILCS 3237, 3243, 3244, 3245, 3246, 3247, 3250, 3251, 3253, 3254, 3255W, 3256, 3261, 3262, 3293, 3295, 3298, 4279.

### Group 2 (Language, Communication, and Culture)

ILCS 3239, 3240, 3255W, 3258W, 3259, 3260W, 3270, 3293, 3295, 3298, 4279.

For the major in Italian, students must take 24 credits of ILCS courses at the 2000 level or above and according to the following guidelines:

- A. At least one composition course: ILCS 3239 or 3240 or 3293.
- B. One introductory or literary survey course: ILCS 3243, 3244, 3245, 3246, 3247, 3250, 3251, 3256, 3261, 3262, 3293, 3295, 3298.
- C. Six additional courses taken from Groups 1 or 2 (which are not used to satisfy requirements A or B). No more than four of these six courses may be taken from the same group.
- D. All majors must take one W course as part of the 24 required Italian credits. A second W course may be counted toward the major with the consent of the advisor. (One W course taken outside of ILCS is

also mandatory for all majors, as per UConn’s university-wide W course requirements.)

- E. 12 additional related credits are required in 2000-, 3000- and 4000-level related courses from programs other than Italian. These may include:

- Courses in any modern or classical language.
- Any English, Linguistics, or Philosophy course.
- Any Communication Sciences course that is directly related to second language acquisition or the Italian/Italian-American communities.
- Any History, Political Science, Art History, Anthropology, Sociology, Economics, or Geography course that deals with Italy, Italians, or Italian-Americans.
- Any course that does not meet these specific requirements should be approved by the advisor.

- F. **Education Abroad in Italy:** Students are strongly encouraged to participate in a variety of UConn-sponsored Education Abroad programs (and also have the option of enrolling in non-sponsored programs). In either case, students should consult with the ILCS faculty to determine which courses will receive credits. Students who enroll in study abroad programs not sponsored by UConn do not necessarily receive UConn credits for their coursework.

In addition, the following rules apply:

- A minimum of 12 of the major credits must consist of Italian courses taken in residence.
- Up to 12 credits may be met by ILCS 3293, with the consent of the advisor. Only six may be transfer credits.
- UConn’s Early College Experience courses may be counted towards the major.
- A single course cannot satisfy more than one requirement.

To satisfy the writing in the major and information literacy competencies, students must complete ILCS 3255W, 3258W, or 3460W.

A minor in Italian Literary and Cultural Studies is described in the “Minors” section.

## Judaic Studies

Based in the Department of Literatures, Cultures, and Languages and sponsored by the department’s Hebrew and Judaic Studies section, UConn’s major in Judaic Studies offers a unique interdisciplinary approach to the study of the languages, literatures, culture, history and religion of the Jews. Students are especially encouraged to pursue their interests in Jewish civilization by learning about the experience of the Jewish people within other cultures from ancient to modern times. This truly interdisciplinary approach, which allows students to include relevant courses offered by other sections of the department, is further enhanced by the many courses that are cross-listed with other departments and programs at the university.

All students are required to study Hebrew language. Fulfillment of this requirement depends upon the student’s area of interest. There are two Tracks, each with a distinct orientation: Track A, General Judaic Studies and Track B, Classical Judaic Studies. While both tracks provide grounding in all periods of Jewish civilization, Track B emphasizes the pre-modern experience and “classical” texts of the Jews.

Students in Track A are required to have two years of Modern Hebrew (or the equivalent, which would include credits from Israeli or other “ulpan” programs).

Students in Track B are required to complete the single year sequence of courses in Biblical Hebrew, which prepares the student to read Hebrew scripture in the original.

Students in Track A and B are required to take 24 credits beyond the required language preparation in their track as specified below.

Students who are majoring in other disciplines and may not be able to pursue Hebrew language proficiency but wish to obtain a solid grounding in Judaic civilization are encouraged to pursue a minor in Judaic Studies.

## Track A: General Judaic Studies

General Judaic Studies majors are required to complete the following courses: HEJS 1103, 1151, 1152, 1153, and 1154. These courses do not count toward the 24 credits required for the major.

### Information Literacy and Writing in the Major requirements

General Judaic Studies majors must complete HEJS 3401W (included in 24 required credits) to fulfill their information literacy and writing (“W”) requirements. SOCI 2509W may be substituted for HEJS 3401W with the approval of the student’s HEJS advisor.

Four courses (12 credits) from Group 1 including one each from the Biblical, Ancient/Rabbinic, Medieval, and Modern periods, and three additional courses (nine credits) drawn from either Group 1 or Group 2.

#### GROUP 1

1. Biblical Israel: CAMS 3253/HIST 3301, HEJS 3201, INTD 3260
2. Ancient/Rabbinic: HEJS 3218/CAMS 3256/HIST 3330
3. Medieval: HEJS 3301
4. Modern: HEJS 2104, 3251, 3252, 3279, 3511; SOCI 2509W

#### GROUP 2

CAMS 3244; HEJS 3202; HEJS 3203/HIST 3418; HEJS 3241; HIST 3243, 3705, 3712

The following courses may also be included in the required 24 credits with the approval of the student’s HEJS advisor: HEJS 3293, 3298, 3299.

Some HEJS Graduate courses that are open to undergraduates may also be substituted with the permission of the student’s HEJS advisor. In addition, students may also take upper-level undergraduate and graduate courses in other sections of LCL that have significant Judaic content provided they have been approved by their HEJS advisor.

## Track B: Classical Judaic Studies

Classical Judaic Studies majors are required to complete the following courses: HEJS 1103, 1149, and 1150. These courses do not count toward the 24 credits required for the major.

### Information Literacy and Writing in the Major requirements

Classical Judaic Studies majors are required to complete HEJS 3218W/CAMS 3256W/HIST 3330W (included in 24 required credits) to fulfill their information literacy and writing (“W”) requirements.

Seven courses amounting to 21 credits chosen from Groups 1 (Core Courses) and 2 (Specialized Courses). The selection of Group 2 courses depends upon the student’s specific interests in the pre-Modern experience of the Jews and should be chosen with the approval of the student’s HEJS advisor.

#### GROUP 1 (Core Courses)

CAMS 3244; CAMS 3253/HIST 3301; HEJS 3201, 3241, 3243, 3301; INTD 3260

#### GROUP 2 (Specialized Courses)

HEJS 5316, 5326

One of the following courses may also be included in the 24 credits, depending upon the student’s pre-modern period of interest. Approval of the student’s HEJS advisor is required: ARTH 3150; CAMS 3246; CAMS 3250/HIST 3335; CAMS 3251/ARTH 3140; CAMS 3254/HIST 3320; CAMS 3255/HIST 3325.

The following courses may also be included in the required 24 credits with the approval of the student’s HEJS advisor: CAMS 3298; HEJS 3293, 3299, 3298 and CAMS 3298.

## Spanish

Spanish courses comprise three main groups:

Group 1 (Literature): SPAN 3207, 3208, 3230, 3231, 3232, 3233, 3234, 3260, 3261, 3262, 3263, 3264, 3265, 3267W, 3293, 4200W.

Group 2 (Culture): SPAN 3179, 3200, 3201, 3204, 3205, 3206, 3207, 3208, 3214, 3250, 3251, 3252, 3254, 3293, 4200W

Group 3 (Language and Communication): SPAN 3170, 3177, 3178, 3179, 3241, 3204, 3240W, 3242, 3261, 3267W, 3293, 4200W

To major in Spanish, students must take 24 credits of Spanish courses numbered 2000, 3000 or 4000 and according to the following guidelines:

- A. One composition course (SPAN 3178, 3240W or 3293).
- B. One introductory or literary survey course (SPAN 3230, 3231, 3232, 3233, 3234, 3242).
- C. Two courses from Group 1 (not used to satisfy requirement B).
- D. Two courses from Group 2.
- E. Two courses from Group 3 (not used to satisfy requirements A or B).
- F. All majors must take at least one W course as part of the previous 24 required Spanish credits.
- G. 12 additional credits are required in 2000, 3000 and 4000-level related courses from programs other than Spanish. These may include appropriate Education Abroad courses (ARTH 2993; POLS 3993; INTD 3993; ECON 2493; HIST 3993). Other related courses require advisor’s prior consent.
- H. Enrollment in an Education Abroad program in a Spanish speaking country is also required. In consultation with the advisor, this requirement can be substituted with additional Spanish credits in residence, research credits related to the United States Hispanic community, Urban Semester, and other options.

In addition, the following rules apply: A minimum of 12 of the major credits must consist of Spanish courses taken in residence. Up to 12 credits may be met by SPAN 3293. Only six may be transfer credits. AP credits may not be used toward the major. A single course cannot satisfy more than one requirement.

To satisfy the information literacy and writing in the major requirements, all students must pass one of SPAN 3240W or 4200W.

A minor in Spanish is described in the “Minors” section.

## Marine Sciences

The Marine Sciences major at the University of Connecticut provides students the opportunity to study the biological, chemical, geological and physical environment of the oceans. This field-intensive program focuses on understanding the ocean environment and human impacts on coastal habitats. Courses are designed to provide a solid foundation in science and mathematics. Experiential learning opportunities, internships, study abroad and senior-year capstone courses allow for interdisciplinary studies and hands-on learning. The Marine Sciences major at UConn prepares graduates for employment in environmental consulting, regulatory agencies and research institutions, and for graduate studies.

### Bachelor of Science in Marine Sciences

The B.S. in Marine Sciences requires a foundation of courses including 30 credits of Marine Sciences courses, and 12 credits of Related Area courses. Marine Sciences majors in the B.S. must pass the following courses:

#### I. 1000-Level Courses

BIOL 1107 and 1108; either CHEM 1124Q, 1125Q and 1126Q, or CHEM 1127Q and 1128Q; MATH 1131Q and 1132Q; either PHYS 1201Q and 1202Q, or PHYS 1401Q and 1402Q; MARN 1002 or 1003.

Marine Sciences requires a course in data analysis and interpretation. This requirement may be fulfilled with STAT 1100Q or another course approved by the Department Head.

#### II. Marine Sciences B.S. Major Requirements

The following courses constitute the major requirements: MARN 2002, 3001, 3003Q, 3801W, 4001, 4002, and three electives. The electives must represent different areas of Marine Sciences. Three courses must be completed from the following groups of electives. At least one course must be completed from each of the two groups:

Group 1: MARN 2060, 3000, 3060, 3061, 3230, 3505, 4030W, 4050, 4060, 4066.

Group 2: MARN 3012, 3014, 3015, 3016, 3017, 3030, 3811, 4010, 4018.

Students may be able to use MARN 3893, 4893, 4895, 4898 or other MARN courses towards one or more of these electives with prior approval of the Department Head.

### III. Marine Sciences B.S. Related Area

In consultation with their faculty advisor, students choose Related Area courses appropriate to their interests. The department maintains a list of courses acceptable for this requirement.

### Bachelor of Arts in Marine Sciences

Students who choose the B.A. in Marine Sciences are typically more interested in marine and environmental policy, management, and/or education. The B.A. in Marine Sciences requires a foundation of courses including 26 credits of Marine Sciences courses, and 18 credits constituting the Related Area.

Marine Sciences majors in the B.A. must pass the following courses.

#### I. 1000-Level Courses

BIOL 1107, 1108; either CHEM 1124Q, 1125Q and 1126Q, or CHEM 1127Q and 1128Q; either MATH 1060Q and 1110Q, or MATH 1060Q and 1071Q; either PHYS 1201Q and 1202Q or PHYS 1401Q and 1402Q; MARN 1002 or 1003.

Marine Sciences requires a course in data analysis and interpretation. This requirement may be fulfilled with STAT 1100Q or another course approved by the department.

#### II. Marine Sciences B.A. Major Requirements

The following courses constitute the major requirements: MARN 2002, 3001, 3801W, 4001, 4002, and any three of the MARN electives listed in Group 1 or Group 2 in the B.S. requirements above.

Students may be able to use MARN 3893, 4893, 4895, 4898 or other MARN courses towards one or more of these electives with prior approval of the Department Head.

### III. Marine Sciences B.A. Related Area

In consultation with their faculty advisor, students choose Related Area courses appropriate to their interests. The department maintains a list of acceptable courses.

### Competency Requirements (B.S. and B.A. programs)

The University's General Education competency requirements for computer technology and information literacy will be satisfied by completing the requirements above, in particular MARN 2002, 3001 and 4001 for computer technology, and MARN 3001, 3801W and 4002 for information literacy. The writing in the major requirement will be satisfied by MARN 3801W.

Note: Some Marine Sciences courses may be offered only at the Avery Point campus. Others may be partially available through Distance Learning. Please check the Directory of Courses in this *Catalog*.

Both a minor in Marine Biology and a minor in Oceanography are described in the *Minors* section.

## Maritime Studies

Water covers more than two-thirds of the Earth's surface and the majority of the human population lives within 50 miles of navigable waterways. The world's oceans and great riparian systems have provided the dominant medium for human economic and cultural exchange and the context for many of humanity's most dramatic stories, powerful technologies, and aesthetic and literary achievements.

Maritime Studies is an interdisciplinary major that embraces the liberal arts as the foundation for exploring humankind's critical and continually evolving connections with the world's waterways and watersheds. The Maritime Studies Program combines rigorous liberal arts training in recognized humanities and social science disciplines such as history, English, economics, political science, anthropology and geography with specialized courses, interdisciplinary seminars, and research and internship opportunities that focus on issues, traditions, and problems that influence life in maritime regions. A complement to the Marine Sciences Major Maritime Studies highlights the social and cultural side of the human/water relationship, but recognizes and explores the

links between human activities and the composition and the condition of the coastal and marine environments.

Maritime Studies is a flexible but focused major that students may shape to meet a wide range of occupational and educational goals. Depending upon the track of studies selected, Maritime Studies students may prepare for a range of careers including those in the maritime service and heritage tourism sectors as well as for graduate study in maritime and public history, English, journalism, marine policy and cultural resource management, planning and regulation, education, law, or business. The Maritime Studies Program takes advantage of the UConn-Avery Point campus' unique Long Island Sound location and its many coastal and maritime educational resources and research programs including the UConn Sea Grant Institute, the National Undersea Research Center, the Long Island Sound Resource Center, and Marine Sciences Department. Significant internship and research opportunities for students are also available through agreements with regional institutions that include Mystic Seaport, one of the world's premier maritime museums and research centers.

### Major Requirements

MARN 1001 is a prerequisite for the major. It is recommended that majors take MAST 1200 to satisfy General Education Content Area One.

#### Core Courses

All students are required to take MAST 2101. In addition, students must take five of the Core Courses listed below. Students must select these five courses from five different disciplines.

- Anthropology: ANTH/MAST 3531 or 3532;
- Economics: ECON 2467;
- English: ENGL 3650 or 3651;
- Geography: GEOG 2500;
- History: MAST/HIST 2210 or MAST/HIST 3544;
- Political Science: POLS 3832.

#### Disciplinary Concentration

Students must declare a concentration in one of the following six disciplines: Anthropology, Economics, English, Geography, History, or Political Science. One of the five Core Courses elected by the student must come from this discipline. Furthermore, the student must complete an approved sequence of three additional courses in the discipline at the 2000 level or above. Choice of concentration and course sequence must be approved by the MAST director or the student's advisor.

The writing in the major requirement can be met with MAST 4994W. Students will satisfy the information literacy requirement as they complete core courses.

#### Related Areas

Students must complete 12 credits in related areas. Courses are selected in conjunction with the MAST director or the student's advisor.

## Mathematics

The Mathematics Department offers programs of study in Mathematics, Applied Mathematical Sciences, Actuarial Science (in cooperation with the School of Business), Mathematical Statistics (in cooperation with the Department of Statistics), and Mathematics - Physics (in cooperation with the Department of Physics).

MATH 2010Q, 2011Q, 2720W, 2794W, and 3670W and STAT 3484 and 3494W may not be counted in any of the major groups listed below.

The Department offers both Bachelor of Science and Bachelor of Arts degrees in Mathematics, Applied Mathematical Sciences, Mathematics-Statistics, Mathematics-Actuarial Science, and Mathematics-Actuarial Science-Finance, and a Bachelor of Science in Mathematics-Physics. The Bachelor of Science program provides in-depth training in Mathematics as preparation for graduate study or for participation in scientific and engineering teams in government, industry, or research laboratories. The Bachelor of Arts degree is designed to provide training in contemporary mathematics without the depth and concentrated specialization required for the Bachelor of Science program. To satisfy the writing in the major and information literacy competencies in the Bachelor of Arts in Mathematics, the Bachelor of Science in Mathematics, the Bachelor of Arts in Applied Mathematical Sciences, and the Bachelor of

Science in Applied Mathematical Sciences, all students must pass one of the following courses: MATH 2710W, 2720W, 2794W, or 3796W.

### **Bachelor of Science in Mathematics**

The requirements for the B.S. in Mathematics are:

1. Either (i) MATH 2110Q (or 2130Q), 2210Q, 2410Q (or 2420Q), 2710 (or 2141Q-2142Q) or (ii) MATH 2141Q, 2142Q, 2143Q, 2144Q;
2. MATH 3150 (or 4110), 3151, 3230 (or 4210);
3. At least six additional credits from any of the following courses: MATH 2360Q, 3146, 3160, 3170, 3210, 3231, 3240, 3250, 3260, 3330 (or 4310), 3370, 3410, 3435, 3510, 3511, 3710, and approved sections of 3094 and 3795;
4. At least three additional credits from any of the following courses: MATH 3210, 3231, 3240, 3250, 3260, 3330 (or 4310), and 3370. In addition, at least 12 credits at the 2000 level or above in approved related areas are required.

### **Bachelor of Arts in Mathematics**

The requirements for the B.A. in Mathematics are 27 credits of 2000-level or above course work in Mathematics and 12 credits of course work in approved related areas. The required courses are:

1. Either (i) MATH 2110Q (or 2130Q), 2210Q, 2410Q (or 2420Q), 2710 (or 2141Q-2142Q), or (ii) MATH 2141Q, 2142Q, 2143Q, 2144Q;
2. MATH 3150 (or 4110), 3230 (or 4210);
3. At least three additional credits from any of the following courses: MATH 3151, 3210, 3231, 3240, 3250, 3260, 3330 (or 4310), and 3370. The remaining courses may come from any 2000-level or above Mathematics courses.

### **Bachelor of Science in Applied Mathematical Sciences**

The requirements for the B.S. in Applied Mathematical Sciences are

1. Either (i) MATH 2110Q (or 2130Q), 2210Q, 2410Q (or 2420Q), 2710 (or 2141Q-2142Q) or (ii) MATH 2141Q, 2142Q, 2143Q, 2144Q;
2. MATH 3150 (or 4110), 3410, 3510, and 3511;
3. Two courses selected from MATH 3146, 3151, 3160, 3170, 3435, 3710, and approved sections of 3094 and 3795;
4. At least three additional credits from MATH 2360Q, 3160, 3210 (or 4210), 3230, 3231, 3240, 3250, 3260, 3330 (or 4310), and approved sections of 3094 and 3795. In addition, at least 12 credits at the 2000 level or above in approved related areas are required.

### **Bachelor of Arts in Applied Mathematical Sciences**

The requirements for the B.A. in Applied Mathematical Sciences are 27 credits of 2000-level or above course work in Mathematics and 12 credits of course work in approved related areas.

The required courses for the degree are MATH 2110Q (or 2130Q or 2143Q), 2210Q (or 2143Q-2144Q), 2410Q (or 2420Q or 2144Q), 3510, 3410, and 3511.

The remainder of the 27 credits of Mathematics must be chosen from MATH 2710, 3146, 3150 (or 4110), 3160, 3170, 3210 (or 4210), 3250, 3435, and 3710.

### **Bachelor of Science or Arts in Mathematics-Statistics**

The requirements for the B.S. or B.A. in Mathematics-Statistics degree are 36 credits at the 2000 level or above in Mathematics and Statistics (in addition to MATH 2110Q or 2130Q), with at least 12 credits in each department.

The required courses for the Mathematics-Statistics major are MATH 2210Q or 3210 or (2143Q and 2144Q); 2410Q (or 2144Q); and STAT 3375Q and 3445.

To satisfy the Writing in the Major and Information Literacy competencies, all students must pass one of the following courses: MATH 2720W, 2794W, 3796W, or STAT 3494W.

### **Bachelor of Science or Arts in Mathematics-Actuarial Science**

The requirements for the B.S. or B.A. degree in Mathematics-Actuarial Science are 36 credits at the 2000 level or above in Mathematics, Statistics, Business, and related areas (in addition to MATH 2110Q or 2130Q or 2143Q).

The required courses are MATH 2210Q (or 2144Q), 2620, 3160, 3630 - 3631; STAT 3375Q-3445; either MATH 3632 or 3634; and either MATH 2610, HCMI 3221 or 4325. Students should include ECON 1201 and 1202, a Computer Science course, and ACCT 2001 and 2101 in their program of study as early as possible.

To satisfy the writing in the Major and Information Literacy competencies, all students must pass one of the following courses: MATH 2720W, 2794W, 3670W, or 3796W.

Admission to the Actuarial Science program will be available only to students who meet the following two requirements. First, the student must have a total grade point average of 3.2 or higher or a grade point average of 3.2 or higher in mathematics. The student must also satisfy one of the following:

1. completed MATH 1126Q or 1131Q with a grade of at least B;
2. successfully completed an honors calculus course with a grade of at least C;
3. received AP credit for MATH 1131Q; or
4. received a passing score on one or more of the actuarial examinations.

Students not satisfying one or more of the requirements may be admitted into the program by the Mathematics Department Actuarial Committee.

To remain as an Actuarial Science Major, the student is required to maintain a total grade point average of 3.2 or higher. Students who do not satisfy this requirement may remain in the major with the permission of the director of the Actuarial Science program or his/her designee. If the student is not continued in the program, but meets minimum University of Connecticut scholastic standards as outlined in the University Senate by-laws, the director or designee will work with the student to identify an appropriate alternative major.

### **Bachelor of Science or Arts in Mathematics-Actuarial Science-Finance**

The requirements for the B.S. or B.A. degree in Mathematics-Actuarial Science-Finance are 36 credits at the 2000 level or above in Mathematics, Statistics, Business, and related areas (in addition to MATH 2110Q or 2130Q or 2143Q) and 15 credits in Finance.

The required courses are MATH 2210Q (or 2144Q), 2620, 3160, 3630, 3631, 3650, 3660; STAT 3375Q, 3445, ACCT 2001, FNCE 3302, 4209, 4302, 4305, either MATH 3632 or 3634; either MATH 2610, HCMI 3221 or 4325, and either FNCE 4306 or 4895. Students should include ECON 1201 and 1202, and a Computer Science course in their program of study as early as possible.

To satisfy the writing in the Major and Information Literacy competencies, all students must pass one of the following courses: MATH 2720W, 2794W, 3670W, or 3796W.

This degree is offered through the College of Liberal Arts and Sciences. Admission to the Actuarial Science program will be available only to students who meet the following two requirements. First, the student must have a total grade point average of 3.2 or higher or a grade point average of 3.2 or higher in mathematics. The student must also satisfy one of the following:

1. completed MATH 1126Q or 1131Q with a grade of at least B;
2. successfully completed an honors calculus course with a grade of at least C;
3. received AP credit for MATH 1131Q; or
4. received a passing score on one or more of the actuarial examinations.

Students not satisfying one or more of the requirements may be admitted into the program by the Mathematics Department Actuarial Committee.

To remain as an Actuarial Science Major, the student is expected to maintain a total grade point average of 3.2 or higher.

## Bachelor of Science in Mathematics-Physics

The B.S. degree in Mathematics-Physics may be completed by following either track A, which has a physics emphasis, or track B, which has a mathematics emphasis. Students in track A should choose an advisor from the Physics Department, and those in Track B should choose an advisor from the Mathematics Department. In either track, the writing in the major and information literacy competencies are met using PHYS 2501W.

The required courses for the Mathematics-Physics Major Track A (Physics Emphasis) are:

1. Either: (i) MATH 2110Q (or 2130Q or 2143Q) and 2210Q and 2410Q (or 2420Q) or: (ii) MATH 2141Q and 2142Q and 2143Q and 2144Q.
2. All of: MATH 3146, 3410, 3510 and PHYS 2300, 2501W, 3101, 3201, 3202, 3300, 3401.
3. Any nine credits from: PHYS 2200, 2400, 2502, 3102, 3150, 3402, 3989, 4093, 4095, 4096W, 4098, 4099, 4100, 4130, 4140, 4150, 4210, 4300, 4350, 4900.

The required courses for the Mathematics-Physics Major Track B (Mathematics Emphasis) are:

1. Either: (i) MATH 2110Q (or 2130Q or 2143Q) and 2210Q and 2410Q (or 2420Q) and 2710 (or 2141Q and 2142Q) and 3146, or: (ii) MATH 2141Q and 2142Q and 2143Q and 2144Q and 3146
2. All of: PHYS 2300, 2501W, 3101, 3201, 3202, 3401.
3. Any three credits from: PHYS 2200, 2400, 2502, 3102, 3150, 3300, 3989, 4093, 4095, 4096W, 4098, 4099, 3402, 4100, 4130, 4140, 4150, 4210, 4300, 4350, 4900.
4. Any four courses from MATH 3150 (or 4110), 3151, 3160, 3210, 3230 (or 4210), 3330 (or 4310), 3370, 3410.

A minor in Mathematics is described in the “Minors” section.

## Molecular and Cell Biology

This B.S. program is suitable for students with interests that integrate the organismal, cellular and subcellular levels of biology, including the areas of biochemistry, cell biology, developmental biology, genetics and genomics, and microbiology, as well as their applications in biotechnology and medical science.

Many opportunities for independent research projects in these areas are open for undergraduates. BIOL 1107 is required in addition to the general CLAS requirements for the B.S. degree.

Courses required for the major: at least 24 credits in MCB, including:

**Group 1:** All of the following core courses: MCB 2400 or 2410, 2210, 2610, and 2000 or 3010

**Group 2:** CHEM 2443 and 2444

**Group 3:** Laboratory requirement: One laboratory course chosen from the following list: MCB 2225, 3189, 3413, 3633, 4026W, 4624, or three credits of 3989 or 4989.

A maximum of three credits from among MCB 3189, 3899, 3989 and 4989 may count toward the 24 credit requirement.

For breadth of study in biology, it is recommended that students take PNB 2250 and EEB 2244 or 2245. BIOL 2289 may be used to count toward the 24 credits of required MCB courses.

To satisfy the MCB writing in the major and information literacy competency requirements, students must take one of the following courses: Any MCB W course or EEB 2244W or 2245W.

A minor in Molecular and Cell Biology is offered. A minor in Bioinformatics is offered jointly by the School of Engineering and the College of Liberal Arts and Sciences. Both programs are described in the “Minors” section of this *Catalog*.

## Philosophy

The program in Philosophy introduces students to basic philosophical issues and acquaints them with techniques of philosophical inquiry. The program addresses problems in ethics, social and political philosophy, metaphysics, theory of knowledge, philosophy of science, logic, philosophy of religion, and aesthetics from both historical and contemporary perspectives.

Students majoring in Philosophy must pass 24 credits in Philosophy courses numbered 2000 or above, and 12 or more credits in related fields.

Required PHIL courses include:

- I. Both PHIL 2221 and 2222;
- II. At least one course in logic: PHIL 1102, 2211Q, 3214 (note that PHIL 1102 does not count toward the 24 credits in Philosophy courses numbered 2000 or above);
- III. At least one course in metaphysics or epistemology: PHIL 2210, 2212, 3241, 3250;
- IV. At least one course in moral, social, or political philosophy: PHIL 2215, 2217, 3216, 3218, 3220.

Students meeting the requirements for the major will automatically meet the exit requirements for information literacy. The exit requirement for writing in the major can be satisfied by passing any W course in Philosophy numbered 2000 or above.

A minor in Philosophy is described in the “Minors” section.

Philosophy also offers a joint-major with the Department of Linguistics. The description of the Linguistics-Philosophy major appears under the Linguistics major.

## Physics

Physics, a fundamental and quantitative science, involves the study of matter and energy, and interactions between them. The subject is generally divided into mechanics, electricity and magnetism, statistical and thermal physics, and quantum physics. These form the foundation for present-day research areas, which include astrophysics, atomic, molecular and optical physics, condensed matter physics, nuclear physics, and the physics of particles and fields. In addition to a knowledge of physics, students gain a rigorous training in logical thinking and quantitative problem solving. An education in physics can also provide an entry into many other fields such as biophysics, geophysics, medical physics, and engineering, as well as into less technical fields such as secondary education, technical sales, and science writing. Many students have also found that physics is an excellent preparation for the study of medicine, dentistry, or law.

The preferred introductory sequence for a major in physics, common to all physics degree programs, consists of PHYS 1600Q, 1601Q, and 1602Q. There are two options for the Bachelor of Science degree in physics: (1) the general option for students seeking to further their physics studies in graduate school and/or a career in research, and (2) the applied option, for students seeking graduate study in another field, medicine or dentistry, or a technical career in industry. The Bachelor of Arts degree in physics is ideal for pre-medical, pre-dental, or pre-veterinary students, students seeking double majors, or students seeking a middle or high school teaching career. There is also a Bachelor of Science in Engineering Physics offered jointly with the School of Engineering with possible emphases on Electrical Engineering, Mechanical Engineering, or Materials Science and Engineering. There is also a Bachelor of Science in Mathematics-Physics that is offered jointly with the Department of Mathematics.

Students satisfy the information literacy competency exit requirements in the Physics Major, by passing PHYS 2300 and 2501W, both required courses for the Physics Major. The University’s computer technology and writing competency requirements are achieved by passing PHYS 2501W. These requirements apply to both the Physics B.S. and the B.A. degrees. Courses that further enhance competencies are PHYS 2200 for computer technology, and PHYS 4096W for writing skills.

## Bachelor of Science, General Option:

A total of 48 credits from 2000-level or above courses in physics, other sciences, mathematics, or engineering are required. Among these, 36 credits must be physics courses. The 36 credits of physics must include PHYS 2300, 2501W, 3101, 3201, 3202, 3300, and 3401, and at least three credits of an advanced laboratory (PHYS 2502, 3150, or 4900). It is strongly recommended that students going on to graduate school in physics take PHYS 3402. All students are strongly encouraged to participate in an undergraduate research project. An experimental research project (PHYS 4099) may count towards the advanced laboratory requirement. No more than six credits from PHYS 4099 may be counted towards this degree option. The general option for the Bachelor of Science degree requires

a minimum of 12 credits from 2000-level or above related courses in mathematics, other sciences, or engineering.

### Bachelor of Science, Applied Option:

A total of 48 credits from 2000-level or above courses in physics, other sciences, mathematics, or engineering are required. Among these, 30 credits must be physics courses. The 30 credits must include PHYS 2300, 2501W, 3101, 3201, and 3300, plus a minimum of nine credits from the following eight courses: PHYS 2502, 3150, 4140, 4150, 4210, 4350, 4900, and 5621, with at least three of the nine credits being from an advanced laboratory (PHYS 2502, 3150, or 4900). These eight courses involve the application of knowledge from multiple basic subjects, i.e., from mechanics, electricity and magnetism, statistical and thermal physics, and quantum mechanics. All students are strongly encouraged to participate in an undergraduate research project. An experimental research project (PHYS 4099) may count towards the advanced laboratory requirement. The applied option for the Bachelor of Science degree requires a minimum of 12 credits from 2000-level or above related courses in mathematics, other sciences, or engineering. To complete the 48 total required credits for the applied option, the remaining six credits may come from 2000-level or above courses in physics, other sciences, mathematics, or engineering. No more than six credits from PHYS 4099, may be counted towards this degree option.

### Bachelor of Arts:

A total of 36 credits from 2000-level or above courses in physics, other sciences, mathematics, or engineering are required. Among these, 24 credits must be physics courses which must include PHYS 2300, 2501W, 3101 and 3201, and 3300 along with sufficient credits of elective physics courses to meet the 24-credit requirement. No more than six credits from PHYS 4099 may be counted towards this degree. The Bachelor of Arts degree requires a minimum of 12 credits from 2000-level or above related courses in mathematics, other sciences, or engineering.

### Bachelor of Science in Engineering Physics:

Offered jointly by the School of Engineering and the Department of Physics in the College of Liberal Arts and Sciences, Engineering Physics majors can concentrate in either (1) Electrical, (2) Materials Science and Engineering or (3) Mechanical. To complete the degree, students must satisfy the course requirements of the College or School granting the degree.

The major requires 128 credits of course work.

Engineering Physics majors are required to complete the following:

- CHEM 1128Q or 1148Q
- PHYS 2300, 2501W, 3101, 3201, 3202, and 3401
- MATH 2110Q, 2410Q, and 3410

**Electrical Engineering:** ECE 2001W, 3101, 3111, 3201, 4111, 4211, 4901, and 4902; CSE 2300W; MATH 2210Q; PHYS 3300; STAT 3345Q; Elective courses (four credits).

**Mechanical Engineering:** ME 2233, 2234, 3220, 3227, 3242, 3250, 3253, 4972 and 4973W; CE 2110, 3110; STAT 3345Q; ME Elective Courses (six credits); PHYS Elective courses (six credits).

**Materials Science and Engineering:** MSE 2001, 2002, 2053, 3001, 3002, 3003, 3004, 3055 and 3056, 4003W, 4901 and 4902W; CHEG 3156; PHYS 4150 and 4210; MSE Elective Courses (six credits); Physics Elective Courses (three credits).

Students in the Bachelor of Science in Engineering Physics are required to pass ENGR 1000 in addition to PHYS 2300 in order to satisfy the information literacy competency requirement; they are required to pass CSE 1100 or the equivalent, in addition to PHYS 2501W, in order to satisfy the computer technology competency requirement; and PHYS 2501W will suffice to satisfy the writing in the major requirement.

The options for the electives courses are specified in the *Engineering Physics Guide to Course Selection*.

### Bachelor of Science in Mathematics-Physics

The B.S. degree in Mathematics-Physics may be completed by following either Track A, which has a physics emphasis, or Track B, which has a

mathematics emphasis. Students in Track A should choose an advisor from the Physics Department, and those in Track B should choose an advisor from the Mathematics Department. The number of credits for 2000-level courses or above in the Track A is 30 in Physics and 19 in Mathematics, and for Track B these numbers are 21 credits in Physics and 28 in Mathematics. In either track, the writing in the major and information literacy competencies are met using PHYS 2501W.

In addition to the general education's requirements of the University and College, the required courses for the Mathematics-Physics Major Track A (Physics Emphasis) are:

1. Either: (i) MATH 2110Q (or 2130Q or 2143Q) and 2210Q and 2410Q (or 2420Q) or: (ii) MATH 2141Q and 2142Q and 2143Q and 2144Q.
2. All of: MATH 3146, 3410, 3510 and PHYS 2300, 2501W, 3101, 3201, 3202, 3300, 3401.
3. Any nine credits from: PHYS 2200, 2400, 2502, 3102, 3150, 3989, 4093, 4095, 4096W, 4098, 4099, 3402, 4100, 4130, 4140, 4150, 4210, 4300, 4350, 4900.

The required courses for the Mathematics-Physics Major Track B (Mathematics Emphasis) are:

1. Either: (i) MATH 2110Q (or 2130Q or 2143Q) and 2210Q and 2410Q (or 2420Q) and 2710 (or 2141Q and 2142Q) and 3146, or: (ii) MATH 2141Q and 2142Q and 2143Q and 2144Q and 3146
2. All of: PHYS 2300, 2501W, 3101, 3201, 3202, 3401.
3. Any three credits from: PHYS 2200, 2400, 2502, 3102, 3150, 3300, 3989, 4093, 4095, 4096W, 4098, 4099, 3402, 4100, 4130, 4140, 4150, 4210, 4300, 4350, 4900.
4. Any four courses from MATH 3150 (or 4110), 3151, 3160, 3210, 3230 (or 4210), 3330 (or 4310), 3370, 3410.

A minor in Physics is described in the "Minors" section.

## Physiology and Neurobiology

This major leads to a Bachelor of Science, and is suitable for students interested in the physiology and neurobiology of humans and animals. Coursework and independent study opportunities span the fields of comparative physiology, neurobiology, molecular endocrinology, reproductive endocrinology, developmental neurobiology and neurochemistry.

The following 1000's level courses are required: BIOL 1107, 1108; CHEM 1124Q-1126Q or 1127Q-1128Q; MATH 1131Q-1132Q or 1125Q-1126Q-1132Q; PHYS 1201Q-1202Q-1230 or 1401Q-1402Q or 1601Q-1602Q

PNB majors must take no fewer than 24 credits in PNB courses numbered 2000 and above. This must include all of the following core courses: PNB 2274-2275, 3251, and 3262 or 3265. The remaining credits needed to fulfill this requirement should be selected from the available PNB courses, including PNB 2250, 3180, 3252, 3260, 3263WQ, 3264W, 3275, 3278, 3279, 3295, 3299, 4162, 4296W, 4400. At most three credits from among PNB 3180, 3295, and 3299, and not more than one credit of PNB 3279, may count towards the 24 credit requirement.

To satisfy the writing in the major and information literacy competency requirements, all students must pass at least one of the following courses: PNB 3263WQ, 3264W, or 4296W.

PNB majors must also take all of the following courses, which count as the related group: CHEM 2443, 2444; MCB 2000 or 3010 and MCB 2400 or 2410.

In addition, students are urged to take: CHEM 2445; EEB 2244 or 2245; and MCB 2210.

There is a minor in Physiology and Neurobiology. A minor in Neuroscience is offered jointly by the Physiology and Neurobiology Department and the Psychology Department. Both programs are described in the "Minors" section of this *Catalog*.

## Political Science

Political Science serves students whose primary interest is in some phase of public affairs (law, politics, government service) or international relations (foreign service), in gaining a better understanding of the entire field of governmental organization and functions.



**Major Courses:** A minimum of 24 credits in Political Science numbered 2000 or above (none on a pass-fail basis). Inter-departmental courses may not be included in the 24 credits. No more than six credits of independent study and/or field work (of which no more than three credits may be for POLS 3991) can be counted toward the 24 credits.

**A.** Students majoring in Political Science must pass introductory 1000-level courses in three of the following four subdivisions: Theory and Methodology (1002), Comparative Politics (1202 or 1207), International Relations (1402), and American Politics (1602). It is recommended that these courses should be taken during the student's first two years of study.

**B.** All majors in political science must pass at least one course in four of the following six subdivisions (total of 12 credits). A W or Q course may be substituted for the same numbered course. Cross-listed courses may count only once toward this distribution requirement:

1. Theory and Methodology: 2072, 3002, 3012, 3017, 3022W, 3032, 3042, 3062, 3072, 3082, 3672
2. Comparative Politics: 2222, 3202, 3205, 3206, 3208, 3212, 3214W, 3216, 3228, 3235, 3237, 3239, 3245, 3252, 3255, 3256
3. International Relations: 3402, 3406, 3410, 3412, 3414, 3418, 3422, 3429, 3432, 3437, 3438W, 3442, 3447, 3457, 3462, 3464, 3472, 3476
4. American Politics: 2607, 2622, 3602, 3604, 3612, 3613, 3615, 3617, 3622, 3625, 3627, 3632, 3642, 3647, 3652, 3662, 3667, 3850
5. Public Administration, Policy and Law: 3802, 3807, 3812, 3817, 3822, 3827, 3832, 3834, 3837, 3842, 3847, 3852, 3857
6. Race, Gender, and Ethnic Politics: 3082, 3210, 3216, 3218, 3252, 3418, 3464, 3632, 3642, 3647, 3652, 3662, 3667, 3672, 3807, 3834, 3837

POLS 2998 and 3995 may be counted toward this distribution only with consent of advisor. POLS 3426, 3991, 3993, 3999, 4994, 4997W may not be counted toward the Group B distribution requirement.

The writing in the major requirement may be satisfied by passing any 2000-level W course. Advanced information literacy exit requirements are incorporated into all W courses in the major, and students who successfully complete political science W courses will have met this requirement.

A minor in Political Science is described in the "Minors" section.

## Psychological Sciences

The Department of Psychological Sciences recommends that its majors take a broad selection of psychology courses and electives to obtain a well-rounded introduction to the science. The Department encourages students to participate in its research activities, including laboratory courses, research seminars, and independent study experiences.

The Department advises students planning to major in psychology to secure a background in the basic sciences and relevant social sciences, preferably before their junior year. Suggested courses include BIOL 1102, 1107, or 1108; ANTH 1006 or 2000; and SOCI 1001. If at all possible, majors should take STAT 1100Q (or 1000Q) by their third semester.

A maximum of seven 2000-level or above transfer credits in psychology may count toward the major upon approval of the transfer coordinator in the Department of Psychological Sciences.

Up to three credits of PSYC 3889 or 3899 can be used, and PSYC 3880 cannot be used.

All Department of Psychological Sciences majors are required to take two introductory-level psychology courses—General Psychology I (PSYC 1100) and either General Psychology II (PSYC 1101) or General Psychology II (Enhanced) (PSYC 1103)—followed by at least 25 2000-level or above psychology credits, which are grouped as follows:

### Foundation

PSYC 2100Q or 2100WQ.

### Area I. Social, Developmental, Clinical, and Industrial/Organizational

PSYC 2300 or 2300W, 2301, 2400, 2600, 2700.

### Area II. Experimental and Behavioral Neuroscience

PSYC 2200, 2500, 2501, 3201, 3500, 3501.

### Area III. Cross Area (I and II)

PSYC 2110, 2201, 3100/W, 3102, 3105, 3400, 3601.

### Area IV. Advanced and Specialty Lecture Courses

Includes Area III courses except for PSYC 3100/W: PSYC 2101, 2110, 2201, 2701, 3101, 3102, 3103, 3104, 3105, 3106, 3200/W, 3300, 3301, 3400, 3470, 3502, 3503, 3600, 3601, 3670/W, 3770, 3883, 3884, 3885.

### Laboratory Courses

PSYC 3150, 3250W, 3251, 3252, 3253, 3350W, 3450W, 3550W, 3551W, 3552.

### Research

PSYC 3889, 3899, 4197W.

### Tracks

After completing PSYC 1100 and 1101 (or 1103), students must select one of our tracks for their major: Standard (B.A. or B.S.); Research Concentration (B.A. or B.S.); or Honors (B.A. or B.S.). The requirements for each of these tracks are as follows:

#### Bachelor of Arts: Standard

25 PSYC credits, including: 2100Q or 2100WQ, two Area I courses, two Area II courses, one Area III course, two other 2000-level or above PSYC courses from any areas, 12 related 2000-level or above non-PSYC credits

#### Bachelor of Science: Standard

25 PSYC credits, including: 2100Q or 2100WQ, two Area I courses, two Area II courses, one Area III course, two Area IV laboratory courses, 12 related 2000-level or above non-PSYC credits

#### Bachelor of Arts: Research Concentration

31 PSYC credits, including: 2100Q or 2100WQ, two Area I courses, two Area II courses, 3100 from Area III, two Area IV courses (lecture and/or laboratory), three credits of Area IV research, one other 2000-level or above PSYC course from any area, 12 related 2000-level or above non-PSYC credits

#### Bachelor of Science: Research Concentration

31 PSYC credits, including: 2100Q or 2100WQ, two Area I courses, two Area II courses, 3100 from Area III, two Area IV laboratory courses, three credits of Area IV research, one other 2000-level or above PSYC course from any area, 12 related 2000-level or above non-PSYC credits

#### Bachelor of Arts: Honors

(Available only to students accepted into the University Honors Program)

31 PSYC credits, including: 2100Q or 2100WQ, two Area I courses, two Area II courses, 3100 from Area III, two Area IV courses (lecture and/or laboratory), 3899 and 4197W from Area IV research, 12 related 2000-level or above non-PSYC credits

#### Bachelor of Science: Honors

(Available only to students accepted into the University Honors Program)

31 PSYC credits, including: 2100Q or 2100WQ, two Area I courses, two Area II courses, 3100 from Area III, two Area IV laboratory courses, 3899 and 4197W from Area IV research (4197W may be substituted for one of the laboratory courses. If substituted, student must take one other 2000-level or above PSYC course from any area.), 12 related 2000-level or above non-PSYC credits

**Related 2000-level or above non-psychology courses.** At least 12 credits.

Must be approved by advisor prior to registration. Because of content overlap, COMM 3100, EPSY 3010, and HDFS 2100 may not be used.

### Computer Technology

To satisfy the computer technology competency, all students must pass PSYC 2100Q/2100WQ. Other courses that will further enhance

competency in computer technology include PSYC 3250W, 3350W, 3450W, 3550W, 3889, 3899, and 4197W.

### Information Literacy

To satisfy the information literacy competency, all students must pass PSYC 2100Q/2100WQ. Other courses that will further enhance competency in information literacy include PSYC 1100, 1103, 3250W, 3350W, 3450W, 3550W, 3889, 3899, and 4197W.

### Writing in the Major

To satisfy the writing in the major requirement, all students must pass PSYC 2100WQ. Other courses that will further help students develop writing skills in psychological science are PSYC 2300W, 3100W, 3200W, 3250W, 3350W, 3450W, 3550W, 3551W, 3600W, 3670W, 3770W, and 4197W. For students who have taken PSYC 2100Q rather than 2100WQ, any 2000-level or above PSYC W course may be used to satisfy the writing in the major requirement.

There is a minor in Psychological Sciences. A minor in Neuroscience is offered jointly by the Department of Psychological Sciences and the Department of Physiology and Neurobiology. Both programs are described in the Minors section.

The Department of Psychological Sciences also offers a joint major with the Department of Linguistics. The description of the Linguistics-Psychology major appears under *Linguistics*.

## Sociology

Sociology is an analytic discipline concerned with understanding people as creators of, and participants in, society. The field is broadly concerned with the study of modern society and its social organizations, institutions, groups, and social roles. Sociologists study social influences on human behavior, such as sexuality, ethnic identity, and religious belief, and how individuals become members of families and communities. The field is also concerned with social problems, especially all forms of prejudice, discrimination, and inequality, and with poverty, crime, violence, and the threatened environment. Sociologists emphasize sources of social problems in the organization of society, public policies for their alleviation, and today's questions of social justice. Finally, they study how individuals, both alone and working in groups, can change the society in which they live. A major in sociology opens many doors for careers and is excellent background for advanced training in a variety of other fields.

At least 24 credits of SOCI courses at the 2000 level or above are required:

Three specific courses are required of all majors: SOCI 3201, 3211Q, 3251. (Note: Students must take SOCI 1001, 1251, 1501 or 1701 prior to taking SOCI 3201, 3211Q, and 3251.)

Passing SOCI 3201 satisfies the information literacy competency, and passing SOCI 3211Q satisfies the computer technology competency. The writing in the major requirement can be satisfied by passing any 2000 or 3000-level W course in Sociology.

At least one course must be taken from the following group: Inequality, Diversity, and Change (SOCI 2827, 3221, 3222, 3421, 3429, 3501, 3503, 3505, 3601, 3621, 3701, 3801, 3821, or 3825)

Twelve additional credits (usually four courses) must be taken from any 2000-level or above courses offered by the department, including those listed above. (Note: No more than three credits of SOCI 3990 can apply to the major).

A minor in Sociology is described in the "Minors" section.

## Speech, Language and Hearing Sciences

The Speech, Language, and Hearing Sciences major is a pre-professional program within the liberal arts and sciences curriculum. It provides a broad overview of normal speech, language and hearing development. In addition a variety of speech, language, and hearing disorders are introduced. This major permits the student to apply for graduate studies in one of two specialty areas: audiology or speech-language pathology.

Students who want to learn more about the fields of audiology and speech-language pathology, but are unsure about declaring the major are

encouraged to take SLHS 1150. Students may declare the major by going to [ppc.uconn.edu](http://ppc.uconn.edu).

Successful completion of the B.A. degree in Speech, Language, and Hearing Sciences requires the following:

1. A total of 25 credits at the 2000 level or higher in Speech, Language, and Hearing Sciences.
2. Courses on normal development of speech, language, and hearing including: SLHS 2203, 2204, 2156Q, and 3247.
3. Courses on measurement and disorders of speech, language and hearing including: SLHS 3248, 4249 or 4249W, and two (2) of the following: SLHS 4245 or 4245W, 4251, or 4254 or 4254W.
4. Twelve (12) credits of related coursework. Related courses can be tailored to the interests and needs of the student but must be approved by a Speech, Language, and Hearing Sciences advisor.
5. Nine (9) credits of elective coursework. Elective courses can be any 2000-level or higher course of interest to the student.
6. Students must take one course in each of the following areas: (a) Statistics: STAT 2215Q; (b) Biological science: BIOL 1102, 1107 or 1108; (c) Physical science: PHYS 1010Q or PHYS 1075Q. More advanced level courses may be substituted for these courses.
7. It is recommended that students accumulate a total of 25 hours of approved observations of assessment and treatment of speech, language and hearing disorders.

The information literacy competency is met by the successful completion of required courses.

To satisfy the writing requirement in the major, students must pass at least one course from SLHS 4245W, 4249W, or 4254W. Honors students may use SLHS 4296W to satisfy the writing requirement in the major.

## Statistics

The Department of Statistics offers work leading to degrees in theoretical and applied statistics.

At the undergraduate level, the department offers a major in statistics and a major in mathematics-statistics. The latter is offered jointly with the Mathematics Department.

STAT 3484 and 3494W may not be counted in the Statistics or the Mathematics-Statistics majors.

The statistics major requires 24 credits at the 2000 level or above in statistics, including STAT 3375Q and 3445. MATH 2210Q or 3210 is strongly recommended. Since STAT 3375Q has MATH 2110Q or 2130Q as a prerequisite, students should begin the calculus sequence as soon as possible.

Students without mathematical background who wish some skill in statistical methodology should take STAT 1100Q followed by 2215Q. Students interested in the statistical analysis of business and economic data should take STAT 1000Q followed by 2215Q. Students with the appropriate calculus prerequisite should take STAT 3025Q rather than STAT 1000Q or 1100Q and 2215Q. STAT 3115Q and 3515Q are appropriate continuations for each of these three introductory sequences. Students interested in statistics as a mathematical discipline should complete STAT 3375Q-3445.

Students who complete the requirements for the statistics major will satisfy the computer technology requirement. To satisfy the information literacy competency and writing in the major requirement, statistics majors must take the STAT 3484 and 3494W sequence.

## Bachelor of Science or Arts in Mathematics-Statistics

The requirements for the B.S. or B.A. in Mathematics-Statistics degree are 36 credits at the 2000 level or above in Mathematics and Statistics (in addition to MATH 2110Q or 2130Q), with at least 12 credits in each department.

The required courses for the Mathematics-Statistics major are MATH 2210Q or 3210 or (2143Q and 2144Q); 2410Q (or 2144Q); and STAT 3375Q and 3445.

To satisfy the Writing in the Major and Information Literacy competencies, all students must pass one of the following courses: MATH 2720W, 2794W, 3796W, or STAT 3494W.

A minor in Statistics is described in the “Minors” section.

## Structural Biology and Biophysics

This B.S. program emphasizes the physical and chemical foundations of molecular biology. A total of 36 credits at the 2000 level or above from the following courses are required for the major.

### Required courses

MATH 2110Q or 2130Q; MATH 2410Q or 2420Q; CHEM 2443 and 2444; CHEM 3563 and 3564; CHEM 2445 or 3565W; MCB 3010 or 2000 and 4026W; MCB 4008 or 5038 or Special Topics: MCB 3895 (with Biophysics Program approval); MCB 4009

### Recommended courses

MCB 2210, 2410, 2610, 3201, 3412, 3421, 3617, 3899, 4026W, 4997W, 5035; CHEM 3332, 4551; CSE 1100; MATH 3210

To satisfy the writing in the major and information literacy competency requirements, all students must take one of the following courses: MCB 3841W, 4026W, 4997W; CHEM 3170W, 4196W; or any W course approved for this major.

## Urban and Community Studies

The undergraduate major in Urban and Community Studies is an interdisciplinary program in the College of Liberal Arts and Sciences with a focus on educating citizens on the multiple dimensions of urban and community life and preparing students for careers in public and community service as well as graduate study in social work, public administration, law, planning, public health, or other related areas.

The major has three parts. First, students receive a broad education in the study of cities, suburbs, neighborhoods and communities through core courses in three fields drawn from Economics, Geography, History, Political Science, Public Policy, Sociology, and Urban and Community Studies. Second, students acquire a solid foundation in analytical techniques such as statistical analysis, survey research, geographic information systems, qualitative methods, or archival research. Finally, students take additional electives in order to broaden their academic training or to develop a deeper specialization in selected areas.

### Requirements of the major

1. URBN 2000, 4000/W
2. Three of the following with no more than one per department (cross-listed courses count towards the non-URBN department): ECON 2439, 2456; GEOG/URBN 3200; GEOG 2000, 2400, 4210; HIST/URBN 3541; HIST 3554; HIST/AFRA 3564; HIST 3674/LLAS 3220; POLS 3842 or PP 3031; POLS/URBN 3632/W; PP 4034; SOCI 3901/URBN 3275; SOCI 3425; 3911; URBN 3000.
3. One of the following: ECON 2327; GEOG 2500, 3500Q; POLS 2072Q; PP/URBN 2100; PP 3010; SOCI 3201; STAT 2215Q; URBN 2301Q, 2302.
4. Two additional courses selected from Group 2, Group 3, or the following list: ANTH 3150; ECON 2328, 2431, 3431; ECON/URBN 3439; EDLR 3547/W; ENGL 3235W; GEOG 4200W; HIST 3102, 3520; HIST 3530/AASI 3578; HIST/AFRA/HRTS 3563; HIST/AFRA 3568; HIST/URBN 3650; HDFS 2001, 3110, 3510, 3530, 3540; INTD 3584; LLAS 3270/POLS 3662; POLS/AFRA 3642; POLS/HRTS 3212; POLS 2622, 3406, 3617, 3847; PP 3001, 3020, 4033, PP/AFRA 3033/ POLS 3633; SOCI/HRTS 3429; SOCI 3459/HDFS 3240; SOCI 2301, 3501, 3521, 3601, 3907; SOCI/AFRA/HRTS 3825; SOCI 3903/URBN 3276; URBN 3981/3991 (three credits combined) or INTD 3594; URBN 3993, 3995, 3998, 4497W, 4999.

In order to assure a breadth of experience, students are encouraged to take courses which include content in each of the following areas: change over time, structural and spatial dimensions, diversity, power and decision-making, and political and social processes. One unique option for students is to enroll in the 15 credit Urban Semester Program, which provides major credit for two courses INTD 3584 and 3594.

Students interested in pursuing a program in Urban and Community Studies are advised to complete 1000-level courses in the social sciences which may be prerequisites for courses in Urban and Community Studies. These include, but are not limited to, GEOG/URBN 1200; ECON 1201; POLS 1602; PP 1001; SOCI 1001, 1251; STAT 1000Q/1100Q; and URBN 1300W. They should also plan on enrolling in URBN 2000 as soon as possible.

The writing within the major requirement can be met by taking any of the following courses: ECON 2328W; GEOG 4200W; HIST/URBN 3541W; POLS/URBN 3632W; PP 3020W; SOCI 3429W; SOCI 3459W/HDFS 3240W; SOCI 3521W, 3601W; SOCI 3901W/URBN 3275W; SOCI 3903W/URBN 3276W; SOCI 3907W; URBN 2000W, 4000W or any 2000-level or above W course approved for this major. Students should be aware, however, that availability of specific W courses varies by campus. The information literacy requirements are met by successfully completing URBN 2000.

A minor in Urban and Community Studies is described in the “Minors” section.

## Women’s, Gender, and Sexuality Studies

The Women’s, Gender, and Sexuality Studies Program is a flexible interdisciplinary academic program devoted to pursuit of knowledge concerning women and the critical analysis of the production of gender and sexuality within transnational and cross-cultural contexts. Combining the methods and insights of traditional academic disciplines with the special insights of feminist studies, gender studies, and sexuality studies, our courses focus on understanding the origins of and changes in diverse cultural and social arrangements. The Women’s, Gender, and Sexuality Studies major is broad as well as flexible.

The Program is committed to a vision of people of diverse sexualities and genders that is truly transnational and cross-cultural and that recognizes the diversity of sexual and gender desires, practices, and identifications, as well as racial, ethnic, class and religious differences.

The Program prepares students to employ critical learning in their private lives, in their public roles as citizens and as members of the work force, and enhances their ability to advocate for gender and sexual justice. Women’s, Gender, and Sexuality Studies fosters interdisciplinary breadth and critical thinking and thus opens the way to a wide variety of career choices and graduate programs. Our students are flourishing in social service agencies, business, law, education, and journalism, and employers appreciate the broad interdisciplinary perspective of a Women’s, Gender, and Sexuality Studies education.

### Core Courses

Students are required to pass the following Core Courses: One 1000-level WGSS Introductory Course; WGSS 3265W; WGSS 2250 or PHIL 3218; WGSS 3891/3894; WGSS 4994W.

### Supporting Courses

Students are required to pass five 2000-level or above Supporting Courses (15 credits). At least three of these courses will be Women’s, Gender, and Sexual Studies or cross-listed courses. Two of the five supporting courses may include cross-listed courses that cover special topics relevant to feminist scholarship in various departments. Such cross-listed courses will be applied to the major with approval of the Program Director or Academic Advisor.

Students may choose one or more of the following emphases to focus their field of study: Gender and Globalization/Transnational Feminisms; Sexualities; Gender, Science, and Health; or Arts, History, and Culture. These four emphases can readily reflect individual interests or complement a course of study in a second major. Participation in a defined emphasis is not required.

### Related Courses

Students must pass an additional 12 credits at the 2000 level or above in fields closely related to the major. No required course in the major or in the related area may be taken pass/fail.

## General Education Competencies

Information Literacy and Writing in the Major: Passing the core courses WGSS 3265W and 4994W will fulfill these competencies.

A minor in Women's, Gender, and Sexuality Studies is described in the "Minors" section.

## Alternative Areas of Study

### Asian and Asian American Studies Institute

The Asian and Asian American Studies Institute is a leading East Coast multidisciplinary research and teaching program that reflects the heterogeneity of both Asian American Studies and Asian America. Although the primary focus of the Institute is upon experiences of people of Asian ancestry in America, attention is also given to the study of Asia, since Asian informs the Asian American Experience.

The Asian and Asian American Studies Institute has nationally recognized holdings on the Japanese American Internment and the Fred Ho Collection. The Institute has hosted a number of national initiatives. The Institute's commitment to community engagement is apparent in its programming, such as the annual Nazrul Conference and "Day of Remembrance" Lecture.

The Institute offers courses and the description of a minor in Asian American Studies is listed in the "Minors" section of this Catalog.

For further information, contact the Asian and Asian American Studies Institute, Beach Hall, Room 416, (860) 486-4751 or visit their website at [asianamerican.uconn.edu](http://asianamerican.uconn.edu).

### Comparative Literary and Cultural Studies

Comparative Literary and Cultural Studies (CLCS) is for students who like literature but do not wish to major in English or in a single language offered by the Department of Literatures, Cultures and Languages. It is an individualized major in Literature itself. The program draws on all departments in the College of Liberal Arts and Sciences and works in conjunction with European Studies, Women, Gender, and Sexuality Studies, Medieval Studies, the Center for Latin American Studies, the Center for Contemporary African Studies, the Center for Asian Studies and the School of Fine Arts, Film Studies, Mideast Studies and Judaic Studies.

For further information, contact the Comparative Literary and Cultural Studies Program, Oak Hall East SSHB, Room 207; [clcs.uconn@gmail.com](mailto:clcs.uconn@gmail.com) or visit their website at [languages.uconn.edu/programs/clcs](http://languages.uconn.edu/programs/clcs).

### El Instituto: Institute of Latina/o Caribbean and Latin American Studies

On July 1, 2012 the University of Connecticut inaugurated El Instituto: Institute of Latina/o, Caribbean and Latin American Studies, a new research institute in the College of Liberal Arts and Sciences. The institute is a merger and revision of all the constituent elements of the former Center for Latin American and Caribbean Studies and the former Institute of Puerto Rican and Latino Studies.

Offering degrees grounded in both traditional disciplinary and interdisciplinary methodologies, El Instituto is at the forefront of new ways of thinking about hemispheric Latina/o diasporas, U.S. Latina/os, Latin American and Caribbean societies and U.S./Latin American relations related to coloniality, race, migration, education, media, economics, health, cultural studies and human rights. The institute, located on the second floor of the Ryan Building provides a central place for research, scholarship, and academic programs uniting over 60 scholars at the University of Connecticut. It also offers linkages to local, regional, national and hemispheric academic communities and areas of investigation with a historical research focus on the life of Latino and Puerto Rican communities in New England.

El Instituto plays prominent roles in national organizations and its faculty are active in research consortia throughout Latin America and the

Caribbean. It has a formal collaborative relationship with the university library and its dedicated librarian and curator for the significant holdings in U.S. Latino, Latin American and Caribbean materials. Endowed funds help procure new primary materials for the collection and sponsor the annual Eyzaguirre and Mead lecture series that bring renowned scholars to campus for talks and workshops.

Courses are offered under Latino and Latin American Studies (LLAS) and the descriptions of minors in Latin American Studies and Latino Studies are listed in the "Minors" section of this Catalog.

For further information contact, 860-486-5508, [elinstituto@uconn.edu](mailto:elinstituto@uconn.edu) or visit their website at [elin.uconn.edu](http://elin.uconn.edu).

### Judaic Studies

The Center for Judaic Studies and Contemporary Jewish Life at the University of Connecticut in Storrs is housed in the Thomas J. Dodd Research Center. The threefold purpose of the Center is to foster academic study and research in Judaic Studies, offer undergraduate and graduate courses for academic concentration and enrichment as well as training for service in the community by providing a Judaic Studies component, and provide resources for continuing education in Judaic Studies and related areas of scholarly inquiry.

Courses in Hebrew and Judaic Studies are listed under Hebrew and Judaic Studies (HEJS) as well as History (HIST) and Sociology (SOCL). Students may major in Judaic Studies through the College of Liberal Arts and Sciences Individualized Major. The description of a minor in Judaic Studies is listed in the "Minors" section of this Catalog.

For further information, contact the Center for Judaic Studies and Contemporary Jewish Life, Unit 1205, Dodd Center, (860) 486-2271 or visit their website at [judaicstudies.uconn.edu](http://judaicstudies.uconn.edu).

### Law

Please refer to the "General Information" section of this Catalog for information about pre-law advising.

### Medicine and Dentistry

Students planning for a career in medicine or dentistry need a rigorous and broad education in the liberal arts and sciences, as well as a strong record of academic achievement. Guidance in the structuring of academic programs, including selection of a major, should be done in consultation with advisors from the Pre-medical/Pre-dental Advising office.

For further information about gaining admission to schools of medicine, dentistry, ophthalmology, optometry and other health-related disciplines, contact the program advisors (Pre-Med) Dr. Joseph Crivello, Torrey Life Science Building, Room 113 (860) 486-5415, [joseph.crivello@uconn.edu](mailto:joseph.crivello@uconn.edu), (Pre-Med) Dr. Keat Sanford, John W. Rowe Center for Undergraduate Education Building, Room 407 (860) 486-1655, [keat.sanford@uconn.edu](mailto:keat.sanford@uconn.edu), or (Pre-Dental) Dr. Thomas Abbott, Torrey Life Science Building, Room 212, (860) 486-2939, [thomas.abbott@uconn.edu](mailto:thomas.abbott@uconn.edu) or visit their website at [premed.uconn.edu](http://premed.uconn.edu).

### Medieval Studies Program

Faculty in the Departments of Art and Art History; English; History; Literatures, Cultures and Languages; and Music offer courses with an interdisciplinary approach to provide education to students of the Middle Ages.

In addition to graduate degrees, the program offers a minor for undergraduate students. The description of a minor in Medieval Studies is listed in the "Minors" section of this Catalog.

For additional information, contact the Medieval Studies Program, 215 Glenbrook Road, Unit 4025; [uconn.medieval.studies@gmail.com](mailto:uconn.medieval.studies@gmail.com) or visit their website at [medievalstudies.uconn.edu](http://medievalstudies.uconn.edu).

# Neag School of Education

Gladis Kersaint, Ph.D., *Dean*

Joseph Madaus, Ph.D., *Associate Dean*

Ann Traynor, *Director, Academic Advisory Center*

The University's general education requirements are listed in the General Education Requirements section of this Catalog. In addition to fulfilling the University's general education requirements, all students in the Neag School of Education must satisfy the following competency requirements:

## Writing Competency

All students in the IB/M program will be required to successfully complete two writing intensive (W) courses within the Neag School of Education. The W courses in each of the major program fields will develop writing skills specific to the content area domain, as well as be consistent with the practices of professionals in the area of teacher education. Courses that will satisfy the W requirement include: EGEN 3110W; EDCI 4110W, 4205W, 4210W; and EPSY 4120W. All students in the Sport Management program will be required to successfully complete two writing intensive (W) courses within the Neag School of Education. The W courses will develop writing skills specific to the content area domain, as well as be consistent with the practices of professionals in sport management. Courses that will satisfy the W requirement include EDLR 3300W and 3547W.

## Information Literacy Competency

The information literacy competency requirement for IB/M Teacher Education students and Sport Management students will be satisfied by the successful completion of the W courses within each concentration area within the Neag School of Education.

## Computer Technology Competency

University entry-level competencies have been reviewed and satisfy all program requirements.

## Teacher Education Programs

The Neag School of Education offers two routes to certification - the Integrated Bachelor's/Master's (IB/M) Teacher Education Program and the Teacher Certification Program for College Graduates (TCPCG). For information regarding the TCPCG, please refer to the *Graduate Catalog*. The Neag School of Education has developed a model of professional preparation for educators that provides students with a balance of carefully sequenced inquiry experiences, multiple clinical practices, liberal arts preparation, and pedagogical knowledge in a collegial environment which stresses collaboration between and among public schools, professional development schools, the different departments in the Neag School of Education, and the liberal arts faculty of the University.

To qualify for the University of Connecticut's institutional recommendation for certification, any applicant must successfully complete the Integrated Bachelor's/Master's Teacher Education Program, involving five years of full-time study. Prospective teachers complete at least two years of course work in general education and in a subject area major prior to admission to the Neag School of Education, followed by two years of full-time course work in a subject area major and professional education while enrolled in the undergraduate teacher education program, followed by one year of full-time course work in professional education while enrolled in the Graduate School to earn the Master of Arts in Curriculum and Instruction or Master of Arts in Educational Psychology. Connecticut's essential skills and subject knowledge testing requirements must also be successfully completed.

The Integrated Bachelor's/Master's Teacher Education Program includes the following certification areas:

- Elementary Education - Grades 1-6
- Secondary Education - Grades 7-12: English
- History and Social Studies
- Mathematics
- Sciences - Biological Sciences, Chemistry, Earth Sciences, General Science or Physics
- World Languages - French, German, or Spanish
- Comprehensive Special Education - Grades K-12
- Agricultural Education - Pre-K-12
- Music Education - Pre-K-12

Our state-approved teacher education program meets certification requirements and statutory regulations for Connecticut. Education requirements, however, are subject to change in accordance with the changes mandated by the state of Connecticut ([www.sde.ct.gov](http://www.sde.ct.gov)). Students must fulfill the course, field and assessment requirements that are in effect at the time of their admission to the Neag School of Education. The most recent program guidelines and sample semester sequence for each program are available on the Neag School of Education website at [advising.education.uconn.edu](http://advising.education.uconn.edu). Please note that the requirements listed below are currently in effect.

## Elementary Education

Students in Elementary Education are prepared to teach in grades 1-6. Students complete general education requirements, a 39-credit subject area major that includes a single subject (English, History/Geography, Mathematics, or Science) plus a second concentration, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4110W, 4115, 4120, 4125, 4130, 4150; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; HDFS 1070 or PSYC 2400; MATH 2010Q; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## English Education

The secondary English program prepares students to teach English in grades 7-12, and to use and respond to language in all its forms: writing, literature and oral communication. Students ordinarily acquire a broad background in British and American literature, as well as drama, speech, poetry, journalism and world literature. Students complete general education requirements, a 36-credit subject area major in English, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4010, 4210W, 4215, 4250; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## History and Social Studies Education

The history and social studies program offers preparation leading to certification in grades 7-12. Graduates are prepared to teach history, civics, sociology, economics, geography, and anthropology, along with a wide range of area studies and courses ordinarily associated with social studies. Students complete general education requirements, a 42-credit subject area major in History and Social Studies, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4010, 4210W, 4250; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## Mathematics Education

The secondary mathematics program prepares graduates for certification in mathematics for grades 7-12. Majors are prepared to teach mathematics at the middle school, as well as subject areas such as algebra, geometry, trigonometry, and calculus. Students complete general education requirements, a 36-credit subject area major in Mathematics, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4010, 4210W, 4250; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## Music Education

Prospective music educators initially enroll in the School of Fine Arts. The Music Education Program prepares students to teach music from pre-K-12 and direct bands, orchestras, and choruses. Students complete general education requirements, a 36-credit subject area major, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 4010; EDCI 3000, 3020, 3305, 4010, 4210W, 4250; EGEN 3100, 3110, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## Science Education

Students prepare to teach biology, chemistry, earth science, general science, or physics for grades 7-12, depending on academic preparation. Students complete general education requirements, a 36-credit subject area major in the academic area of preparation, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4010, 4210W, 4250; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## World Language Education

World language program students are prepared to teach French, German, or Spanish in grades 7-12. Students complete general education requirements; a 36-credit subject area major in grammar, literature, culture, and civilization relevant to their world language; and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4010, 4205W, 4250; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## Agricultural Education

The program in Agricultural Science Education prepares students to teach Agricultural Science in grades Pre-K-12. Students initially select a major in the College of Agriculture, Health and Natural Resources in order to develop subject area knowledge in animal science, plant science, natural resources and the environment, agribusiness, and other related areas. Students complete general education requirements, a 39-credit subject area major in the academic area of preparation, and required courses in professional education. Requirements include: EPSY 3010, 3110, 3125, 3230, 4010; EDCI 3000, 4010 or 4110, 4210W, 4250; EGEN 3100, 3110W, 4100, 4110; HIST 1501 or 1502; PSYC 1100; and the Master of Arts in Curriculum and Instruction program.

## Comprehensive Special Education

The Comprehensive Special Education Program prepares prospective teachers of students with disabilities in grades K-12. Students complete general education requirements, a 39-credit subject area major that includes a single subject (English, Mathematics or Science) plus a second concentration and required courses in professional education. Requirements include: EPSY 3010, 3115, 3125, 3130, 3230, 4110, 4115, 4120W; EDCI 3000, 4110W, 4115; EGEN 3100, 3110W, 4100, 4110W; HIST 1501 or 1502; HDFS 1070 or PSYC 2400; PSYC 1100; and the Master of Arts in Educational Psychology program.

## Sport Management Program

The Department of Educational Leadership, Sport Management major, prepares students to enter careers in the sport industry, including intercollegiate athletics, facility management, professional sports, the sporting goods industry, private/public sport clubs, resorts, youth sport management, and event management.

The University's general education requirements are listed in the "General Education Requirements" section of this *Catalog*.

The most recent program guidelines and sample semester sequence are available on the Neag School of Education website at [advising.education.uconn.edu](http://advising.education.uconn.edu). The Department of Educational Leadership offers the following undergraduate program:

## Sport Management

Students complete course work in general education, cognate areas, and Educational Leadership. Requirements include: COMM 1100; ECON 1201, 1202; MATH 1070Q; PSYC 1100, 1101 or 1103, 2600; SOCI 1001 or 1251; STAT 1000Q or 1100Q; EDLR 3090, 3091, 3300W, 3310, 3325, 3335, 3340, 3345, 3350, 3547W, 3550. Recommended course: SOCI 1501. Cognate electives: 15 credits.

## Advisement Information

Because the Neag School of Education is a junior and senior professional school, prospective applicants complete two or more years of study in a school or college other than the Neag School of Education. Most students participate in the services offered by the Academic Center for Exploratory Students (ACES) during their freshman and sophomore years declaring a pre-education major. Students who intend to teach declare a pre-teaching major. Students who intend to pursue the Sport Management program declare a pre-Sport Management major.

Pre-Education students should seek the most recent information at the earliest opportunity. Admission information, including a list of faculty advisors, program guidelines, sample semester sequences, and information on Connecticut's essential skills testing requirement are available on the Neag School of Education's website at [advising.education.uconn.edu](http://advising.education.uconn.edu) or the Academic Center for Exploratory Students (ACES) located on the first floor of the Rowe Center for Undergraduate Education; or the Neag School of Education, C. B. Gentry Building, Room 303. Students are invited to meetings each semester to discuss Neag School of Education programs.

Prospective applicants who wish to complete requirements in the minimum amount of time should strictly follow the most recent program guidelines. Students who declare themselves as pre-education majors should register through the Academic Center for Exploratory Students (ACES).

## Admission to Neag School of Education Programs

The Neag School of Education is a professional school. Students begin their junior-senior programs after completing at least 54 credits in a school or college other than the Neag School of Education. Students complete their first two years in another of the schools or colleges of the University (at either Storrs or one of the regional campuses) or a two or four-year accredited college or university other than the University of Connecticut. The maximum enrollment in each program is determined by the Dean in consultation with program administrators.

Applications for admission to the Neag School of Education are available on the Neag School of Education website at: [www.education.uconn.edu](http://www.education.uconn.edu).

Students not currently attending the University of Connecticut must submit an additional University admission application with Transfer Admissions ([admissions.uconn.edu](http://admissions.uconn.edu)). Students transferring to the University with less than 54 credits should fulfill requirements in a school or college other than the Neag School of Education and later make application to the Neag School of Education. These students initially complete only the University application.

The faculty of the Neag School of Education seek to actively recruit students from underrepresented groups. Admission to the Neag School of Education is competitive.

## Teacher Education

All teacher education programs annually admit for the fall semester. Students are advised to submit a completed *Application for Admission to Upper Division Programs* and all supporting materials after completion of their third semester, and before January 15, to be considered for admission for the following fall semester.

Connecticut statute requires that all students wishing to be formally admitted to a teacher education program must successfully complete Connecticut's essential skills testing requirement. Beginning in September of 2014, Educational Testing Service's (ETS's) Praxis Core Academic Skills for Educators test became Connecticut's required test. Passing scores are required on each of the three discrete Praxis Core tests in reading,

writing and mathematics. Beginning in January of 2002 until August of 2014, ETS's Praxis I PPST was the required test.

Eligibility for essential skills test waiver requires a combined score of at least 1100 on the SAT mathematics and critical reading subtests, with neither subtest score below 450 (after April 1, 1995); a combined score of at least 1000 with at least 400 on each subtest for any SAT completed before March 31, 1995; equivalent scores on the Prueba de Aptitude Academica (PAA) with a score of at least 510 on the English as a Second Language Achievement Test (ESLAT); the Test of English as a Foreign Language (TOEFL); scores on The American College Testing Assessment (ACT) of at least 22 on the English subtest and at least 19 on the Mathematics subtest; or a score of 1000 on the GRE quantitative and verbal reasoning tests, with no less than a score of 500 in quantitative reasoning and 450 in verbal reasoning, plus a minimum analytical writing score of 4.5 taken prior to August 1, 2011 and after October 1, 2002; on/after August 1, 2011, a score of 297 on the quantitative reasoning and verbal reasoning tests with no less than a score of 144 in quantitative reasoning and 150 in verbal reasoning, plus a minimum analytical writing score of 4.5. The most up-to-date information on these tests can be reviewed at [www.ets.org](http://www.ets.org).

Successful applicants to teacher education programs generally have completed sufficient credits to be eligible for consideration, have applied by the annual deadline of January 15, have completed Connecticut's essential skills testing requirement, have participated in successful interviews with faculty, have accumulated sufficient experience working with children, have submitted a resume, have written acceptable essays, and have earned the most competitive cumulative grade point averages.

Applicants for the Master of Arts in Curriculum and Instruction or Master of Arts in Educational Psychology must apply for admission to the Graduate School by February 1 of the final undergraduate semester. Admission requirements include a cumulative grade point average of at least 3.0 for the entire undergraduate record, or 3.0 for the last two years, or excellent work in the entire final year.

### **Sport Management**

Students must submit the application and all supporting materials by February 1 for fall admission. Successful applicants to Sport Management generally have completed sufficient credits to be eligible for consideration, have applied by the annual deadline, have accumulated sufficient experience related to their career choice, have written acceptable essays, have submitted required personal recommendations confirming their professional potential, and have earned the most competitive grade point average.

### **Bachelor's Degree Requirements**

Upon recommendation of the faculty, the degree of Bachelor of Arts or Bachelor of Science is awarded by vote of the Board of Trustees to students who have met the following requirements: (1) earned a total of 120 credits; (2) earned at least a 2.2 grade point average for all calculable course work; (3) met all the requirements of the Neag School of Education; and (4) earned at least 12 credits in courses offered in the Neag School of Education.

In addition, students with major fields of study in a subject area of the College of Liberal Arts and Sciences are eligible to receive the Bachelor of Arts degree from the Neag School of Education provided that they have met the general education requirements of the College of Liberal Arts and Sciences.

### **Accreditation**

The Neag School of Education is accredited by both the Connecticut State Board of Education and the National Council for the Accreditation of Teacher Education. A statement will appear on all transcripts of students who finish teacher education programs in the Neag School of Education indicating completion of a Connecticut State Board of Education and National Council for the Accreditation of Teacher Education approved program.

### **National and State Requirements**

The Connecticut State Board of Education maintains minimum requirements for certification for positions in the public schools of Connecticut. The faculty of the Neag School of Education prepares students to meet certification requirements. The certification officer is responsible for supplying the Connecticut State Department of Education with an institutional recommendation for all students from this institution seeking certification and will recommend only those candidates completing the most recent requirements.

In accordance with Connecticut Public Act 09-1, fingerprinting and a criminal background check will be required prior to placement in a clinical assignment. In certain circumstances evidence of a criminal record may prevent a student from fulfilling clinical requirements for program completion and professional licensure.

Connecticut statute mandates a series of assessments for prospective teachers.

Formal admission to a teacher education program requires completion of Connecticut's essential skills testing requirement. Additional information regarding approved tests and eligibility criteria for an essential skills test waiver is included elsewhere in this chapter related to Admission to Neag School of Education program.

Students planning to apply for teacher certification in Connecticut or elsewhere should contact their academic advisor regarding subject knowledge testing. No graduate may be recommended for a teaching certificate until successfully completing Connecticut's subject knowledge testing requirements (e.g. Praxis II, ACTFL, Foundations of Reading). The most up-to-date information on these tests can be reviewed at [www.ets.org](http://www.ets.org). Title II of the Higher Education Act requires that teacher education programs annually report on several items including how well program completers perform on state licensing and certification assessments. The most recent Neag School of Education program completion data is available at [neag.uconn.edu/titleii](http://neag.uconn.edu/titleii).

Because of the nature of Connecticut's certification and educator preparation program approval regulations, including the standards of the National Council for the Accreditation of Teacher Education and its professional associations, students must satisfy all program requirements in order to be recommended for certification.

# School of Nursing

Regina Cusson, Ph.D., NNP-BC, APRN, F.A.A.N., *Dean*  
Jacqueline McGrath, Ph.D., RN, *Associate Dean*

The School of Nursing offers two pre-licensure programs: a traditional four-year baccalaureate program and a second degree post baccalaureate program, Certificate Entry into Nursing/B.S. (CEIN/B.S.). The traditional undergraduate program provides an opportunity to combine a general education with professional preparation in nursing. This curriculum requires four academic years. The post baccalaureate program, CEIN/B.S., is a one-year program designed for individuals with baccalaureate degrees in other areas. The programs are accredited by the Commission on Collegiate Nursing Education and approved by the Connecticut State Board of Nurse Examiners.

## Preclinical Requirements for Pre-Licensure Programs

In addition to pre-entrance University requirements, students admitted to the School of Nursing must present evidence of the following prior to clinical experiences: color blindness testing, TDAP (Tetanus, diphtheria and pertussis) booster with tetanus immunization in the past 10 years; one poliomyelitis booster following initial immunization; physical examination; tuberculin test (with chest X-ray for positive reactors); rubella, rubeola, hepatitis B titers (with vaccine if titer is negative); and varicella titer, an annual flu vaccine and any other requirements of affiliating agencies.

It is mandatory that all students carry comprehensive health insurance when they are involved in practice in clinical areas.

A current certificate in cardio pulmonary resuscitation (professional level: covering infant, child, adult, and two-person) is a prerequisite for entry into the clinical courses and must be current through graduation.

Students who fail to provide written documentation that they have met the above stated health requirements will *not* be allowed in the clinical areas.

Clinical practice experiences in healthcare and other agencies are a required component of program completion and graduation with a baccalaureate degree in nursing. Students must meet all standards and requirements necessary to complete required clinical placements including, but not limited to health requirements, drug testing, fingerprinting and/or criminal background checks. Failure to do so will result in an inability to complete the program.

The School of Nursing requires all students to have a criminal background check prior to the start of *each* academic year in which clinical placement is a required component of the program. The School of Nursing contracts with an outside entity to obtain relevant background check information. The 'satisfactory' or 'needs further follow-up' outcome of the background check will be released to the School and to the agencies where clinical experiences are planned. Students must apply directly to the outside entity and pay all associated costs. The outside entities' contact information, as well as the costs associated with the criminal background check, can be found in the student handbook.

It is important to note that the results of a student's criminal background check may prevent a student from completing a clinical placement. The agency of clinical placement will make the determination whether a student can receive experiences within that site. The School cannot guarantee that a student will be accepted into any required clinical placement sites. Failure to complete all required clinical activities *will* prevent a student from graduating from the School of Nursing.

The following is a partial list of crimes and offenses that may negatively impact a student's ability to complete required clinical placements: any sexual crime, any crime of violence, any drug crime, any weapon crime, property crimes, theft, robbery, burglary, embezzlement or fraud, public intoxication or substance abuse, other felonies or serious offenses which would not be appropriate in a healthcare/patient care environment.

Faculty reserve the right to recommend a student's withdrawal from the program for reasons of health.

**Transportation.** Students must furnish their own transportation and cover cost of travel and parking to the clinical agencies.

**Computers.** All students are required to have their own laptop computer with wireless capability prior to the start of second semester sophomore year for baccalaureate students and prior to the start of the CEIN/B.S. program.

**Licensure.** Under the provisions of Section 19a-14(a) of the Connecticut General Statutes, as amended by Public Act 86-365, ([www.cga.ct.gov/2011/pub/chap368a.htm](http://www.cga.ct.gov/2011/pub/chap368a.htm)) the Department of Public Health and Addiction Services of the State of Connecticut may deny licensure to applicants who have been convicted of a felony or are addicted to drugs or alcohol. Copies of this law are available in the School of Nursing Admission and Enrollment Services Office. Students are responsible for being aware of what the licensure requirements are in the State in which they intend to apply for a license.

**Books, Uniforms and Professional Equipment.** All pre-licensure students are expected to purchase books, uniforms, and the professional equipment required before beginning the clinical experiences. All traditional undergraduate students pay a fee of \$10.00 per semester for the last five semesters. This fee is assessed upon enrolling in NURS 3120, 3234, 3334, 3664 and 4292 and represents laboratory supplies and consumables. Another fee of \$10 per course is applied to NURS 3120, 3234, 3334, 3664 and 4292 and covers malpractice insurance. In addition, all undergraduate students enrolling in NURS 3234 (first clinical course) are assessed a one-time fee of \$75.00. Students receive medical-surgical supplies which are utilized in simulation lab learning exercises. Students are required to complete standardized testing during curriculum to prepare for NCLEX licensure exam. A fee of \$75 is applied to the following courses: NURS 3444, 3554, 3664 and 4292. This fee covers testing resources, standardized exams and NCLEX review.

## Admission Requirements

See Admission to the University. Student applications for admission to the School of Nursing are accepted only for the Fall semester. Qualified students are admitted directly to the School of Nursing as freshmen. See Freshmen Admission. Admission is competitive and applicants should have credentials placing them in the upper range of their high school graduation class. Freshman, transfer, and petition students must have completed a high school (or college) course in chemistry, physics, and algebra for admission consideration.

Transfer students should see Transfer Admission. Such students should have made substantial progress toward completing the freshman 1000-level requirements, particularly those courses that are an indication of their academic ability in math and science. Number of credits earned, grade point average in all courses taken, and space availability are key considerations in the school's admission decision.

Students not admitted into the School of Nursing at the time of entry to the University may apply for admission through the School of Nursing School Change procedures. Such students should submit a completed School Change Petition form as well as a statement as to why they desire the School change to the School of Nursing, Admission and Enrollment Services Office, Storrs Hall Widmer Wing, Room 17. Change of School petitions are due by February 1st for fall acceptance consideration. Decisions will be based on several criteria including the applicant's academic record, courses taken and space availability. School Change applicants are expected to have a minimum cumulative GPA of 3.3 as well as a math/science GPA that is equal or higher than a 3.0 in two or more math/science prerequisite courses and physics in high school or college to be competitive in the petition or transfer process.

Students taking non-degree course work in a non-matriculated fashion may petition for a change of classification to degree-seeking matriculated status.

## Admission requirements for CEIN/B.S.

Applicants must have a baccalaureate degree with cumulative undergraduate GPA of 3.0 or better. The following required science courses must be completed prior to admission with B or better grades in each: Human Anatomy and Physiology (PNB 2264 and 2265 or equivalent), Chemistry (CHEM 1122 or equivalent), Biology (BIO 1107 or equivalent), Genetics (MCB 2400 or equivalent and must be taken within five years of enrollment in the program), Microbiology (MCB 2610) or equivalent).



An undergraduate statistics course and a formal undergraduate research methods course must be completed with grades of C or better.

## Curricula in Nursing for the Traditional Undergraduate

### I. University General Education Requirements

The University has adopted General Education requirements, which must be satisfied as part of every bachelor's degree program. These requirements are listed in the "General Education Requirements" section of this *Catalog*.

### II. School Requirements

Nursing students must complete the following courses (38 credits). Students should note that some of these courses may also fulfill University General Education requirements: BIOL 1107; CHEM 1122; HDFS 1070; MATH 1020Q, 1030Q, 1040Q or 1060Q; MCB 2400 or 2410; PHIL 1101, 1102, 1103, 1104, 1105, or 1106; PNB 2264 and 2265; PSYC 1100; SOCI 1251 or SOCI 1001 or ANTH 1000 or ANTH 1006 or COMM 1000 or HRTS 1007 or SLHS 1150 or WGSS 1124; STAT 1000Q or 1100Q.

**Writing in the Major.** All students in the School of Nursing are required to pass NURS 3715W.

**Information Literacy.** All students in the School of Nursing fulfill this area of competency by the successful completion of NURS 3130, 3205, and 4292.

**Computer Technology Competency.** Students in the School of Nursing fulfill this area of competency with the following courses:

NURS 3130; NURS 3715W; NURS 3234, 3334, or 3554, or 3664, or 4292

**Quantitative Competency.** Students in the School of Nursing fulfill this area of competency with the following courses: MATH 1020Q or higher and STAT 1000Q or 1100Q. Quantitative competency is also met by successful completion of math competency exams in each clinical course.

### III. Baccalaureate Student

Nursing students must complete the following nursing courses (79 credits): NURS 1110, 1130, 3100, 3110, 3120, 3130, 3205, 3220, 3225, 3234, 3334, 3444, 3554, 3664, 3715W, 4235, 4265, 4292

### IV. Additional Requirements

To be eligible to enroll in NURS 3234 (first clinical course) in the fall semester, students must have completed the coursework described in the "School Requirements" section above and the following courses by the end of the preceding spring semester: ENGL 1010 or 1011; NURS 1110, 1130, 3100, 3110, 3120, 3130.

If a grade of C– or less is earned in PNB 2265, MCB 2400 or 2410, NURS 3110, 3120 or 3130, the student may still be considered for NURS 3234 enrollment in the fall if the course is retaken and a grade of C or better earned by July 1.

### V. Program Requirements: Registered Nurses

Registered nurses who graduated from an approved associate degree or diploma program in nursing, who enroll in the School of Nursing and

earned a C or higher in all nursing courses, may earn 30 transfer credits in nursing under the Connecticut Articulation Model for Nurse Educational Mobility.

Registered nurses must complete the following nursing courses: NURS 3130, 3205, 3225, 3715W, 4265, 4292 (Capstone Practicum in Community), 5012, 5020 and six credits of electives.

### Supplementary Scholastic Standards

A student in the School of Nursing must have a grade of C or better in the courses listed in the "School Requirements" and "Additional Requirements" sections above. Students admitted to the School of Nursing must have a minimum GPA of 2.5 at the end of the semester in which they have completed 26 calculable credits of graded coursework at the University of Connecticut. In order to progress in the 3000-level nursing courses, students must complete all prerequisite courses with a grade of C or better. In order to progress, a cumulative GPA of 2.7 is required prior to enrollment in NURS 3220, 3234. Students lacking a 2.7 total grade point average at this point in the program will be dismissed from the School of Nursing.

Students must earn a C (2.0) or better in all nursing courses (those with NURS designation) in order to earn credit toward graduation. No student may take a course in the nursing curriculum without having completed prerequisite courses with a grade of C or higher. No courses required for graduation as a nursing major may be taken more than twice before achieving a passing grade. Students may be dismissed if there is more than one semester in which they earn a semester grade point average below 2.5 in required nursing courses. A cumulative grade point average of 2.5 or above in all required nursing courses is required for graduation.

Students are permitted to repeat only one required nursing course *once* throughout their nursing education and remain in the School of Nursing when all other standards are met.

### Bachelor's Degree Requirements

Upon the recommendation of the faculty the degree of Bachelor of Science is awarded by vote of the Board of Trustees to students who have met the following requirements: (1) earned a total of 127 degree credits, (2) earned at least a 2.5 grade point average for all calculable course work, (3) met all the requirements of the School of Nursing and University General Education Requirements. (See Scholastic Standing Requirement.)

### VI. CEIN/BS: B.S. Certificate Entry into Nursing

A one-year program designed for individuals with baccalaureate degrees in other areas. Students complete up to 45 credits: 39 credits of didactic and clinical experience and six credits of graduate coursework in research and statistics. In order to progress in the program, students must complete the following coursework with a C or better: NURS 4301, 4304, 4414, 4424, 4434, 4544, 4554, 5020 and 5030. Students may be exempt from one or more graduate courses if prior coursework is determined to meet the course requirements.

A second baccalaureate degree in nursing is awarded at the successful completion of the CEIN/BS program.

# School of Pharmacy

James R. Halpert, Ph.D., *Dean*

Philip Hritcko, Pharm.D., *Associate Dean for Admissions and Student Services*

Lauren Schlesselman, Pharm.D., *Associate Dean for Academic Affairs*

In 1941 the General Assembly took over the assets of the Connecticut College of Pharmacy and added this institution to the schools and colleges of the University of Connecticut. The pharmacy program, which had been “inaugurated under independent auspices” in New Haven in 1925, continued to operate there under State auspices until 1951, when the program was moved to Storrs. The School of Pharmacy has offered the Doctor of Pharmacy (Pharm.D.) as its sole professional degree since 1997. The professional program requires completion of the two years of pre-Pharmacy requirements, two years in the professional program leading to a Bachelor of Science with a major in Pharmacy Studies (B.S. Pharmacy Studies), followed by two additional years leading to a Doctor of Pharmacy (Pharm.D.). This professional B.S./Pharm.D. program is a **full-time**, four-year professional program (146 credits professional program plus 64 credits pre-pharmacy for a total of 210 credits), making the Pharm.D. graduate eligible to stand for licensure. For the last two years of the professional program (Pharm.D. years), there will be additional tuition and required fees for in-state students and proportional increases for New England Regional and out-of-state students.

## Degree Programs

### Bachelor of Science in Pharmacy Studies

The Bachelor of Science in Pharmacy Studies is awarded after the completion of two years of pre-pharmacy and the first two years of pharmacy study in the professional program. The B.S. in Pharmacy Studies must be earned before entry into the last two years of the professional program. Upon recommendation of the faculty, the degree of Bachelor of Science in Pharmacy Studies is awarded by vote of the Board of Trustees to students who have met the following requirements: (1) earned 137 credits; (2) completed all requirements for the first two years of the professional program; (3) satisfied the University’s General Education Requirements; and (4) earned at least a 2.0 grade point average for all calculable required pharmacy courses. The B.S. in Pharmacy Studies does not entitle an individual to sit for a pharmacy licensing examination.

### Doctor of Pharmacy (Pharm.D.)

The Doctor of Pharmacy is a professional degree, not a graduate degree. It is awarded after two years of pre-pharmacy studies and four years of study in the professional program. Upon recommendation of the faculty, the degree of Doctor of Pharmacy is awarded by vote of the Board of Trustees to students who have met the following requirements: (1) earned 210 credits; (2) completed all requirements for the professional years and the Professional Program; (3) satisfied the University’s General Education Requirements; and (4) earned at least a 2.0 grade point average for all calculable required pharmacy courses. The Doctor of Pharmacy degree entitles an individual to sit for a pharmacy licensing examination.

### Pharm.D./Ph.D. Program

This program targets a small number of highly motivated students who seek to combine pharmacy education suitable for professional licensure with advanced research-based training in Pharmacology or Toxicology. Students completing this program will earn consecutive dual degrees, the Pharm.D. and the Ph.D. Students in the dual track are afforded early acceptance into the Ph.D. program and, if they successfully complete the Pharm.D. curriculum, a modified graduate curriculum will be tailored to shorten the total time required to complete the Ph.D. degree. Students must meet the admission requirements of both programs and apply to the Ph.D. program in the spring semester of the P2 year as they complete the B.S. in Pharmacy Studies.

### Pharm.D./MBA Dual Degree Program

A dual degree Pharm.D./MBA program is offered to highly motivated students who seek to combine pharmacy education with business managerial knowledge and skills. After completing the first two years of study in the School of Pharmacy, students enroll in the MBA program for the third year and then return to the School of Pharmacy for the last two years of the Pharm.D. program, which would consist of both pharmacy and business courses.

Students must meet the admission requirements of both programs and apply to the MBA program in the spring semester of the P2 year as they complete the B.S. in Pharmacy Studies. Both the Pharm.D. and the MBA will be conferred simultaneously after the program requirements have been successfully met.

### Pharm.D./MPH Dual Degree Program

A dual degree Pharm.D./MPH program is offered to highly motivated students who seek to combine pharmacy education with special skills in public health as it relates to pharmacotherapy and health promotion, disease prevention and medication safety. After completing the first two years of study in the School of Pharmacy, students enroll in the MPH program for the third year and then return to the School of Pharmacy for the last two years of the Pharm.D. program, which would consist of both pharmacy and public health courses. Students must meet the admission requirements of both programs and apply to the MPH program in the spring semester of the P2 year as they complete the B.S. in Pharmacy Studies. Both the Pharm.D. and the MPH will be conferred simultaneously after the program requirements have been successfully met.

**Accreditation.** The University of Connecticut’s Doctor of Pharmacy program has been granted full accreditation by The Accreditation Council for Pharmacy Education (ACPE), [www.acpe-accredit.org](http://www.acpe-accredit.org). The School of Pharmacy also offers a number of courses leading to the degrees of Master of Science and Doctor of Philosophy. Students holding the degree of Bachelor of Science may prepare for the Doctor of Philosophy degree with a major in pharmaceuticals, medicinal and natural products chemistry, pharmacology or toxicology. The Master of Science degree in pharmaceutical sciences may be awarded in the above subject areas and pharmacy administration (see the *Graduate School Catalog*).

**Regional Plan.** In conformity with plans approved by the Boards of Trustees of the six New England land grant universities for regionalization of certain fields of specialized education, the University of Connecticut School of Pharmacy has been designated as a regional New England school for all other New England states except Rhode Island. Regional students enrolled in the professional program receive a tuition savings over out-of-state tuition rates.

## Admission

Admission to the professional program in Pharmacy is competitive. Students should apply for admission to the School of Pharmacy after completion of their third semester of study for entry into the professional program in the following September. All required math, science and English courses must be completed by May for entry into the professional program in the following fall semester. Sociology and economics must be completed before admission into the fall semester. Students who have not fulfilled the University General Education requirements before they enter the professional program will have to complete those courses by May of the second professional year.

Admission to the School of Pharmacy is competitive and based upon: 1) cumulative grade point average in the math and science prerequisites; 2) Overall academic performance; 3) PCAT score; 4) Pharmacy-related experience; 5) Recommendations and personal statement; and 6) Personal interview.

Students will be considered for an interview on a competitive basis. An outstanding academic record may be one of the components used to prioritize student interviews. Students receiving an interview should not assume that they will be admitted to the professional program. A criminal background check will be conducted on all accepted students.

Applications should be submitted to PharmCAS ([www.PharmCAS.org](http://www.PharmCAS.org)) on or before the January deadline.

Students considering a professional career in pharmacy should explore UConn’s Special Program in Pharmacy, a path to pharmacy school that offers students a unique opportunity for academic, personal, and social development and enrichment during their pre-pharmacy years. This program encourages students to explore diverse opportunities, creating a more diverse and well-rounded student for entry to the professional school. Students in this program will be connected with the School of Pharmacy through special seminars, research opportunities, and health-profession events.

## Transfer Admissions to University and School of Pharmacy

Students who have completed their pre-pharmacy curriculum at regionally accredited degree-granting institutions of higher education in the United States will be eligible to apply for direct admission to the Doctor of Pharmacy Professional Program. Preference will be given to University of Connecticut

students (regardless of residency), Connecticut state residents and New England Regional students (MA, ME, NH, VT). Connecticut State Residency is determined by the standards set forth by the Connecticut State Statutes: [admissions.uconn.edu/content/tuition/connecticut-residency](http://admissions.uconn.edu/content/tuition/connecticut-residency). Applications to the University by direct transfer students are due April 1. Transfer students who have completed their pre-pharmacy curriculum at an international institution are not eligible to apply.

### Transfer Admission to University Pre-Pharmacy

Students who have already met pharmacy program prerequisites are not eligible for admission to the pre-pharmacy program. Transfer applicants to pre-pharmacy should have completed no more than one year of college-level study in pharmacy program prerequisites: CHEM 1127Q-1128Q; BIOL 1107; PHYS 1201Q; ENGL 1010; MATH 1131Q. Applicants who exceed this restriction will be considered automatically for the Academic Center for Exploratory Students (ACES). Please note that admission to transfer students to pre-Pharmacy or to ACES is not a guarantee for eventual admission into the School of Pharmacy.

**Calculation of the Math/Science Prerequisite GPA:** To calculate the cumulative math/science prerequisite GPA, the total grade points earned for courses are divided by the number of total credits.

### Substitutions

When approved course substitutions are taken, the courses are treated as substitutions and not as replacements for specific prerequisite courses. For example, grades for MATH 1125Q and 1126Q will be averaged and substituted for MATH 1131Q. Grades for CHEM 1124Q, 1125Q, and 1126Q will be averaged and substituted for CHEM 1127Q and 1128Q. The required prerequisite for Biochemistry is MCB 2000. However, MCB 3010 may be a substitute. The same applies for other approved substitutions.

### Physics

The required prerequisite for physics is PHYS 1201Q (four credits). With approval from the School of Pharmacy, PHYS 1401Q, 1501Q, etc. can be substituted for PHYS 1201Q. However, taking another physics course (e.g. PHYS 1401Q, 1501Q, etc.) in addition to PHYS 1201Q may be considered repetition of a prerequisite.

### Advanced Placement

When AP work is applied toward prerequisites, the number of total prerequisite credits is reduced by the number of credits earned by that AP work.

### Rounding for GPA

The School of Pharmacy does not round when calculating grade point averages. For example, a 2.99 will not be rounded to a 3.00.

**Communication Skills.** It is essential that Pharmacy students have excellent written and oral communication skills. Students must be able to communicate effectively with patients, physicians and with other members of the health care team. The academic version of the International English Language Testing System (IELTS) is required of all applicants and U.S. citizens or permanent residents for whom English is not the native language and/or primary language of instruction. A minimum score of 7.5 is required for admission to the program.

### Supplementary Scholastic Standards

Students admitted to the professional pharmacy program must maintain the following standards of scholastic achievement to continue and/or complete the program:

1. A minimum **semester** and **cumulative** grade point average of 2.0. (Students are subject to dismissal if there is more than one semester in which they earn a semester or cumulative grade point average below 2.0.)
2. A minimum 2.0 grade point average in all required **Pharmacy** courses. (Students are subject to dismissal if there is more than one semester in which they earn a semester grade point average below 2.0 in required Pharmacy courses.)
3. A minimum cumulative grade point average of 2.0 in all required Pharmacy courses is required to enroll in clinical clerkships/rotations.
4. A minimum cumulative grade point average of 2.0 is required for graduation. In addition, to demonstrate competency in pharmacy

practice and oral communication skills, the student must receive a grade of 2.0 or above in PHRX 5047 to continue into the clinical experience sequence.

5. For any grade less than a C- in a required pharmacy course, one occurrence at any time in pharmacy school would result in probation and intervention by the Associate Dean. Two occurrences at any time in pharmacy school would result in review by the Academic and Technical Standards Review Committee with recommendations for appropriate action to the Associate Dean. Three occurrences at any time in pharmacy school would result in a recommendation for dismissal by this committee to the Associate Dean.

All required Pharmacy courses must be taken for a grade (*i.e.* may not be taken on Pass/Fail or Satisfactory/Unsatisfactory).

Following any leave of absence from the professional program, the school reserves the right to impose certain requirements before returning to the program, up to and including academic assessments.

Failure to meet any of the requirements may result in dismissal of the student from the program.

**Technical Standards.** Students admitted to the School of Pharmacy must have the ability to safely apply their knowledge and skills to effectively interact with patients and others in educational and health care settings. Basic nonacademic qualifications required in addition to academic achievements are considered essential for admission and successful completion of the pharmacy curriculum.

Thus, candidates for the B.S. in Pharmacy Studies and for the Doctor of Pharmacy degrees must be able to perform essential functions in each of the following categories: Observation, Behavioral and Social Attributes, Intellect, Communication, and Psychomotor Skills. Upon request of the student, the University will make good faith efforts in providing reasonable accommodations as required by law.

A technical and academic standards committee will review students who have not met either academic and/or technical standards. The student has the right to appeal any decision of this committee in writing to the Office of the Dean of the School of Pharmacy.

**Honors Program.** Students in the School of Pharmacy may be eligible to participate in a variety of enrichment programs. These include independent research projects with a faculty mentor, the Honors Program, and the University Scholars Program. Each of these programs offers the motivated student a way of individualizing their intellectual environment to better meet their needs while providing distinction to their academic record. For more information on these programs, ask to speak with the Pharmacy Honors Advisor.

**Physical Examination Requirements.** All students by the end of the first semester in the professional phase of their program are required to have an initial physical examination including CBC and urinalysis. Additionally, all students are required to have Rubella Titer; a Varicella Titer; a Rubella Titer (note: even though you may have already had measles and/or chicken pox as a child, you still need titers); a DT (Diphtheria/Tetanus) shot; Hepatitis B immunization (a series of three injections for Hepatitis B and mandatory post-titer level); and a PPD. The Tuberculin Test or PPD must be repeated annually. In addition, a medical release form must be signed annually. Rubella immunization is necessary if the titer is absent. You must have had an updated Tetanus immunization within the last 10 years.

Students may have the health requirements conducted by Health Services or may elect to have the physical examination and required tests performed by a private physician. In addition, the School of Pharmacy will provide, in compliance with the OSHA Blood Borne Pathogen Standard, mandatory annual educational sessions for all students.

**Computer Requirements.** Students must provide their own laptop computers. Laptops must meet the minimum specifications provided on the school's website. In addition to those specifications, laptop computers must be able to operate on battery power for a minimum of four hours.

**Transportation.** Students must provide their own transportation to experiential sites during the professional program. They should allow for transportation expenses, which would include cost of gasoline and parking fees where necessary.

**Health Insurance.** All students in the professional phase of their pharmacy education are required to carry health insurance as stated in the University's health policy. It is the student's responsibility to present a completed Verification of Health Form to the Director of Experiential Education at the

School of Pharmacy. This must be done **annually**, prior to the start of the third full week of classes. It is also the student's responsibility to re-present proof of coverage (by filling out a Verification of **University of Connecticut** Health Insurance Form) to the Director of Experiential Education in advance of the expiration date should it occur sometime in the middle of any semester.

Any medical expenses incurred by the student while participating in the clinical portion of the program will be assumed by the student.

**Professional Liability Coverage.** All students in the professional phase of their curriculum are required to carry specific professional liability (malpractice) coverage. You will automatically be billed for this on your University fee bill. Although the State of Connecticut has statutory protection for students in "field placement programs" (Chapter 53 of the Connecticut General Statutes), there are sites that will not accept this as adequate protection. Therefore, the School of Pharmacy has required all students to have the blanket University malpractice coverage.

**Additional Degrees.** Students wishing to take a second degree in another school or college should consult the Associate Dean of the School of Pharmacy early in their professional program.

**Intern Registration.** It is mandatory that all Pharmacy students register with the Connecticut Board of Pharmacy upon enrollment into the Pharmacy professional program. Failure to receive and maintain a valid Pharmacy intern card will result in students not being allowed to participate in experiential courses or any of the other practice component of the curriculum.

**License to Practice Pharmacy.** Any request for information concerning Connecticut internship training requirements and other qualifications for examination and licensure as a pharmacist should be addressed to The Board Administration, Commission of Pharmacy, State Office Building, Hartford, Connecticut. Students seeking licensure in other states, should contact the Boards of Pharmacy in those states.

## Required Courses for the Professional Degree

### I. General Education Requirements

The University Senate has adopted General Education Requirements in a variety of curricula areas, which must be satisfied as part of every degree program. These requirements are listed in the "General Education Requirements" section of this *Catalog*. The course requirements are those of the School of Pharmacy and also satisfy the University requirements.<sup>1</sup>

#### School of Pharmacy Requirements

**Mathematics and Science Courses:** CHEM 1124Q, 1125Q, and 1126Q or CHEM 1127Q, 1128Q; CHEM 2443, 2444; BIOL 1107; PHYS 1201Q; MATH 1131Q; MCB 2000 or 3010, MCB 2610; PNB 2264, PNB 2265 or PNB 2274, PNB 2275.

**English Courses:** ENGL 1010 or 1011.

**Social Sciences Courses:** ECON 1201; 1000-level sociology or psychology or anthropology course.

**Computer Technology Competency:** PHRX 3030 satisfies the University technology competency exit expectations for the pharmacy major.

**Information Literacy Competency:** Information literacy competencies will be met through successful completion of program major courses.

**Writing in the Major:** PHAR 3087W or PHRX 4001W will satisfy the writing in the major competency.

### II. Required Courses and Recommended Sequences for the Pre-professional Years

**First College Year.** First Semester: CHEM 1127Q; BIOL 1107; ECON 12011; MATH 1131Q . Second Semester: CHEM 1128Q; ENGL 1010 or 1011; PHYS 1201Q; Arts and Humanities course from GER Content Area 1; Diversity course from GER Content Area 4

**Second College Year.** First Semester: CHEM 2443; PNB 2264 Diversity course from GER Content Area 4; SOCI 10011,2; MCB 2610. Second Semester: CHEM 2444; PNB 2265; GER W course; MCB 2000 or 3010; Arts and Humanities course from GER Content Area 1

**Total pre-professional credits: 64**

### III. The Professional Program for Students Entering the School of Pharmacy

Students will be admitted to the Pharmacy Studies degree program after completion of the two-year pre-pharmacy program (64 credits) and acceptance by the Admissions Committee.

#### First Professional Year (37 Credits)

First Semester: PHRX 3000, 3002, 3006, 3008, 3009, 3020, 3030, 3050. Total credits: 19. Second Semester: PHRX 3001, 3003, 3007, 3011, 3021, 3031, 3032, 3040. Total credits: 18.

#### Second Professional Year (36 Credits)

First Semester: PHRX 4010, 4020, 4030, 4031, 4040, 4041, 4050; three credits of Professional Electives. Total credits: 18. Second Semester: PHRX 4000, 4001W, 4011, 4021, 4042, 4043, 4044, 4051; three credits of Professional Electives. Total credits: 18.

**Total credits for Bachelor of Science in Pharmacy Studies - 137**

#### Doctor of Pharmacy - 73 Credits

Students must complete two additional years to earn the Pharm.D. with a total of 210 credits.

#### Third Professional Year (37 Credits)

First Semester: PHRX 5010, 5020, 5040, 5041, 5042, 5046, 5047; three credits of Professional Electives. Total credits: 18. Second Semester: PHRX 5011, 5021, 5043, 5044, 5045, 5048; three credits of Professional Electives. Total credits: 19.

#### Fourth Professional Year (36 credits)

Students must have completed the B.S. in Pharmacy Studies and the first year of the Pharm. D. program.

#### Rotating Professional Experiences

(One month = four credits) required (one month each) -16 credits. Direct patient contact indicated by D.

#### Course Numbers and (Credits)

PHRX 5100 D, (four cr.), 5101 (four cr.), 5102D (four cr.), 5103D (four cr.). With the approval of the Director of Experiential Education, substitutions may be made.

#### Electives

Minimum of five (one month each) - 20 credits. At least two of the electives must be direct patient contact (direct patient contact indicated by D). All of the PHRX courses in the list are offered for four credits.

PHRX 5104D, 5105D, 5106D, 5107D, 5108D, 5109D, 5110, 5111D, 5114D, 5115, 5116, 5117, 5118, 5119, 5120, 5122, 5123D, 5124D, 5125D, 5126D, 5128D, 5129D, 5130D, 5131D, 5132D, 5133, 5134, 5135, 5136, 5137D, 5138, 5139, 5140, 5141D, 5142D, 5143D, 5144D, 5145, 5146, 5147, 5148D, 5149D, 5150D, 5151, 5152, 5153, 5154D, 5155, 5156D, 5157, 5158D, 5159D, 5160, 5161, 5162, 5163D, 5164D, 5165, 5166, 5167D, 5195, 5199

**Total credits for Doctor of Pharmacy: 210.**

**Exemption and Substitution.** Students who desire to be excused from any of these requirements or to substitute other courses for those prescribed, should consult the Associate Dean of the School. The Dean of the School of Pharmacy must approve such exemptions or substitutions. Any waivers or substitution for professional courses must be approved by the School of Pharmacy Curriculum Committee.

<sup>1</sup> These courses need not be taken in the semester indicated, but must be completed during the first two years.

<sup>2</sup> Any 1000-level sociology, psychology, or anthropology course. This course need not be taken in the semester indicated but must be completed during the first two years.

# Ratcliffe Hicks School of Agriculture

Cameron Faustman, Ph.D., *Associate Dean, College of Agriculture, Health and Natural Resources and Director, Ratcliffe Hicks School of Agriculture*

Patricia J. Jepson, Ph.D., *Director, Academic Advisory Center*

Meagan Ridder, *Academic Advisor*

Jillian Ives, *Academic Advisor*

The Ratcliffe Hicks School of Agriculture confers Associate of Applied Science Degrees in Animal Science and Ornamental Horticulture and Turfgrass Management. This two-year program of technical and applied education is only available at the Storrs campus. The School was established in 1941 by the University of Connecticut through a bequest from Mr. Ratcliffe Hicks of Tolland, Connecticut.

Students include recent high school graduates as well as adults who are interested in continuing education or a career change. Course work offers a balance between technical and theoretical aspects of each subject with emphasis on hands-on learning.

Ratcliffe Hicks School of Agriculture graduates have the skills and knowledge to enter challenging and exciting careers. They are highly qualified for competitive positions and often manage or own businesses and production operations. Ratcliffe Hicks School of Agriculture graduates can also continue their education and pursue baccalaureate or higher degrees.

## Admission Requirements

Admission is open to qualified graduates of approved secondary schools. For required courses and units, please refer to the Admission section of this *Catalog*. Foreign language study is not required for admission into the two-year program; college preparatory level courses are recommended, but not required.

Applicants follow the same process as other undergraduate programs at UConn. Applicants submit the Common Application or the UConn Admission Application, high school transcript, SAT or ACT scores, and personal essay, which is included in the application. Applicants are encouraged to emphasize their interest, experience, and career goals when completing the essay and activities sections of the application. Applicants with prior post-secondary course work must submit official college transcripts. Applicants who are not graduates of a secondary school must present a copy of a State Equivalency Diploma and a personal statement.

Students from some New England states may be eligible to enroll in the Ratcliffe Hicks School of Agriculture at a reduced tuition rate through the New England Regional Student Program. Eligibility for Associate degree programs in Animal Science and in Ornamental Horticulture and Turfgrass Management are described in the Admissions section of this *Catalog*.

**Non-Degree Study.** Individuals interested in obtaining specific skills and knowledge relating to the many diverse areas of plant and animal science may also register for Ratcliffe Hicks courses as non-degree students. Non-degree students do not have to apply for formal admission to the University.

## Scholarships

The Ratcliffe Hicks School of Agriculture offers scholarships for qualified individuals entering the two-year program. Selected applicants receive up to \$1,200 toward educational expenses in their first semester. Based on academic performance, scholarships may be renewed for three additional semesters.

Incoming students are automatically reviewed for scholarships prior to entering the program. Selection is based on academic and career-related accomplishments, and potential for continued success.

Many scholarships in agriculture and natural resources are available to Ratcliffe Hicks students, for more information please see: [grow.uconn.edu](http://grow.uconn.edu)

## Associate Degree Curricula

**Majors.** The Ratcliffe Hicks School of Agriculture students major in Ornamental Horticulture and Turfgrass Management or Animal Science.

Ornamental Horticulture and Turfgrass Management majors may concentrate in ornamental horticulture or turfgrass management. Graduates pursue careers in golf course management, floriculture, landscape and grounds maintenance, greenhouse and garden center operations, nursery management, interiorscaping, park and land management or public horticulture.

Animal science majors focus on equine studies or production agriculture, including both dairy and livestock. Graduates seek positions in the horse industry, production enterprises, animal health, breeding and genetics, nutrition, meat science and food handling, or related industries.

**Faculty Advisors.** Faculty advisors are assigned to students upon entry into the Ratcliffe Hicks School of Agriculture according to a student's major and area of special interest. Advisors assist students in the selection of appropriate courses and help them develop an individualized program that will meet educational and career goals. The Ratcliffe Hicks Director's Office and Academic Advisory Center provide additional support to faculty advisors and students.

**Registration.** Ratcliffe Hicks students are restricted primarily to Ratcliffe Hicks courses, numbered 100-999. Ratcliffe Hicks students may register for up to 22 credits of 1000-level courses including NRE 1000, 1235; NUSC 1165; BIOL 1102 and the courses listed in the "Associate Degree Requirements" section below.

No more than 22 credits of 1000-level course work may be used toward the Associate of Applied Science degree. Ratcliffe Hicks students must have approval of the advisor and Director to register for 1000-level courses not listed below. Ratcliffe Hicks students may not register for 2000-level or above courses or skill code courses (W, Q) unless approved by the Director. Inappropriate registration may result in administrative changes to a student's schedule or credit restrictions toward graduation requirements.

**Pass/Fail.** Ratcliffe Hicks School of Agriculture students who have earned at least 24 credits and are not on scholastic probation may place a course, for no more than four credits, on Pass/Fail. Credits earned from a Pass/Fail course may be used toward the total credit requirement for the Associate of Applied Science degree, but cannot be used to meet any other graduation requirement.

## Associate Degree Requirements

Upon recommendation of the faculty, the degree of Associate of Applied Science is awarded by vote of the Board of Trustees to students who have met the following requirements:

1. earned a total of 64 degree credits;
2. earned at least a 2.0 grade point average for the total number of calculable credits for which they have registered;
3. passed all courses required by the faculty of the Ratcliffe Hicks School of Agriculture; and
4. earned at least 42 credits at the University of Connecticut in Ratcliffe Hicks courses numbered 100-999. Transfer students may be eligible for an exception with approval of the Director.

All students must pass the following courses to earn the Associate of Applied Science Degree. *No single course can be used to satisfy more than one requirement.*

## General Education Requirements

General Education Requirements for Ratcliffe Hicks students differ from University General Education Requirements for baccalaureate students.

**Freshman Seminar:** SAAG 250.

**Writing:** ENGL 1004, 1010, or 1011 (based on SAT scores).

**Mathematics:** MATH 1011Q or higher (based on SAT scores).

**Civic and Community Engagement:** One course from the following: ARE 1110; HIST 1501, 1502; NRE 1235; PP 1001; or POLS 1602.

**Arts and Humanities:** In addition to the Civic and Community Engagement course: one course from the following: SAAG 350; ART 1000; DRAM 1101, 1110; FREN 1161, 1162, 1169, 1171, 1177; GEOG/URBN 1200; GERM 1169, 1171; HIST 1201, 1501, 1502; ILCS 1158; MUSI 1001, 1002, 1003, 1004; NRE 1235; PHIL 1101, 1102, 1104; POLS

1002; WGSS 1104; SPAN 1001, 1002; FREN 1161, or 1162 (or other 1000-level course approved by the Ratcliffe Hicks director).

**Social Science:** In addition to the Civic and Community Engagement course: one course from the following: ANTH 1000, 1006; ARE 1110; COMM 1000; ECON 1000, 1201, or 1202; EVST 1000; GEOG 1000, 1700; HDFS 1060, 1070; POLS 1202, 1207, 1402, 1602; PP 1001; PUBH 1001; SARE 450; SLHS 1150; SOCI 1001, 1251, or 1501; WGSS 1124; or other 1000-level course approved by the Ratcliffe Hicks director.

**Other Alternatives:** Students may substitute COMM 1100; NUSC 1167; PLSC 1125 for the Social Sciences requirement.

Science and computer technology requirements for the A.A.S. degree are incorporated into courses required for the major.

## Major Requirements

### Animal Science Core

BIOL 1102; SAAS 101, 111, 112, 113, 121; SAPB 301.

### Ornamental Horticulture and Turfgrass Management Core

Ornamental Horticulture and Turfgrass Management majors may select options in Ornamental Horticulture or Turfgrass Management.

**Ornamental Horticulture:** SAPL 110, 120, 300, 410, 640, 750, 800 or 810, 840.

**Turfgrass Management:** SAPL 110, 120, 300, 750, 800, 840; three credits from SAPL 991.

### Area of Specialization for Both Majors

In addition to the general education requirements and the major core requirements listed above, students must complete at least 12 credits of course work related to an area of specialization within their major. These courses must be Ratcliffe Hicks courses numbered 100-999 and must be approved by the student's advisor.

**Internship and Independent Study Courses.** Students may apply no more than six credits of these courses toward the minimum graduation requirement of 64 earned credits.

**Plan of Study.** Students should work closely with their advisors to select appropriate courses. Each student should prepare a tentative plan of study with an academic advisor as early as possible, outlining all courses.

A final plan of study, approved by the major advisor and the Ratcliffe Hicks School of Agriculture Director, must be filed with the Director of the School and the Degree Auditor no later than the end of the semester prior to the semester of expected graduation.

**Supplementary Scholastic Standards.** The Ratcliffe Hicks School of Agriculture follows the same academic regulations and procedures regarding scholastic standards and probation as all other schools and colleges of the University except: first semester Ratcliffe Hicks students are subject to dismissal from the University if their semester grade point average is less than 1.2.

## Supplemental Information

**Transfer to Four-Year Program.** Approximately 60 percent of Ratcliffe Hicks graduates continue their education to earn baccalaureate or higher degrees. Students must complete the A.A.S. program to transfer into the College of Agriculture, Health and Natural Resources or other baccalaureate programs at the University. Students should contact the Ratcliffe Hicks Director's Office to obtain an application and verify procedures. The Ratcliffe Hicks School will review applications for transfer and submit recommendations to the Transfer Admissions Office and the Registrar's Office for final decisions. Admission decisions will be based primarily on courses completed in the School and earned grade point average (minimum 2.7). Students transferring to a baccalaureate program at the University of Connecticut will receive transfer credit for courses based on the following criteria:

1. Ratcliffe Hicks courses (three credit courses in SAAG, SAAS, SANR, SAPL, SAPB, SARE) are subject to the policies of the Transfer Admissions Office, i.e. earned grade must be C or higher; credits transfer but grades do not; course equivalency is determined by departmental review.
2. Baccalaureate courses (four-digit course numbers) and grades will be applied to baccalaureate program if the grade earned was C or higher, or if an exception is approved by the RHSA director.
3. Courses graded satisfactory/unsatisfactory or pass/fail do not transfer.

**Field Trips and Transportation Costs.** Many courses require off-campus field trips. Students should budget money for participation.

**University Fees and Expenses.** For fees and expenses, see statement under Undergraduate Fees and Expenses.

# Minors

Minors are available only to active students pursuing baccalaureate degrees. While not required for graduation, a minor provides an option for the student who wants an academic focus in addition to a major. Unless a higher standard is noted in the description of a specific minor program, completion of a minor requires that a student earn a C (2.0) grade or better in each of the required courses for that minor. The same course may be used to meet both major and minor course requirements unless specifically stated otherwise in a major or minor. Substitutions are not allowed. A plan of study for the minor; signed by the department or program head, director, or faculty designee; must be submitted to the Degree Audit Office during the first four weeks of the semester in which the student expects to graduate. The minor is then recorded on the student's final transcript. The minor may be chosen from any of those listed below in alphabetical order by title.

## African Studies

Students electing this minor must complete a minimum of 15 credits and meet a language requirement.

### Course Requirements

Two courses are required from among the following courses in the Social Sciences: AFRA 3025; AFRA/HIST 3753; AFRA/POLS 3252

One course is required from among the following courses in the Humanities: CLCS 3201 Comparative Literature: African Literature; ENGL 3318 Literature and Culture of the Third World: African Literature; FREN 3218

Six more credits are required in courses on the lists of courses meeting the Social Sciences and Humanities requirements and/or the following courses: ARE 4305; ANTH 3512; ARTH 3760; ECON 3473; AFRA/HIST 3752; POLS 3255

### Language Requirement

Intermediate proficiency in an approved language other than English is required for the minor. This will be either the official language of an African country, e.g. Arabic, French, Portuguese, Swahili, or a widely used African language. Requires completion of the fourth semester of a college-level language sequence or examination by a faculty instructor in the language.

The minor is administered by the Individualized and Interdisciplinary Studies Program, Rowe 403. For information, contact [iisp@uconn.edu](mailto:iisp@uconn.edu) or 860-486-3631

## Africana Studies

Taking as its central mission the study of peoples of African descent on the continent and in the diaspora, the Africana Studies minor seeks a nuanced and interdisciplinary understanding of the human experience. The Africana Studies minor does so through the humanities, arts, and social sciences, with particular emphasis on continuities and discontinuities across geography and time. Its broad educational objectives are to engender among all students an intellectual appreciation of black lives and their saliency for all human experience; to deepen students' critical analytic skills; and to value social equality, democracy, and humanitarianism. The Africana Studies minor strives to provide students with substantive knowledge of the black world and its linkages to national as well as pre-, sub-, supra-, and transnational processes. Students play an active role in Africana Studies Institute's mission to facilitate respect and positive intersocial relationships within the university community.

The requirements include 15 credit hours selected from the following:

- AFRA 3211
- One course each from groups A, B, and C
- One additional course from any of groups A, B, or C; or AFRA 3295; or 3898

### Group A: History

AFRA/HIST 3564, 3568, 3620, 3752, 3753; AFRA/HIST/HRTS 3563

### Group B: Social and Political Inquiry

AFRA 3025; AFRA/ANTH 3152; AFRA/HRTS/SOCI 3505, 3825; AFRA/POLS 3252, 3642, 3647; AFRA/POLS/WGSS 3652; AFRA/PSYC 3106; AFRA/SOCI 3501; AFRA 3033/POLS 3633/PP 3033

### Group C: Literature and the Arts

AFRA 4994W; AFRA/ENGL 3214W, 3216W; AFRA/FINA 1100; AFRA/DRAM 3131, 3132

The minor is administered by the Africana Studies Institute. For information, contact Dr. William Jelani Cobb at [william.cobb@uconn.edu](mailto:william.cobb@uconn.edu).

## Agribusiness Management

The minor will provide an overview of marketing, management, and financial principles and concepts in agribusiness. Analytical and applied decision-making skills are emphasized. All students are required to complete 15 credits from the following courses: ARE 3210, 3215, 3221, 3222, 3225, 3260, 4217, 4275, 4279, 4464; HORT 3540; ANSC 3452, or 4662W, any 3000-level or above ARE course, if approved by minor advisor. Note: ARE 1150 may be required for some 3000-level or above Agricultural and Resource Economic courses. Other courses listed may have additional prerequisites as well.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above. This minor is not open to Resource Economics majors who are concentrating in Marketing and Business Management.

The minor is offered by the department of Agricultural and Resource Economics.

## Agricultural Biotechnology

The interdepartmental minor provides students with an in-depth, multidisciplinary education in the field of biotechnology. The minor will prepare students for careers and advanced studies in agricultural biotechnology and applied molecular biology.

### Requirements

Students must complete a minimum of 14 credits of the courses listed below. This includes two core courses (Group A), a minimum of three laboratory credits (Group B) and six credits of discipline-based courses from outside the major department (Group C).

**Group A - Core Courses:** PLSC 3210 and 3230

**Group B - Laboratory Modules:** Three credits from: PLSC 3250; ANSC 3621; PVS 3501

**Group C:** Six credits from: ANSC 3121, 3122, 3323, 5623; DGS 3226, 4234, 4235, 4246; HORT 4650; NUSC 4236, 6313; PLSC 3240, 3990, 4210, 4215, 5298; PVS 3100, 5502, 5503

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the College of Agriculture, Health and Natural Resources.

## American Sign Language

This interdisciplinary minor provides students with current information about ASL and the people for whom it is a primary language, the Deaf community in the U.S.

Prerequisite: ASLN 1101 and 1102 or equivalent are required but do not count toward the total credits required for the minor.

A total of 15 credits (five 3-credit courses) of 2000-level or above coursework is required.

**Group A.** Core courses (all of the following): LING 2850, ASLN/WGSS 3254, ASLN 3650, LING 3850

**Group B.** Related course (one of the following): ASLN 3298, appropriate offerings of LING 3795/3798 (e.g., Sign Linguistics), other related courses, or a relevant Independent Study. The course must be approved by the American Sign Language Studies minor advisor.

The minor is offered by the Literatures, Cultures and Languages Department.

## American Studies

This minor promotes an interdisciplinary understanding of the complex economic, political, and cultural structures at the root of the societies of the Western Hemisphere. Our studies range from the first immigrations across the land bridge from Siberia, to the colonization of the Americas by Europeans, to the present day. Students may also examine such issues as ethnicity, gender relations, and environmental awareness, and discuss how literary and visual artists have articulated contemporary cultural concerns. Students must complete fifteen credits, including:

- any one of the following: AMST/ENGL/HIST 1201; AMST/ ENGL 3265W; ENGL 2201, ENGL 2203, or ARTH 3440
- one approved 2000-level or above history course approved by the American Studies Director.
- They must then choose a track, a series of related, 2000-level and above courses within a broad area of study. Students must complete three courses within this track in order to attain the minor.

A student may not use American Studies courses to fulfill simultaneously the requirements of his or her major field and the requirements of the minor.

To ensure focus, students must provide a brief rationale for their track and course choices.

The minor is offered by the American Studies Program. For more information, contact Christopher Vials, Director, 860-486-9033.

## Animal Science

This minor provides students with an opportunity to pursue an interest in animal science.

The student must complete all of the following courses, which will total no less than 18 credits: ANSC 1001, 1111, 3122.

Students must complete a minimum of nine credits of coursework by choosing from the following courses:

- At least three credits from: ANSC 3121, 3313, or 4341; and
- At least three credits from: ANSC 2251, 2271, 3261, 3272, 3273, or 3343.
- At least 12 of the credits taken to satisfy the minor must be from courses that are not required for the student's major or other minors within the College of Agriculture, Health and Natural Resources.

Students must earn a combined grade point average of 2.5 or greater for all courses listed above.

The minor is offered by the Department of Animal Science.

## Anthropology

The requirements for this minor are at least 15 credits in Anthropology courses that include:

1. Two courses chosen from ANTH 2000, 2501, and 2502; and
2. Three additional courses at the 2000 level and above, with the exception that not more than three credits of ANTH 3090, 3093, 3095, 3098, 3099, 3522W, or 3990 may be counted toward the minor.

Students are encouraged to consult with advisors in Anthropology and in their major field to design a plan of study appropriate to their long-term goals.

The minor is offered by the Anthropology Department.

## Art History

This minor provides students with an interdisciplinary understanding of the current and historical roles that the visual arts play in a range of artistic, cultural and social contexts. Students are required to complete fifteen 2000-3000 level credits in Art History drawn from the three following categories:

### Group A: Ancient, Medieval, or Renaissance Art

ARTH 3140/CAMS 3251, 3150, 3210, 3220, 3230, 3240, 3260, 3330, 3340, 3360, 3610\*, 3620\*

### Group B: Art from the 19th century to the present

ARTH 3020/W, 3035, 3050\*, 3430, 3440, 3445, 3450, 3460, 3510, 3530, 3560, 3570, 3575, 3630\*, 3640\*, 3645\*

### Group C: Art from global perspectives

ARTH 3015/W, 3050\*, 3500, 3610\*, 3620\*, 3630\*, 3640\*, 3645\*, 3720, 3730, 3740, 3745, 3760

Students interested in this minor should arrange for a meeting with the Art History Coordinator, Department of Art and Art History, School of Fine Arts.

Courses marked with an asterisk (\*) may be used to fill one, but not both, of the categories they designate. ARTH 2198, 2993, 3993 and 3995 (variable topics) may be used to fill area requirements, but only with the written approval of the coordinator of the minor. If approved, there is no limit on the number of credits from these courses that may be applied to the minor, with a change of topic.

The minor is offered by the Art and Art History Department.

## Asian American Studies

Asian American Studies is an interdepartmental, interdisciplinary program devoted to the study of the Asian American experience within the larger context of an increasingly diverse American society. Although the primary focus of the minor is upon Asian Americans, attention is also given to the study of the global context, especially Asia, since this larger context informs the Asian American experience.

Completion of the minor requires students to complete fifteen credits at the 2000 level and above by completion of Groups A, B, and C below; but with consent of the minor advisor, one course from Group D may be substituted for a course in Group C. No other substitutions are permitted. A maximum of three credits towards the minor may be transfer credits of courses equivalent to University of Connecticut courses.

- **Group A**, three credits: AASI 3201.
- **Group B**, six credits chosen from: AASI 3220/ARTH 3020; AASI/ENGL 3212; AASI/HIST 3531, AASI 3578/HIST 3530, AASI 3221/HRTS 3571/SOCI 3221; AASI 3295\*, 4999\*, 3998\*.
- **Group C**, six credits chosen from AASI/ART/INDS 3375; AASI 3222/HRTS 3573/SOCI 3222; AASI/HIST 3808, 3809, 3812; HIST 3822, 3832, 3863; POLS 3472; AASI 3295\*, 4999\*, 3998\*.
- **Group D**: AFRA/ENGL 3214W; AFRA/HIST/HRTS 3563; ANTH 3041/LLAS 3241; AFRA/HRTS/SOCI 3505, 3825; COMM/LLAS 4320; AFRA/DRAM 3131; AFRA/HIST 3564; HIST/WGSS 3562; LLAS 3998\*.

\* Must be approved by the Asian American Studies Minor Advisor

This minor is offered by the Asian American Studies Minor Advisor, Director, Asian and Asian American Studies Institute, Beach Hall, Room 417. For more information, e-mail Cathy Schlund-Vials at cathy.schlund-vials@uconn.edu or phone 860-486-9412.

## Bioinformatics

Bioinformatics is a new field of science that results from the application of information sciences to biology. Its goals are to facilitate data storage and retrieval, and the extraction of useful information from biological data.

Students wishing a minor in Bioinformatics must take at least 15 credits of the following courses, including at least one course from each of the following four groups. A single course cannot fulfill more than one group requirement. Courses used to satisfy requirements for the student's major may be used to satisfy group requirements but may not be used towards the 15 credits for the Bioinformatics minor.

### Group A: Bio-Computing/Computer Science

MCB 3421; MCB 5472/EEB 5372; EEB 5348, 5462; CSE 2102, 2300W, 3500, 3502, 3800, 4102, 4701

### Group B: Data Banks/Statistics

STAT 2215Q, 3025Q; 3375Q and 3445 (Note: both courses must be taken to satisfy this group requirement); CSE 4701



**Group C: Protein Structure/Biochemistry**

MCB 2000, 3010, 3421, 4009, 5011

**Group D: Genetics**

MCB 2410, 3201, 3412, 3617; EEB 5348

MCB 3899, CSE 4095, and CSE 4099 can be counted towards the 15 credit requirement, if approved by a member of the bioinformatics oversight committee.

The minor is offered jointly by the School of Engineering and the College of Liberal Arts and Sciences. For the Bioinformatics minor, contact Dr. Ion Mandoiu at [ion@engr.uconn.edu](mailto:ion@engr.uconn.edu) or Dr. J. Peter Gogarten at [gogarten@uconn.edu](mailto:gogarten@uconn.edu).

**Biological Sciences**

Students wishing to complete this minor must take at least 15 credits of 2000-level and higher courses from Ecology and Evolutionary Biology, Molecular and Cell Biology, and Physiology and Neurobiology. It is strongly recommended that at least one course include laboratory or field work. Courses chosen for the minor must include at least one course or course sequence from each of the following three groups:

- A. MCB 2000, 2210, 2400, 2410, 2610, or 3010.
- B. EEB 2244/W or 2245/W.
- C. PNB 2250, 2264-2265, or 2274-2275.

PNB 2264-2265 or 2274-2275 must be taken in sequence to be counted towards the Biology minor.

The minor is offered jointly by the departments of Ecology and Evolutionary Biology, Molecular and Cell Biology, and Physiology and Neurobiology and cannot be earned by students majoring in any of these departments.

**Biomedical Engineering**

Biomedical engineering involves learning about biology in new ways and developing new tools to diagnose and treat disease and to repair or replace diseased organs. Many students select biomedical engineering to be of service to people and for the excitement of working in a health field. Additionally, biomedical engineering provides excellent preparation for entrance into medical school.

Requirements: The following five courses are necessary to fulfill requirements of the minor:

- BME 2101, 3500, 3600W, 3700
- One course from the following list: BME 3810, 4300, 4500, 4600, 4701, 4710, 4800

The minor is offered by the School of Engineering. For the Biomedical Engineering minor, contact Dr. Ki Chon at [ki.chon@uconn.edu](mailto:ki.chon@uconn.edu).

**Business Fundamentals**

Students majoring in the School of Business may not earn this minor. Students may only earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business.

Requirements: To receive a minor in Business Fundamentals, a student must complete five (5) three credit, 3000-4000 level courses offered by the School of Business. BADM 2710 (or ACCT 2101) may be counted in place of one 3000-4000 level course and is the only 2000-level course which may count toward the minor.

Four of the courses used to meet the minor must be selected from the following courses: BADM 2710 (or ACCT 2101); BADM 3720 (or BLAW 3175); BADM 3730 (or FNCE 3101); BADM 3740 (or MGMT 3101); BADM 3750 (or MKTG 3101); BADM 3760 (or OPIM 3103).

Credits from internships cannot be used to satisfy requirements of the Business Fundamentals minor.

Courses designed for students pursuing this minor can be found in the Business Administration (BADM) course description section of the *Catalog*. Other courses offered to business majors may be available to students pursuing a Business Fundamentals minor, but students will

typically require departmental permission to register for those classes. Students should also note that they must meet all prerequisites for those classes. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor.

The minor is offered by the School of Business. For more information, contact the Office of Undergraduate Advising, School of Business, room 248 or phone 860-486-2315. Permission number requests for these courses can be found at [undergrad.business.uconn.edu/advising/forms](http://undergrad.business.uconn.edu/advising/forms).

**Chemistry**

Students taking this minor must take at least 15 credits of 2000-level or above Chemistry courses. The following courses are required: CHEM 2443, 2444, and 2445\*; CHEM 3332

\*CHEM 2446 may be used in place of CHEM 2445 by Chemical Engineering and Biomedical Engineering majors only.

Further, students must take one course from the following list: CHEM 3210, 3334, 3442W, 3563, 3661

The minor is offered by the Chemistry Department.

**Chinese**

This minor requires a minimum of 15 credits of Chinese courses at the 2000 level or above.

**Requirements**

- A. One required course: CHIN 3210
- B. Two language courses from the following: CHIN 3211, 3220, 3240, 3250W, 3260, 3293
- C. Two content courses from the following: CHIN 3220, 3230, 3250W, 3260, 3270, 3271, 3282, 3293

AP credits may not be counted toward the minor. Up to six credits taken in study abroad programs may count toward the minor with consent of the advisor.

The minor is offered by the Literatures, Cultures and Languages Department.

**Classics and Ancient Mediterranean Studies**

This minor allows students to pursue an interest in Greek, Latin, and Biblical literature, history, art, and philosophy through an organized course of study. Students who wish to work in the original language may elect to do so as well. Students electing the minor must complete a minimum of 15 credits from the following:

- A. At least two courses on Classical or Biblical literature: courses in English: CAMS 3241W, 3242W; INTD 3260; CAMS 3207, 3208, 3211, 3212, 3213, 3221, 3224, 3225, 3226, 3227, 3293\*, 3295\*, 3298\*, 3299\*; courses involving reading in Greek and/or Latin: CAMS 3101, 3102, 3232, 3293\*, 3298\*, 3299\*
- B. At least one course dealing with the ancient world more generally: CAMS 3243, 3244, 3245, 3250, 3251, 3253, 3254, 3255, 3256, 3257, 3293\*, 3295\*, 3298\*, 3299\* (These may be cross-listed under Art History, History, Hebrew and Judaic Studies, and Philosophy.); HEJS 3201.

\*May count toward minor only with consent of advisor.

The minor is offered by the Literatures, Cultures, and Languages Department.

**Cognitive Science**

Cognitive Science is the interdisciplinary study of mind and intelligence, bringing together course content from Psychology; Linguistics; Artificial Intelligence; Anthropology; Speech, Language and Hearing Sciences; Neuroscience; and Philosophy. While available with any undergraduate major, the minor in Cognitive Science is especially appropriate for majors in the fields listed above.

## Requirements

To earn a minor in Cognitive Science, students must complete 15 credits at the 2000 level or above. COGS 2201 is required, plus four additional courses coming from at least three areas (A through F). No more than two courses may be counted from any one department.

- A. Cognition: ANTH 3250; CSE 4705; PHIL 3247/W, 3250/W; PSYC 2500, 2501
- B. Language: ANTH 3002 or LING 3610W; LING 2010Q; PHIL 3241; PSYC 3500
- C. Perception: PHIL 3256/W; PSYC 3501, 3502
- D. Development: PSYC 2400; PSYC 3470/W or SLHS 2204; SLHS 4254/W
- E. Neuroscience: PHIL 3249/W; PNB 3251; PSYC 2200; SLHS 4245/W
- F. Formal Systems: CSE 2500, 3502; LING 3310Q, 3410Q, 3511Q; PHIL 2211Q, 3214

The minor is offered by the College of Liberal Arts and Sciences. For the Cognitive Science minor, contact Prof. William Snyder, Director of Undergraduate Studies in Cognitive Science, Oak Hall, Room 350.

## Communication

Students wishing to complete this minor must take at least 15 2000-level or above credits in COMM courses, these must include:

1. COMM 3000Q or equivalent research methods course. If an equivalent research methods course is used, 15 credits in 2000-level or above COMM courses are required.
2. At least two from the following Core courses: COMM 3100, 3200, and 3300. Students are encouraged to take all three core courses.
3. Only one course (three credits) can be an Applied course from the following list: COMM 4800, 4820, 4940, 4992, 4991. Students are not required to have any applied courses and are allowed to take any of the Communication Theory courses to fulfill the minor requirement.
4. The Communication Advisor's permission is needed for COMM 4995, 4998. These courses are not required.

Students in this program do not receive priority registration for Communication courses. The minor is offered by the Communication Department. The Minor Plan of Study form is available in the Arjona Building, Room 245 or from the department website: [communication.uconn.edu/undergrad/undergrad-program-info/comm-minor](http://communication.uconn.edu/undergrad/undergrad-program-info/comm-minor).

## Computer Science

This minor requires at least 15 credits of 2000-level or above Computer Science and Engineering course work.

Required courses are: CSE 2100 and CSE 2500.

The minor is not open to students majoring in Computer Science and Engineering, Computer Science, or Computer Engineering.

The minor is offered by the Computer Science and Engineering Department. For more information, contact Robert McCartney in the Computer Science and Engineering Department.

## Creativity, Innovation, and Entrepreneurship

The ability to be creative, innovative, and entrepreneurial are vital skills in any number of fields. Our economies, cultures, and quality of life all depend on the regular creation and use of original and helpful ideas, and recent research demonstrates that these important skills can be taught and learned. The interdisciplinary minor in Creativity, Innovation, and Entrepreneurship is appropriate for majors in fields where the creation, implementation, and evaluation of original ideas is valued.

**Foundations Courses:** EPSY 2810; BADM or MGMT 3234

**Elective Courses:** Three credits of coursework from EPSY 3830, 3850, 3870; BADM or BLAW 3678; BADM or BLAW 3681; BADM or MKTG 3753; BADM or MGMT 4895 (when offered as Managing Creativity and

Innovation or Gaining Competitive Advantages); DMD 3200, 3230, 3560; DRAM 3141, 3145, 3601

**Applied Courses:** Six credits of coursework from EPSY4870; MGMT 4891 (for work done through the Innovation Quest Program or the Innovation Accelerator); BADM or MGMT 3235; ENGR 3195 (when offered as Prototyping).

The minor is open to all undergraduates and administered by the Neag School of Education. It represents a collaboration between the Neag School, the School of Fine Arts, the School of Business, and the School of Engineering. Students may obtain information about the purpose and requirements of the minor by contacting Prof. Ronald Beghetto ([ronald.beghetto@uconn.edu](mailto:ronald.beghetto@uconn.edu)). Students may contact the School of Business Office of Undergraduate Advising ([undergrad.business.uconn.edu](mailto:undergrad.business.uconn.edu)) for questions concerning the business courses included in this minor. Students may contact the School of Engineering Office of Undergraduate Advising ([undergrad.engr.uconn.edu/advising/academic-advising](mailto:undergrad.engr.uconn.edu/advising/academic-advising)) for questions concerning the Prototyping course.

## Criminal Justice

The purpose of this minor is to provide in-depth study of topics in criminal justice and to offer preparation for possible careers within the criminal justice system. A maximum of three credits in the minor can be part of a major; 12 to 15 credits can constitute the related area courses.

**Course Requirements.** A total of 18 credits comprising 15 credits from the following courses (Groups I and II) and three credits of approved internship or field experience in a criminal justice setting (Group III):

1. Three required courses: POLS 3827, SOCI 2301, PSYC 2300
2. Two or more elective courses (six credits) from the following: HDFS 2001, 3103, 3340, 3510, 3520; HRTS/WGSS 2263; PHIL 3226; POLS 2622, 3802, 3817, 3842, 3999 (on a criminal justice topic); PSYC 2100Q, 2301, 2501, 2700; SOCI 3307, 3311, 3315/W, 3425, 3457, 3503, 3999 (on a criminal justice topic), SOCI/WGSS 3317/W.
3. Three credits of approved internship or field experience. The academic credits must be one of the following courses (or combinations of courses) and the coursework must be done in a criminal justice setting: HDFS 3080; INTD 3590; POLS 3991 (or a combination of two credits of POLS 3991 with an associated one credit of POLS 3999); a combination of two credits of SOCI 3990 with an associated one credit of SOCI 3991; PSYC 3880; a combination of two credits of URBN 3991 with an associated one credit of URBN 3981; or another 2000-level or higher internship or field work course with field study done in a criminal justice setting approved in advance by the student's Criminal Justice Advisor.

Students who are employed full time within a criminal justice setting may have the Group III requirement waived by their Criminal Justice Advisor when employment is documented by their supervisor.

The minor is offered by the College of Liberal Arts and Sciences and coordinated by the Individualized and Interdisciplinary Studies Program, Center for Undergraduate Education. Details of the minor are available at [iisp.uconn.edu/criminal-justice-minor-req](http://iisp.uconn.edu/criminal-justice-minor-req). For further information, students may contact the Criminal Justice Advisor in their major field or Dr. Monica van Beusekom, Individualized and Interdisciplinary Studies Program, [iisp@uconn.edu](mailto:iisp@uconn.edu).

Criminal Justice Advisors: Sarah Scheidel, [sarah.scheidel@uconn.edu](mailto:sarah.scheidel@uconn.edu) (Psychology); Steven Wisensale, [steven.wisensale@uconn.edu](mailto:steven.wisensale@uconn.edu) (Human Development and Family Studies); Bradley Wright, [bradley.wright@uconn.edu](mailto:bradley.wright@uconn.edu) (Sociology); Edith Barrett, [edith.barrett@uconn.edu](mailto:edith.barrett@uconn.edu) (Urban and Community Studies; Greater Hartford Campus); Elizabeth Fehr, [elizabeth.fehr@uconn.edu](mailto:elizabeth.fehr@uconn.edu) (Political Science); and Monica van Beusekom, [monica.vanbeusekom@uconn.edu](mailto:monica.vanbeusekom@uconn.edu) (Criminal Justice minor coordinator).

## Dairy Management

This minor provides interested students with an in-depth exposure to all aspects of dairy farm management. Students will have the opportunity to manage a portion of the UConn dairy herd and be responsible for daily activities and short and long-term decision-making. All students are required to complete 18 credits from the following courses: ANSC 3261,

3663, 4662W; PVS 2301; ARE 3215, 4217. At least 12 of the credits taken to satisfy the minor must be from courses that are not required for the student's major or other minors within the College of Agriculture, Health and Natural Resources.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Department of Animal Science.

## Digital Arts

This 15-credit interdepartmental minor provides students with an interdisciplinary education in the field of digital arts. Students in this minor must complete FINA 3510 and 12 additional credits at the 2000 level or above (a minimum of six credits must be at the 3000 level or higher). No more than six credits may be taken from any one academic department.

Courses to be selected from the following:

- ART 2011, 2410, 3130, 3131, 3132, 3410;
- ARTH 3570;
- DMD 2010, 2200, 2300, 2500;
- DRAM 3220, 4705, 5511, 5316;
- MUSI 3341, 3777.

A maximum of six credits of ART 3995, 3999; DMD 3099; DRAM 3199, 4194; or MUSI 3982, 4995, 4999 may be used to fulfill requirements of the minor, but only with the written pre-approval of the coordinator of the minor. The minor is offered by the School of Fine Arts.

## Digital Humanities

The Digital Humanities Minor within the Digital Media and Design Department/School of Fine Arts provides undergraduates majoring in humanities disciplines from across the University with a grounding in the digital methods and approaches relevant to humanities scholarship. Students accepted to this highly selective minor must be rising juniors (or above) with a 3.4 GPA or better. Successful applicants will also demonstrate a working knowledge of at least one of the following: web design and development, image/video/sound editing, web content management, web writing and editing, statistical analysis, or similar skill areas. Accepted students are restricted to no more than 12 credits of coursework offered by DMD. Students majoring in non-humanities disciplines may not earn this minor.

**Requirements:** Four 3-credit courses are required for the minor: DMD 2010, 2020, 2610, and 4615.

Transfer credits, Education Abroad credits, and credits from internships cannot be used to satisfy requirements of the minor. Access to courses for this minor is on a space available basis, and the Digital Media and Design Department and School of Fine Arts cannot guarantee completion of the minor.

## Digital Marketing & Analytics

The minor is designed to offer a basic understanding of digital marketing and analytics topics. This minor is not available to Marketing majors.

**Requirements:** Four (4) 3-credit 3000/4000 level MKTG (BADM) courses are required. Business students should register for the MKTG sections; non-business students should register for the BADM sections.

The four required courses are:

- MKTG 3101 (BADM 3750);
- MKTG 3661 (BADM 3661);
- MKTG 3665 (BADM 3665);

and one of the following courses:

- MKTG 3452 (BADM 3452);
- MKTG 3625 (BADM 3625);
- MKTG 3757 (BADM 3757);
- MKTG 4891 (BADM 4891).

MKTG 3661 (BADM 3661) and MKTG 3665 (BADM 3665) must be taken in residence at the University of Connecticut. A minimum of nine credits for this minor must be earned in residence at the University of

Connecticut. Education Abroad courses may not be used to meet this residency requirement.

**Additional Details:** Students must meet all prerequisites before registering for a course. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor. Students may require departmental permission to register for courses in the minor.

School of Business students may only earn one minor offered by the School of Business. Non-business students are restricted to no more than 24 credits of coursework offered by the School of Business.

## Diversity Studies in American Culture

Students should consider taking appropriate 1000-level courses in preparation for junior-senior level coursework in Diversity Studies. These might include SOCI 1501/W, as well as ENGL 1601W, HIST 1203, PHIL 1107, PSYC 1100 and 1101/1103, WGSS 1104, and WGSS 1105.

**Requirements:** 15 credit hours. No more than one course in Diversity Studies can be counted towards both the student's major and the Diversity Studies in American Culture minor. No more than two courses may be taken within a single subject area. Classes not listed below, such as three-credit "Special Topics" courses, may be used to fulfill Diversity Studies requirements with the approval of the Director of Diversity Studies in American Culture. (If possible, students should seek such permission before taking the course.)

One required three-credit course: INTD 2245

- A. Students must take four courses which must include at least one from each category to fulfill the remaining twelve credits. (Please note that some of these courses have prerequisites.)
- B. To fulfill the twelve remaining credits, students must take four courses which must include at least one from each of the following categories:
  1. Gender, Physicality, and Sexual Identities: DRAM 3130; ENGL 3609, 3613; HDFS 2001, 3261; POLS/WGSS 3052; LLAS 3231/WGSS 3259; LLAS 3251/HDFS 3268; PSYC 3102/WGSS 3102/W; SOCI 3221/AASI 3221/HRTS 3571; SOCI/WGSS 3453, 3621/W; SOCI 3601/W; WGSS 2267, 3252, 3269
  2. Ethnicity, Culture, and Race: AASI 3201; AASI/ENGL 3212; AFRA/DRAM 3131/W; ENGL 3605/LLAS 3232; ENGL 3607/LLAS 3233; ENGL 3210; ENGL 3214; ENGL/AFRA 3216W, ENGL 3218W; HEJS 3511; LLAS 3210; LLAS 3230/WGSS 3258; PSYC/AFRA 3106/W, PSYC 2101, 2701; SOCI/AFRA/HRTS 3505, 3825; SOCI/AFRA 3501; SOCI 3501W; SOCI 3503/W, 3511W
  3. History and Politics: HIST/WGSS 3562, HIST 3570; HIST/AFRA/HRTS/3563; HIST/AFRA 3564; HIST/AASI 3531; HIST 3674/LLAS 3220; HIST 3575/LLAS 3221/HRTS 3221; HIST 3530/AASI 3578; POLS/AFRA/WGSS 3652; POLS/AFRA 3642; POLS 3662/LLAS 3270; SOCI/HRTS 3421; SOCI 3421W

The minor is offered by the College of Liberal Arts and Sciences. For more information, contact Katharine Capshaw at [capshaw@uconn.edu](mailto:capshaw@uconn.edu).

## Dramatic Arts

Students wishing to complete this minor must fulfill the following requirements:

1. Students must complete a minimum of 18 credits in DRAM courses, at least 12 of which must be at the 3000 or 4000 level.
2. Students must complete work on at least one production crew (costume, sound, lighting or set-running) by completing one semester of either DRAM 1216, 1217, 1218, or 1282.
3. The remainder of the minor must be selected from: DRAM 1201, 1202, 1216 (if 1282 fulfills the production crew requirement), 1217 (if 1282 fulfills the production crew requirement), 1218 (if 1282 fulfills the production crew requirement), 1710, 2130, 2131, 2134, 2141, 2902, 3103, 3130, 3131, 3132, 3133, 3137, 3138, 3139, 3141, 3142, 3199 (only with written pre-approval of the minor coordinator),

3201, 3202, 3220, 3121, 3301, 3302, 3401, 3402, 3501, 3502, 3601, 3602, 3603, 3604, 3611, 4122, 4135/W and 4711W.

The minor is offered by the Dramatic Arts Department.

## Ecology and Evolutionary Biology

Students wishing to complete this minor must take at least 15 credits of 2000-level (or higher) EEB courses, which must include both 2244 (or 2244W) and 2245 (or 2245W).

The minor is offered by the Ecology and Evolutionary Biology Department.

## Economics

Students wishing to minor in Economics must complete five three-credit courses at the 2000 level and above, including ECON 2201, 2202, and one course numbered 2301-2328 or at the 3000 level or above.

The minor is offered by the Economics Department.

## Electronics and Systems

This minor requires at least 15 credits of course work. The minor is not open to students who are pursuing majors in electrical engineering, computer engineering, or engineering physics.

Course requirements are as follows:

- A. ECE 2001/W
- B. ECE 3101 or BME 3400
- C. 3 additional 2000-level or above ECE courses

The minor is offered by the School of Engineering. For information about the Electronics and Systems minor, contact John Chandy at [john.chandy@uconn.edu](mailto:john.chandy@uconn.edu).

## Engineering Management - Business

Students majoring in the School of Business may not earn this minor. Students may only earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business.

All students enrolled in this program are required to complete the following core courses: MEM 2221 or BADM 3761; OPIM 3801; MEM 2211 or 3221.

Beyond these, students must complete two additional business courses (covering topics such as accounting, financial management, information systems, and entrepreneurship) from the following list:

- BADM 2710, 3730, 3750;
- Either BADM 3760 or OPIM 3103 but not both;
- BADM 3234, 3235;
- OPIM 4895 Special Topics (three credits);
- MEM 3221 (*if not used to satisfy core requirements*).

The minor is offered jointly by the School of Business and the School of Engineering.

## Engineering Management - Business - Construction

Students majoring in the School of Business may not earn this minor. Students may only earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business.

This minor has been designed to meet the specific needs of Civil Engineering majors operating in a business environment.

All students enrolled in this program are required to complete the following core courses: MEM 2221 or BADM 3761; OPIM 3801; BADM 2710.

Beyond these, students must complete two additional courses (covering topics such as financial management, operations research, venture management and entrepreneurship) from the following list: BADM 3730, 3234, 3235; CE 4210.

The minor is offered jointly by the School of Business and the School of Engineering.

## Engineering Management - Engineering

All students enrolled in this program are required to complete the following core courses: MEM 2221 or OPIM 3104; OPIM 3801; MEM 2211 or 3221.

A student enrolled in the EMME who takes MEM 2221 must complete ENGR 1166 and one additional engineering course from the list below. A student who takes OPIM 3104 must complete three required courses: ENGR 1166 and two additional engineering courses from the following list:

- ME 3221, 3222;
- MEM 3221 (*if not used to satisfy core requirements*), 4225;
- ENVE 2320.

The minor is offered jointly by the School of Engineering and the School of Business.

## English

Students wishing to complete this minor must take at least 15 credits of English courses at the 2000-level or above, including:

1. At least one of ENGL 2100 or 2101;
2. At least one of ENGL 2201/W or 2203/W; and
3. Any three other English courses at the 2000 level or above, with the following exceptions: 2011, 3010W, 3091, and 3693.

The minor is offered by the English Department.

## Entrepreneurship

Students majoring in the School of Business may not earn this minor. Students may only earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business.

Requirements: To receive this minor, a student must complete five (5) three credit, 2000-level or above courses offered by the School of Business. As part of the five courses required for the minor, students must satisfy the following requirements: BADM 3740 or MGMT 3101; BADM or MGMT 3234; and BADM or MGMT 3235.

Credits from internships cannot be used to satisfy requirements of the Entrepreneurship minor. No more than one 3-credit course used to satisfy requirements for this minor may be from any transfer or Education Abroad credits earned.

Courses designed for students pursuing this minor can be found in the Business Administration (BADM) course description section of the *Catalog*. Other courses offered to business majors may be available to students pursuing a minor, but students will typically require departmental permission to register for those classes. Students should also note that they must meet all prerequisites for those classes. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor.

The minor is offered by the School of Business. For more information, contact the Management Department, School of Business, phone 860-486-3638. Permission number requests for these courses can be found at: [undergrad.business.uconn.edu/forms](http://undergrad.business.uconn.edu/forms).

## Environmental Economics and Policy

The minor will provide interested students with an overview of key concepts and methods used by economists to analyze problems associated with human use and misuse of natural resources and the environment and to evaluate policy options for better management of these resources for current and future generations.

All students are required to complete 15 credits from the following courses: ARE 3235, 3260, 3434, 3436, 3437, 4305, 4438, 4444, 4462, 4464; ECON 2467; NRE 3245 or any other 3000-level or above ARE course if approved by the Minor Advisor.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above. This minor is not open to Resource Economics majors who are concentrating in Environmental Economics and Policy.

The minor is offered by the department of Agricultural and Resource Economics.

## Environmental Engineering

This minor can significantly enhance and strengthen the educational experience of students to provide a firm basis for understanding the impact of human activity and pollutants on the environment as well as the need for environmentally sound manufacturing processes and sustainable development.

It requires completion of 18 credits including the following:

1. An approved *Plan of Study* and ENVE/CE 2310; ENVE 3220, 3230, 4310.
2. Six elective credits chosen as follows:
  - a. Three credits each from two different areas of approved Professional Requirements for the B.S. in Environmental Engineering; or
  - b. Six credits chosen from ENVE 3200, 3270, 4210, 4320; or
  - c. Three credits chosen from ENVE 3200, 3270, 4210, 4320 and three credits from approved Professional Requirements for the B.S. in Environmental Engineering.

The minor is offered by the Environmental Engineering Program.

## Environmental Studies

Environmental Studies focuses on the interaction between humans and the environment. The Environmental Studies Minor is an interdisciplinary (humanities, social sciences, and biophysical sciences) program for students interested in environmental problems on a local, national, and global level. This minor provides students the opportunity to focus their related area and/or electives on environmental issues. None of the courses in the minor can be used within the student's major.

### Introductory Courses

All students must take EVST 1000. NRE 1000 and BIOL 1102 are recommended.

### Core Courses

(Nine credits) All minors must take one course from each core area. Additional core courses in a single category can be applied to the additional minor requirements beyond the core requirements.

- **Humanities Core:** PHIL 3216; HIST 3540 or 3542; ENGL 3240 or 3715 or JOUR 3046.
- **Social Sciences Core:** ARE 3434 or 4462 or ECON 3466; NRE 3000; NRE 3245; POLS/EVST 3412.
- **Natural Science Core:** AH 3175, EEB 2208, GEOG 3400, GSCI 3010; NRE 4170.

### Additional requirements for the minor

In addition, Environmental Studies minors must take six credits of electives at the 2000 level or above, as approved by the program director or academic advisor. Courses listed above that are not used to meet the core requirements may be used to meet this requirement.

Total credits (2000 level or above): 15 credits.

Students may also incorporate off-campus study with the minor advisor's approval, such as internships, Biosphere, or Education Abroad.

The minor is offered jointly by the College of Liberal Arts and Sciences and the College of Agriculture, Health and Natural Resources. For more information, please contact Robin Chazdon, Ph.D. Ecology and Evolutionary Biology Department 860-486-4057.

## Equine Business Management

The minor provides interested students with an overview of marketing, management, and financial principles and concepts in equine management. Analytical and applied decision-making skills are emphasized.

All students are required to complete 18 credits from the following two groups:

1. Nine credits from the core courses: ANSC 2251, 3452; ARE 3210, 3215
2. Nine credits from the following courses: ARE 3221, 3222, 3225, 4217, 4275, 4438, 4464, and any one 3000-level or above ARE course, if approved by the minor advisor.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Department of Agricultural and Resource Economics.

## European Studies

This minor focuses on western, central, and Eastern Europe as well as Russia and enables students to pursue an interest in the social, historical, political, and cultural dimensions of this region.

Students electing this minor must complete a minimum of 15 credits of coursework from the European Studies minor list, of which three credits may be at the 1000 level and the remaining must be at the 2000 level or higher. Courses must be drawn from at least three of the following departments: Art History; Economics; English; Geography; History; Literatures, Cultures, and Languages (including CAMS, CLCS, FREN, GERM, ILCS, and SPAN); Music; and Political Science. Students are strongly encouraged to take HIST 2402. Education Abroad courses, special topics courses, and variable topics courses may count towards the minor when these focus on Europe or Russia. Three credits of independent study may be included when the independent study is focused on Europe or Russia. Students should select the courses in the minor in close consultation with a European studies minor advisor.

In addition to completing the required coursework, European Studies minors must meet one of four tools and experience requirements:

1. Participation in an approved Education Abroad program that includes at least six weeks residence in Europe or Russia.
2. Completion of six credits of coursework at any level in a European language other than English.
3. Completion of an internship (with or without pay) of at least six weeks duration with an organization in Europe or Russia or an internship with a strong European or Russian component in an organization in the United States.
4. A combination of an approved Education Abroad program that includes three weeks residence in Europe or Russia and three credits of coursework at any level in a European language other than English.

This minor is administered by the Individualized and Interdisciplinary Studies Program, Rowe 403. For more information, including contact information for European Studies minor advisors visit [iisp.uconn.edu/european-studies-minor](http://iisp.uconn.edu/european-studies-minor) or call IISP at 860-486-3631.

## Film Studies

Students electing this minor must take two courses from each of the following three Distribution Groups:

- Two courses in Core Film Studies: CLCS 3207, 3208; DRAM 4152.
- Two courses in national cinemas: CLCS 3211; DRAM 4151; FREN 3223\*, 3226\*\*; GERM 3261W (taught in German), 3264W\*\*; ILCS 3259\*; ILCS 3260W\*\*; SPAN 3250\*\*, 3251\*, 3252 (taught in Spanish), 3254\*\*.
- Two interdisciplinary courses: AASI/ENGL 3212; CLCS 3201; CAMS 3245; COMM/LLAS 4320; ENGL 3621; ILCS 3258W; LLAS 3575; POLS 3426; WGSS 3217.

\* May be taught in English.

\*\* Taught in English.

This interdisciplinary minor is offered by the Literatures, Cultures and Languages Department.

## Food Science

This minor addresses food science as an academic discipline which utilizes approaches for solving applied science problems associated with the acquisition and processing of food.

Students in this minor must pass: ANSC 3343, 4341 and NUSC 3233.

Also, students need to complete additional courses from the following to meet the 15 credit total minimum requirement: ANSC/NUSC 1645; ANSC 4642, 5641; ARE 1150; NUSC 1165, 1167, 3234.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Animal Science Department and the Nutritional Sciences Department.

## French

The French minor consists of a minimum of six courses (18 semester credit hours) at the 3200 level in French:

- A. **Language:** Six credits from FREN 3268 or 3269, 3250, 3251, 3257
- B. **French and Francophone Culture:** Six credits from FREN 3210, 3211, 3215 or 3216, 3217, 3218, 3224
- C. **French Literary Studies:** Six credits from FREN 3261W and/or 3262W, 3223, 3220, 3221, 3222, 3230, 3231, 3234, 3235, 3272, 3280

Education Abroad in our Paris program is highly recommended (students studying in Paris may earn up to nine credits towards the French Minor).

Any of the Minor courses may be replaced by the appropriate FREN 3293 from Paris.

Students must demonstrate proficiency in French at a level equivalent to FREN 1164.

The minor is offered by the Literatures, Cultures and Languages Department.

## Geographic Information Science

The minor consists of courses that concern spatial data acquisition, evaluation, manipulation, and analysis. Students electing this minor must complete at least fifteen credits from the following:

1. Two required courses: GEOG 2500 and 2505
2. One of the following: GEOG 3500Q, 3510
3. One of the following: ECON 2326; GEOG 2410, 2510, 3110, 4130, 4230, GEOG/MARN 3505; MATH 3710; STAT 2215Q

Geography majors may not use any Geography course to fulfill both major and minor requirements.

The minor is offered by the Geography Department.

## Geography

The requirements for this minor are GEOG 2100, 2300, and an additional nine credits of 2000-level and above Geography courses selected in consultation with an advisor to form a coherent program of study.

The minor is offered by the Geography Department.

## Geoscience

The minor in Geoscience provides instruction in the core concepts and principal methods of investigation in the study of the Earth. This course of study complements a major in anthropology, biological sciences, chemistry, civil engineering, ecology and evolutionary biology, environmental engineering, environmental science, environmental studies, geography, marine sciences, natural resources, or physics.

Students wishing to complete the minor in Geoscience must take at least 15 credits of 2000-level and above Geoscience courses.

A maximum of three credits of 2000-level and above courses from other departments or programs may be used to fulfill requirements of the minor, but only with the written pre-approval of the coordinator of the minor.

Credits from internship and independent study courses cannot be used to satisfy the requirements of the minor.

The minor is offered by the Center for Integrative Geosciences.

## German

This minor allows students to develop knowledge and skills in the areas of German language, literature, and culture through a coherent course of study. Students electing this minor must complete a minimum of 15 credits at the 2000 level and above distributed across the following categories:

1. Language skill courses: students must choose two of the following courses: GERM 3231, 3233, 3234, 3245, 4246
2. Content Courses (in literature, film, culture, etc.): students must choose two of the following, or they may substitute three 1-credit Linkage Through Language courses in German for one of the following 3-credit courses: GERM 3254W, 3255W, 3261W, 3265, 3293, 3294, 3295 (if taught in German)
3. Courses in English: students must choose one of the following: GERM 3251, 3258, 3264W

The minor is offered by the Literatures, Culture and Languages Department.

## Gerontology

Specialized training in aging is available through this minor. The minor offers students preparing for careers in aging the opportunity to pursue a formally recognized program of studying gerontology. The 15-credit minor consists of course work and field experiences working in community settings serving older adults.

### Course Requirements

1. Two of the following three courses (six credits): HDFS 2200, 3240, 3249
2. Three courses (nine credits) from the following: HDFS 2200\*, 3080\*\*, 3092\*\*, 3098, 3240\*, 3249\*, 3252, 3510, 3530, 4099\*\*, AH 3203; PSYC 3105

\* Any course listed above under required (item 1) and not used to fulfill the required courses may be taken as an elective (item 2).

\*\* Only three credits from each of these courses may count toward the nine elective credits.

The minor is administered under the auspices of the Center on Aging. Students should contact the Department of Human Development and Family Studies.

## Global Arts and Culture

Global Arts and Culture is an interdepartmental, interdisciplinary program designed for those who wish to broaden their scope of knowledge about global arts in social, cultural, religious and political contexts. Through coursework, immersion in the arts and fieldwork experience students will develop specific expertise in the study, teaching, performance and documentation of global arts and culture.

A total of 18 credits are required, 12 of which must be 2000-level or above coursework.

- A. Core: AFRA/FINA 1100 and CLCS 2201
- B. Arts Immersion: three credits in any combination from FINA 1001/MUSI 1006; FINA 2001; MUSI 1107, 1114
- C. Two courses from two different departments: AASI 3220/ARTH 3020/3020W; AFRA/ANTH 3152; AFRA/DRAM 3131/W; AFRA/HIST 3620; ANTH 3029; ARTH 3630/W; ARTH3640/W; ARTH 3645/W; ARTH 3760; DRAM/HRTS 3139; MUSI 3421/W
- D. Capstone: FINA 3391 (students may substitute a three-credit independent study research project with instructor and program coordinator pre-approval)

The minor is offered by the School of Fine Arts. For more information contact Dr. Mary Ellen Junda at [mary.junda@uconn.edu](mailto:mary.junda@uconn.edu) or Dr. Robert Stephens at [robert.stephens@uconn.edu](mailto:robert.stephens@uconn.edu).

## Healthcare Management and Insurance Studies

Students majoring in the School of Business may not earn this minor. Students may only earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business. The

minor is designed to offer a basic understanding of health care management and insurance topics.

Requirements: To receive a minor in Healthcare Management and Insurance Studies, a student must complete five (5) 3-credit 3000-4000 level School of Business courses, to include HCMI 3240, 3243, and three of the following courses: HCMI 3221, 4225, 4243, 4250, 4325, 4326, 4448.

Credits from internships cannot be used to satisfy requirements of the minor. No more than one 3-credit course used to satisfy requirements for this minor may be from any transfer or Education Abroad credits earned. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor.

The minor is offered by the School of Business. For more information, contact the Finance Department, School of Business, phone 860-486-3040. Permission number requests for these courses can be found at [undergrad.business.uconn.edu/forms](http://undergrad.business.uconn.edu/forms).

## History

Students must pass five courses (15 credits), by completing (A) five courses across at least three distribution groups, or (B) HIST 2100 and four courses across at least three distribution groups.

### List of Courses

**Group A - Ancient, Medieval, and Early Modern:** HIST 3300 (ANTH 3513), 3301 (CAMS 3253), 3320 (CAMS 3254), 3325 (CAMS 3255), 3330 (CAMS 3256/HEJS 3218), 3335 (CAMS 3250), 3340 (CAMS 3243), 3350, 3360, 3361, 3370, 3371, 3400, 3420, 3460, 3470, 3704.

**Group B - Modern Europe:** HIST 2206 (SCI 2206), 2240, 2401, 2402, 3201 (HRTS 3201), 3203 (HDFS 3423), 3205, 3207 (HRTS 3207), 3412, 3416 (WGSS 3416), 3418 (HEJS 3203), 3421, 3426, 3430, 3440, 3451, 3456, 3463, 3471.

**Group C - United States:** HIST 2206 (SCI 2206), 3201 (HRTS 3201), 3204W, 3206, 3502, 3504, 3510, 3516, 3519, 3520, 3522, 3530 (AASI 3578), 3531 (AASI 3531), 3540, 3541 (URBN 3541), 3542, 3544 (MAST 3544), 3550, 3551, 3554, 3555, 3560 (WGSS 3560), 3561 (WGSS 3561), 3562 (WGSS 3562), 3563 (AFRA 3563, HRTS 3563), 3564 (AFRA 3564), 3568 (AFRA 3568), 3570, 3575 (LLAS 3221/HRTS 3221), 3660W (LLAS 3660W), 3674 (LLAS 3220). Either HIST 3520 or 3522, but not both, may be counted for credit toward the minor.

**Group D - Africa, Asia, Latin America, and Middle East:** HIST 3201 (HRTS 3201), 3202 (HRTS 3202), 3206 (AFRA 3206), 3575 (LLAS 3221/HRTS 3221), 3607 (LLAS 3607), 3608W, 3609 (LLAS 3609), 3610, 3619 (AFRA 3619, LLAS 3619), 3620 (AFRA 3620), 3621, 3622 (AFRA 3622, LLAS 3622, WGSS 3622), 3635 (LLAS 3635), 3640, 3643, 3660W (LLAS 3660W), 3674 (LLAS 3220), 3704, 3705, 3712, 3752 (AFRA 3752), 3753 (AFRA 3753), 3760, 3808 (AASI 3808), 3809 (AASI 3809), 3812 (AASI 3812), 3822, 3832, 3863, 3875 (AASI 3875, LLAS 3875).

**Courses with Variable Content** (HIST 3095, 3098, 3100W, 3101W, 3102, 3991, 3993, 4989, 4994W, 4997W, 4999, or a graduate level History course) may be applied to any of the four distribution groups as determined by course content and with Advisor consent. No more than six credits of HIST 3991 will count toward the minor requirements.

The minor is offered by the History Department.

## Human Rights

This minor provides interdisciplinary instruction in theoretical, comparative, and historical perspectives on human rights through classroom courses, and valuable practical experience in the human rights field through a supervised internship. Fifteen credits at the 2000 level or above are required; at least three credits from Group A (Institutions and Laws or History, Philosophy, and Theory) and three credits from Group B (Applications and Methods); no more than six credits from Group C (Electives); and three credits from Group D (Internship). No more than six credits taken in any one department may be applied to this minor.

## Group A

### Institutions and Laws

HIST/HRTS 3202; HRTS 3200/W, 3420; POLS/HRTS 3212; SOCI/HRTS 3831

### History Philosophy and Theory

ECON 3128; HIST/HRTS 3201, 3207; POLS/HRTS 3042; ENGL/HRTS 3631; PHIL/HRTS 3220

## Group B. Applications and Methods

BADM 3252 or BLAW 3252; BADM 3254 or BLAW 3254 or HRTS 3254; DRAM/HRTS 3139; ENGR 3257 or HRTS 3257; HRTS 3149/W, 3250/W, 3475; POLS/HRTS 3256/W, 3428, 3430; SOCI/HRTS 3835, 3837

## Group C. Electives

ANTH/HRTS 3028/W, 3153W; ANTH 3150/W; ANTH/WGSS 3350; ARTH/HRTS 3575; ECON 2126, 2127/W, 3473/W; ENGL/HRTS 3619; ENGL 3629; HIST/AASI 3531; HIST/WGSS 3562; HIST/HRTS/AFRA 3563; HIST 3100W, 3570; any HRTS course numbered 2000 or above; LLAS/HRTS 3221/HIST 3575; PHIL/HRTS 2170W, 3219; PHIL 2215, 3218; POLS/HRTS 3418/W; POLS 3255, 3807; POLS/ENGR/HRTS 3209; SOCI/AASI 3221/HRTS 3571; SOCI/AASI 3222/HRTS 3573; SOCI/HRTS 3421/W, 3429/W, 3801/W; SOCI 3503/W; SOCI/HRTS/AFRA 3505, 3825; WGSS/HRTS 2263

## Group D. Internship

HRTS 4291

The minor is offered by the College of Liberal Arts and Sciences. For more information, contact Samuel Martínez in the Anthropology Department.

## India Studies

Completion of a minimum of fifteen credits at the 2000 level or above is required, including at least three courses from Group A. Any remaining credits can be completed in Group B courses; INDS courses, including those in Group A; or any independent study that focuses on India (approved by coordinator of India Studies). In addition the India Studies minor requires one of the following:

1. The completion of INDS 4296 (thesis) or
2. The completion of any thesis focusing on India and approved by coordinator of India Studies or
3. Participation in an approved, credit-bearing Education Abroad program in India or
4. An approved independent study which is completed in India

Also recommended are appropriate courses that provide an introduction to the advanced courses, such as PHIL 1106. Students are strongly encouraged (although not required) to take an Indian language course in the Critical Languages Program.

## Group A: Core courses

AASI/HIST 3812; AASI/SOCI 3222/HRTS 3573; ART/AASI/INDS 3375; ENGL 3320, 4301W (when offered with South Asia as topic and approved by India Studies Advisor); INDS 3210; POLS 3472/W.

## Group B: Related courses

ARE 4305; ENGL 2301/W; ECON 3473/W; POLS/WGSS 3216; SOCI 3701/W.

The minor is offered by the Asian and Asian American Studies Institute. For more information, contact Betty Hanson, [betty.hanson@uconn.edu](mailto:betty.hanson@uconn.edu), 860-604-1970, or Cathy Schlund-Vials, 860-486-9412.

## Information Assurance

The minor is designed to offer a basic understanding of computer security and information assurance to support the increased demand for information security professionals.

## Requirements:

### Group I. Required courses (six credits):

1. CSE 4707
2. OPIM 3777

### Group II. Three courses from the following (totaling at least nine credits)

1. OPIM 3222
2. ECE 4451
3. Special Topics courses (if related to information assurance): CSE 4095, ECE 4095, OPIM 4895
4. Independent Study courses (if related to information assurance): CSE 4099, ECE 4079, ECE 4099, OPIM 4899
5. Senior/design/thesis courses (if related to information assurance): CSE 4905, CSE 4951, ECE 4901, ECE 4902, OPIM 4997

Students in any major may earn this minor. However, students who are not majors in the School of Business may earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business. At the most, two OPIM courses taken toward the Information Assurance minor can be counted toward the Business major. OPIM 4895 and OPIM 4899 must be taken for three or more credits each if any of those courses are used toward the Information Assurance minor.

The minor is jointly offered by the Department of Operations and Information Management, School of Business and by the Departments of Electrical and Computer Engineering and Computer Science and Engineering, School of Engineering. For the Information Assurance minor, contact John Chandy ([john.chandy@uconn.edu](mailto:john.chandy@uconn.edu)), Steven Demurjian ([steve@enr.uconn.edu](mailto:steve@enr.uconn.edu)), or Manuel Nunez ([manuel.nunez@uconn.edu](mailto:manuel.nunez@uconn.edu)) for more information.

## Information Technology

This program extends the benefits of an Information Technology education to engineering majors who are not participating in one of the School of Engineering's Computer Science majors.

### Course Requirements:

1. Two required courses (six credits) CE 2110 and CSE 2500
2. Two courses from the following (six credits) CSE 2102, 2304, 3300, 3500, 3502, 3504, 3802, 4100, 4300, 4500, 4701, 4703, and 4705
3. One additional course to be determined by the student and the faculty advisor (three credits)

The minor is offered by the School of Engineering. For the Information Technology minor, contact Dr. Alexander Shvartsman at: [aas@enr.uconn.edu](mailto:aas@enr.uconn.edu).

## Integrated Pest Management

This minor provides an introduction to fundamentals of plant health and integrated pest management in agronomy, horticulture and turfgrass systems.

### Requirements:

- PLSC 3840; and
- Three of the following: PLSC 3810, 3820, 3830; TURF 3800.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by College of Agriculture, Health and Natural Resources.

## International Studies

This interdisciplinary minor enables students, regardless of their fields of concentration, to develop a broad understanding of the rapidly changing global environment. Students must complete 15-18 credits of course work, primarily at the 3000 and 4000 level, which focus on global issues and/or countries other than the United States from the 19th century to the present. No more than three independent study credits may be counted toward the

minor, and only two courses (six credits) taken to earn the minor may be double counted with the courses of the student's major(s).

Students must complete at least one course from three of the following four core areas:

1. International Politics and History (generally, courses in Political Science and/or History)
2. Global Economy (generally, courses in Economics, Business, and/or Agricultural and Resource Economics)
3. Global Society and Culture (generally, courses in Sociology and Anthropology)
4. International Dimensions of the Arts and Humanities (generally, courses in Art History, Literature, and/or Philosophy)

In addition to completing the required course work, International Studies minors must meet one of three tools and experience requirements:

1. Advanced intermediate competence in a modern language other than English, which may be accomplished through regular course work (i.e., advanced work equivalent to two courses at the 3000 level or above with grades of C or better) taken at UConn or in an approved Education Abroad program, or via an examination administered by the Department of Literatures, Cultures, and Languages;
2. Participation in an approved Education Abroad program that includes at least six weeks residence in a country other than the United States;
3. Completion of an international internship (with or without pay) of at least six weeks duration with an organization in another country or an internship with a strong international component in an organization in the United States.

This minor is administered by the Individualized and Interdisciplinary Studies Program, Rowe 403. For more information, visit [iisp.uconn.edu/international-studies-minor](http://iisp.uconn.edu/international-studies-minor) or call IISP at 860-486-3631.

## Interpreting Between American Sign Language and English

All students enrolled in this minor are required to complete the following four courses (12 credits): ASLN 2500, 2600, 3305, and a 2000-level course in interpreting in educational and other settings.

Beyond these, students must complete one additional course from the following list (three credits): ASLN 3295 or 3298 with approval of minor advisor; LING 2850.

## Italian Literary and Cultural Studies

This minor focuses on Italian literary studies but also allows students to take advanced coursework in Italian language, communication, and cultural studies. (All 3000 level coursework on Italian cinema may also be counted towards the minor in Film Studies).

Italian courses comprise two main groups:

### Group 1 (Literature)

ILCS 3237, 3243, 3244, 3245, 3246, 3247, 3250, 3251, 3253, 3254, 3255W, 3256, 3261, 3262, 3293, 3295, 3298, 4279.

### Group 2 (Language, Communication, and Culture)

ILCS 3239, 3240, 3255W, 3258W, 3259, 3260W, 3270, 3293, 3295, 3298, 4279.

For the minor in Italian, students must take 18 credits of ILCS courses at the 2000 level or above and according to the following guidelines:

1. At least one composition course: ILCS 3239 or 3240 or 3293
2. One introductory or literary survey course: ILCS 3243, 3244, 3245, 3246, 3247, 3250, 3251, 3256, 3261, 3262, 3293, 3295, 3298
3. Four courses taken from Groups 1 or 2 (which are not used to satisfy requirements A or B). No more than three of these four courses may be taken from the same group:
4. Only one W course may be counted as part of the 18 required Italian credits for the minor.
5. **Education Abroad in Italy:** Students are strongly encouraged to participate in a variety of UConn-sponsored Education Abroad programs (and also have the option of enrolling in non-sponsored



programs). In either case, students should consult with the ILCS faculty to determine which courses will receive credits. Students who enroll in study abroad programs not sponsored by UConn do not necessarily receive UConn credits for their coursework.

In addition, the following rules apply:

- A minimum of 12 of the minor credits must consist of Italian courses taken in residence.
- Up to six credits may be met by ILCS 3293, with the consent of the advisor.
- UConn's Early College Experience courses may be counted towards the minor.
- A single course cannot satisfy more than one requirement.

## Judaic Studies

The purpose of this minor is to provide in-depth study of topics in Judaic Studies reflecting the history, literature, and culture of the diverse experiences of Jews throughout the world stretching back four millennia to biblical Israel.

### Course Requirements

HEJS 1103 is required of all minors. At least one year of Biblical or Modern Hebrew is strongly recommended.

A minimum of six credits in Foundational Courses (Group A): HEJS 3201; HEJS 3218/CAMS 3256/HIST 3330; HEJS 3301, 3511; INTD 3260.

Nine additional credits may be drawn from other Group A offerings or from the following Topical Courses (Group B): HEJS 2104, 3202; HEJS 3203/HIST 3418; HEJS 3241, 3279, 3401/W; CAMS 3244; CAMS 3253/HIST 3301; HIST 3705, 3712.

The following may be substituted for Group B courses with the approval of the student's HEJS advisor: HEJS 3293, 3299; and SPAN 3200.

All 15 credits may consist of courses from Group A. Some HEJS Graduate courses are open to undergraduates. These may be substituted for either Group A or Group B courses with the approval of the student's HEJS advisor.

The minor is offered by the Hebrew and Judaic Studies Section of the Literatures, Cultures and Languages Department.

## Latin American Studies

The interdisciplinary minor in Latin American Studies offers a basic understanding of the peoples and cultures of Latin America and the Caribbean, their history and contemporary economic, social, and political problems, and the region's relations with the United States.

The minor consists of a minimum of 15 credit hours of course work selected from at least three disciplines from the courses below.

LLAS 2011W, 2995, 3998, 3999, 4994W; ANTH 3021, 3029, 3042, 3150, 3152; ANTH/LLAS 3241, ARTH 3610, 3620, 3630, 3640, 3645; GEOG 4710; HIST 3610, 3620, 3621, 4994W; HIST/LLAS 3607, 3608W, 3609, 3635, 3660W; POLS 3218, 3235, 3237; POLS 3834/LLAS 3271; SPAN 3201, 3205, 3214, 3233, 3234, 3250, 3251, 3266; SPAN/LLAS 3265

**Language Requirement** (credits do not apply to minor's 15 credit minimum) Students may demonstrate elementary proficiency in a Latin American language in one of the following ways:

- One 2000 level or above language course
- Pass equivalent language exam administered by the Department of Literatures, Cultures and Languages
- Requirement waived for native speakers

Students minoring in Latin American Studies should also consider participating in an Education Abroad program in Latin America or the Caribbean. Courses taken abroad may be counted toward the minor if they are equivalents of the courses listed above.

The minor is offered by El Instituto: Latino/a, Caribbean and Latin American Studies Institute. For information, contact Anne Gebelein. Anne.Gebelein@uconn.edu or call 860-486-5508.

## Latino Studies

This minor advances a critical understanding of Latinos/as as an integral social and cultural component of United States society and of the American hemisphere. Since it employs interdisciplinary research methods, this minor enhances a variety of majors and fields of study.

**Requirements:** The Latino Studies minor requires a minimum of 15 credits of coursework. At least nine of these credits must be from courses listed as, or cross-listed with LLAS: LLAS 2001, 2011W, 2012, 2995, 3210, 3211, 3998, 3999, 4212; LLAS 3241/ANTH 3041; LLAS/COMM 4320, LLAS/COMM 4470; LLAS 3232/ENGL 3605, LLAS 3233/ENGL 3607; LLAS 3250/HDFS 3442, LLAS 3251/HDFS 3268; LLAS 3220/HIST 3674, LLAS/HRTS 3221/HIST 3575, LLAS/HIST 3660W; LLAS 3270/POLS 3662, LLAS 3271/POLS 3834, LLAS/POLS 3667; LLAS/SOCI 3525; LLAS/SPAN 3265; LLAS 3230/WGSS 3258, LLAS 3231/WGSS 3259, LLAS 3264/WGSS 3260/COMM 3321.

Additional courses elected from the following list may be counted for up to six credits permitted toward satisfaction of the required total of fifteen: AASI/HIST/LLAS 3875; AFRA/HIST/LLAS/WGSS 3622; AFRA/HRTS/SOCI 3505; AFRA/SOCI 3501; ANTH 3021, 3029, 3042, 3150, 3152; ARTH 3640; COMM 4450W, 4460, 4802; DRAM 3133; ECON 2444, 2456; ENGL 3218, 3265W, 4203W; HDFS 3421; HIST 3554, 3608W, 3610, 3620, 3621; HIST/LLAS 3609, 3619, 3635; INTD 2245; POLS 3218, 3235, 3237; SOCI/HRTS 3421/W, 3429, 3831; SOCI 3503, 3901, 3907, 3911, 3971; SPAN 3204, 3205, 3208, 3214, 3266; URBN 3276; WGSS 2267.

The minor is offered by El Instituto: Latino/a, Caribbean and Latin American Studies Institute. For information, contact Anne Gebelein (Anne.Gebelein@uconn.edu) or call 860-486-5508.

## Linguistics

This minor requires 15 credits of 2000 level or above course work. Required courses are:

LING 2010Q, 3310Q, 3410Q, 3511Q, and one additional 2000 level or above course in linguistics.

The minor is offered by the Linguistics Department.

## Management

This minor creates an opportunity for School of Business students to develop essential management skills in entrepreneurial thinking, creativity and innovation, teamwork, leadership, managing diversity and negotiation in complex business environments.

This minor is only open to students enrolled in the School of Business (not open to Management majors). Students may only earn one minor offered by the School of Business.

**Requirements:** To receive a minor in Management, a student must complete five (5) 3-credit, 3000/4000-level courses offered by the School of Business to include: MGMT 3101 (or BADM 3740) and MGMT 4900 (or MGMT 4902); and three additional 3-credit, 3000/4000-level MGMT courses.

Credits from internships cannot be used to satisfy requirements of the minor. No more than one 3-credit course used to satisfy requirements for this minor may be from transfer credits earned. Courses taken through the Education Abroad program and accredited at the MGMT 3000/4000 level may satisfy the requirements of this minor.

Courses designed for students pursuing this minor can be found in the Management (MGMT) course description section of the Undergraduate Catalog. Students should note they must meet all class prerequisites. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor.

The minor is offered by the School of Business. For more information, contact the Management Department, phone: 860-486-3638; email: pamela.costa@business.uconn.edu.

## Manufacturing

This minor exposes engineering students to the fundamentals and applications of manufacturing. This minor is not allowed for Management

and Engineering for Manufacturing (MEM) engineering students. This minor includes design and fabrication techniques, including evaluating the impact on the human and environmental factors, process, and profit associated with the steps from design through production. Actual case studies will help reinforce the concepts. The two core classes are ENGR 2215 and 3215. The minor relies on the two core manufacturing courses and an elective as well as a manufacturing-focused senior design from the student's home department. This elective can also be counted as an elective in their home department. The minor requires the completion of 15 credits including as follows:

- Application for the minor two semesters before graduation;
- An approved Plan of Study one semester before graduation;
- **Group I (Required Courses):** ENGR 2215 and 3215;
- **Group II:** Nine or more credits selected from the list of Manufacturing minor electives from any engineering department, which may include Senior Capstone from the student's home department related to a manufacturing problem, subject to approval by Minor advisor. Group II courses can simultaneously be used towards the student's major requirements.
- Manufacturing minor electives: MEM 3221, 4225; ME 3217, 3221, 3222, 3225, 3295 (when taught as Principles of Machining and Machine Tools); MSE 2101, 2102, 3004, 4004, 4040.

## Marine Biology

This minor requires at least 15 credits of 2000-level or above course work. Required courses are: MARN 3014/EEB 3230; MARN 4010\*

In addition, students must take at least three of the following courses\*\*: MARN 3015/5015, 3017/5017, 3811, 5016; EEB 3250; MARN 3012/5012 or EEB 4275; MARN 3016/MCB 3636 or MARN 3030/5032; MARN 4018/5018 or EEB 4200. Students may use MARN 3893, 4893, 4895, 4898, or other MARN courses towards one or more of these electives with prior approval of the Department Head.

\* Students who have taken both MARN 2002 and 3001 may substitute these for MARN 4010

\*\* Marine Sciences majors may use only one 2000-level or above MARN elective course to count for both the major and the Marine Biology minor.

The minor is offered by the Marine Sciences Department.

## Maritime Archaeology

Maritime Archaeology is an interdisciplinary field of study, global in scope, focusing on the investigations of human interactions with the seas, lakes, and rivers through the excavation and documentation of submerged settlements and coastal facilities, wrecked vessels, lost cargoes, and human remains. The program integrates technology, such as side-scan sonar and undersea robotic vehicles, and science with traditional archaeological and historical studies. The minor introduces students to the development and application of current and future methods of exploration, research, and management of maritime heritage sites and resources. Students interested in pursuing this minor are advised to complete appropriate 1000-level courses in a number of fields as preparation for advanced courses in their program in Maritime Archaeology. These should include some of the following courses: ANTH 1006; MARN 1002 or 1003; GSCI 1050 or 1051; GEOG 1000; HIST 1201, 1300, 1400.

**Requirements for the Minor:** 18 credit hours of course work as follows: ANTH 2501, 2510

Select one course from the Science/Technology list: GSCI/MARN 3230; GEOG 2300, 2500

Select nine credits from the History/Anthropology/Marine Studies list: six credits of ANTH 3990\*; HIST 2100, 3544/MAST 3544; ANTH 3531/HIST 3209/MAST 3531; ANTH 3532/HIST 3210/MAST 3532; ANTH 3701, 3902; one to three credits of MAST 3991\* (with advance approval by advisor and MAST program coordinator)

\* Students may count either ANTH 3990 or MAST 3991\* but not both for this category.

The minor is offered by Maritime Studies. Interested students may contact Kroum Batchvarov at [kroum.batchvarov@uconn.edu](mailto:kroum.batchvarov@uconn.edu).

## Materials Science and Engineering

This minor provides a firm basis for understanding the relationships between the structure of all classes of materials, the processing conditions, and the properties of these materials that are critical to science and engineering. It requires the completion of 15 credits including the following:

- Application for the minor two semesters before graduation
- An approved Plan of Study one semester before graduation
- MSE 2001 (or 2101) and 2002 (or 2102);
- Nine credits selected from MSE 3000-level courses; MSE 4000-level courses (but not more than six credits of independent study or directed research); BME 3700 or CHEG 3156.

This minor is offered by the Materials Science and Engineering Department. For more information, contact the MSE Office by email at [mseinfo@engr.uconn.edu](mailto:mseinfo@engr.uconn.edu) or by phone at 860-486-4620.

## Mathematics

The requirements for this minor are 15 or more credits following one of three tracks,

**Track 1.** Five courses chosen from List A; or

**Track 2.** Five courses chosen from Lists A and B with at least two courses coming from List B. Note that all the courses in List B (except for MATH 2710 or 2142) have a prerequisite of a grade of C (2.0) or better in MATH 2710 (or 2142); or

**Track 3.** MATH 2141Q, 2142Q, 2143Q and 2144Q.

**List A.** MATH 2110Q (or 2130Q or 2143Q), 2210Q, 2410Q (or 2420Q), 3146, 3160, 3170 (or STAT 3965), 3410, 3435, 3510, 3511, 3710; certain sections of MATH 3094, 3795 and 3799 approved by the Department Head.

**List B.** MATH 2710 (or 2142), 3150 (or 4110), 3151, 3210, 3230 (or 4210), 3231, 3240, 3250, 3260, 3330 (or 4310), 3370.

The minor is offered by the Mathematics Department.

## Medieval Studies

Students must complete at least five upper-level courses in Medieval Studies disciplines, for a total of 15 credits. No more than three of these credits may be transferred from another college or university. Coursework must be at the 3000-4000 level, and may also include Variable Topics, Special Topics, Independent Study, Foreign Study, and graduate-level courses, as determined by the course content and consent of one of the Minor Advisors.

The five courses must be drawn from at least four of the following categories:

- Art History: ARTH 3210/W, 3220/W, 3230/W, 3240/W, 3260/W
- Classics and Ancient Mediterranean Studies: CAMS 3213, 3232, 3244; CAMS 3243/HIST 3340
- English: ENGL 3111, 3301, 3501, 3603
- French: FREN 3230
- Hebrew and Judaic Studies: HEJS 3201, 3301; CLCS 3201; HEJS 5397/CLCS 5301
- History: HIST 3335/CAMS 3250; HIST 3340/CAMS 3243; HIST 3350, 3360, 3361, 3420, 3460, 3704
- Interdepartmental: INTD 3260
- Italian Literary and Cultural Studies: ILCS 3253, 3254, 3255W
- Music: MUSI 3401
- Philosophy: PHIL 3261
- Spanish: SPAN 3200, 3261

The Minor is offered by the Medieval Studies Program. For further information, contact Sherri Olson, Wood Hall, Room 229, 860-486-3552.

## Middle Eastern Studies

This minor is intended to enable students to pursue a multi-disciplinary approach to the Middle East and to acquire a thorough understanding of the area from anthropological, economic, historical, literary, political, and religious perspectives.

Students electing this minor must complete at least 15 credits at the 2000 level or above from at least three fields that satisfy the following criteria.

1. The basic required course is HIST 3705.
2. In addition, students must complete four courses from the following list: ANTH 3038; ANTH 3513/HIST 3300; CLCS 3201, 3203; ECON 2104/W; FREN 3218; HEJS 3201; HIST 3704, 3712; HIST 3301/CAMS 3253; HIST 3330/CAMS 3256/HEJS 3218; INTD 3260; POLS 3447, 3462, 3464/W; and any 2000, 3000 and 4000-level courses in Middle East Languages.

Education Abroad courses, POLS 2998, and those offered by the Comparative Literary and Cultural Studies (CLCS) Program count toward the minor when the topic contains substantial Middle Eastern material.

With the approval of a student's Middle Eastern Studies Advisor, one other course not listed above or a 3-credit independent study course with substantial Middle Eastern content may also be counted toward the minor.

Students are strongly encouraged to take a Middle Eastern language such as Arabic, Hebrew, Persian, or Turkish. Students are strongly encouraged to study abroad at a university in the Middle East.

The minor is offered by the College of Liberal Arts and Sciences and supervised by a committee of affiliated faculty. For information, visit [mideast.uconn.edu](http://mideast.uconn.edu).

## Molecular and Cell Biology

Students wishing to complete this minor must take at least 15 credits of 2000-level or above MCB courses, including at least one course from each of the following three groups:

- A. MCB 2400, 2410, 3201, or 3617
- B. MCB 2000 or 3010
- C. MCB 2210 or 2610

The minor is offered by the Molecular and Cell Biology Department.

## Music

This minor requires a minimum of 18 credits in Music:

1. Completion of MUSI 1011 and 1012 or MUSI 1313 and 1314 if the student qualifies (six credits).
2. Completion of two courses from the following (six credits): MUSI 1003, 1004, 1021, 1022, 3401, 3405, and 4999.
3. At least six additional credits in Music, selected from courses for which the student has the necessary prerequisites or instructor consent, except MUSI 1001, which may not be applied toward the minor. The courses selected may be in performance or academic studies.\*

\* Music minors may register for one-credit applied study, MUSI 1221, with the permission of the instructor and the Head of the Music Department. May be repeated for credit.

The minor is offered by the Music Department.

## Nanomaterials

This minor exposes non-Materials Science and Engineering students to the fundamentals and applications of nanoscale materials. This includes synthesis and characterization techniques, nano-device fabrication methods, testing and applications, and underlying Materials Science and Engineering, physics and chemistry principles. Content in this fast developing area is frequently based on recent progress and reports documentation in the nanoscience and nanotechnology disciplines, and is extensively interdisciplinary. The minor requires the completion of 15 credits including as follows:

- Application for the Nanomaterials Minor two semesters before graduation
- An approved Plan of Study one semester before graduation
- Group I – Required Courses: MSE 2001 (or 2101) and 2002 (or 2102)
- Group II: Nine credits selected from the following courses: MSE 4001, 4240, 4241, ENGR 3195 and/or MSE 4095 (if related to nanomaterials, subject to approval by Minor advisor)

**Note:** Group II courses cannot be simultaneously used towards multiple minors, e.g. the Materials Science and Engineering Minor and the Nanomaterials Minor.

This minor is offered by the Materials Science and Engineering Department. For more information, contact the MSE Office 860-486-4620 or [mseinfo@engr.uconn.edu](mailto:mseinfo@engr.uconn.edu).

## Nanotechnology

The emerging field of nanotechnology, which involves studying and manipulating matter on an ultra-small scale (a nanometer is one-billionth of a meter), is expected to have far-reaching consequences in engineering applications as diverse as sustainable energy and next-generation microprocessors and flash memories.

A minor in nanotechnology requires the completion of at least 15 credits as follows:

**Group I: Required courses (Nine credits):** ECE 4211; ECE/ENGR 4243 and ECE/ENGR 4244

**Group II: Two courses from the following list (at least six credits):** ENGR 2243; ECE 3223, 3243, 4225, 4242, 4095 (or any engineering special topics course if related to nanoscience/technology), ECE 4079 or any engineering independent design laboratory course (if related to nanoscience/technology), ECE 4099 or any engineering independent studies course (if related to nanoscience/technology), the two-course sequence ECE 4901 and 4902 (if the project is related to nanoscience/technology).

The minor is offered by the School of Engineering. For information about the Nanotechnology minor, contact John Chandy at [john.chandy@uconn.edu](mailto:john.chandy@uconn.edu).

## Native American and Indigenous Studies

Students must complete a minimum of 15 credits from the following list of courses. The 15 credits must be distributed across at least three disciplines. Students who register for ANTH/HRTS 3028 must count ANTH as one of their three disciplines even if they register for the course under the HRTS designation.

ANTH 3026, 3027, 3030, 3902, 3904; ANTH /HRTS 3028; CLCS 3211; ENGL 3210, 3218; HIST 3502, 3570, 3640; HIST/LLAS 3607; POLS 3218

This minor is offered by the College of Liberal Arts and Sciences. For more information, contact Kevin McBride at [kevin.mcbride@uconn.edu](mailto:kevin.mcbride@uconn.edu).

## Neuroscience

The requirements for this minor are at least 15 credits of 2000-level or above courses that are structured in the following manner.

Required lecture courses: All students must take both PSYC 2200 and PNB 3251.

Lab requirement: Students must take at least one of the following: PSYC 3250W, 3251, 3252, 3253, or PNB 3263WQ.

Additional courses required to satisfy the 15 credit requirement (if not used for lab requirement) may include: PSYC 2201, 2500, 3200, 3201, 3250W, 3251, 3252, 3253, 3501; PNB 3262, 3263WQ, 3275, 3276, 4162, 4400.

Graduate courses in PSYC or PNB may be counted with permission of the neuroscience minor advisor. The additional courses should be selected in consultation with a neuroscience advisor in psychology or physiology and neurobiology and may include a lab course that was not used to fulfill the lab requirement. Up to three credits of independent study (PNB 3299; PSYC 3889, 3899) may be counted towards the minor with permission of the neuroscience minor advisor.

The minor is offered by the Department of Psychological Sciences and the Physiology and Neurobiology Department. Interested students should contact John Salamone at [Salamone@psych.psy.uconn.edu](mailto:Salamone@psych.psy.uconn.edu).

## Nutrition for Exercise and Sport

This minor has been established in cooperation with the Departments of Kinesiology and Allied Health Sciences. Students interested in earning the minor will need to complete prerequisite coursework for required courses. These include NUSC 1165, PNB 2264, 2265, and MCB 2000. All students are required to complete a minimum of 18 credits for the minor.

Students in this minor must complete: NUSC 4236, 4250; KINS 4500, 4510; and any two of the following courses for an additional six credits: NUSC 2241, 4299; KINS 3099, 3530; AH 3231 or 3234.

The minor is offered by the College of Agriculture, Health and Natural Resources.

## Oceanography

This minor focuses on biological, chemical, geological, and physical oceanography. Students pursuing the minor must take at least 15 credits of 2000-level and above courses, including three courses from Group A, and two additional courses from either group A or B:

- A. MARN 4010, 4030W, 4050, 4060
- B. MARN 2002, 3000, 3001, 3015, 3016, 3017, 3060, 3061

Marine Sciences majors may not choose MARN 4010. No more than two courses may be counted towards both this minor and the student's major.

The minor is offered by the Department of Marine Sciences. More information is available on the internet: [www.marinesciences.uconn.edu](http://www.marinesciences.uconn.edu), by email: [marinesciences@uconn.edu](mailto:marinesciences@uconn.edu), or by phone: 860-405-9152.

## Ornamental Horticulture

The minor in Ornamental Horticulture provides an introduction to the production, maintenance and use of plants to enhance human environments.

All students are required to complete a minimum 15 credits including HORT 3640 and:

- Six credits from among: HORT 2430, 3410, 3560
- Three credits from among: HORT 2520, 2750, 3530, 3660, 3670, 3765
- Three credits from among: PLSC 3810, 3820, 3830, 3840

At least 12 credits must not duplicate courses used to satisfy the 36 credit requirement for the student's major, or for another minor in the College of Agriculture, Health and Natural Resources. Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Department of Plant Science and Landscape Architecture.

## Philosophy

A student must take at least 15 credits of philosophy, at the 2000 level or higher, including one course from at least three of the following categories:

- Category I: History of Philosophy: PHIL 2221 (CAMS 3257), 2222, 3261
- Category II: Metaphysics and Epistemology: PHIL 2210, 2212, 3250
- Category III: Logic and Philosophy of Language: PHIL 2211Q, 3214, 3241
- Category IV: Value Theory: PHIL 2215, 2217, 3216, 3218, 3220 (HRTS 3220)

The minor is offered by the Philosophy Department.

## Physics

Although this minor is particularly suitable for students in the physical or life sciences as well as in engineering, it will also serve other students who have the appropriate Freshman/Sophomore calculus-based physics preparation. The minor introduces the students to the core concepts in mechanics, electricity and magnetism, thermal physics, and quantum physics, and provides further opportunities to study laser physics, optics, nuclear and particle physics, and astrophysics. The minor requires a minimum of fifteen credits of 2000-level or higher course work.

### Course Requirements

- A. Nine credits of required courses: PHYS 2300, 3101, 3201 or ECE 3001
- B. Six credits of elective courses chosen from any of the PHYS 2000-level or higher courses, other than the ones already taken above, with no more than three credits from PHYS 4096W and 4099.

The minor is offered by the Physics Department.

## Physiology and Neurobiology

Students desiring this minor must take at least 15 credits of 2000-level and higher PNB courses including fulfilling the Core requirements of either Group A or Group B, below:

- Group A. PNB 2274-2275
- Group B. PNB 2250, 3251, 3262 or 3265, 3263WQ or 3264W

The minor is offered by the Physiology and Neurobiology Department.

## Political Science

Students must complete an introductory 1000-level course selected from among POLS 1002, 1202, 1207, 1402, or 1602. At least one additional 1000-level course is recommended. Students must complete at least 15 credits of course work at the 2000's level (or higher, with consent of instructor and minor advisor). POLS 3991 and 3999 may not be counted toward the minor. POLS 2998 and 3995 may be counted toward the minor only with consent of the advisor. A W or Q course may be substituted for the same numbered course.

Students must complete at least 15 credits of POLS work at the 2000-level (or higher, with consent of instructor and minor advisor). Of these 15 credits, nine credits (three courses) must be taken from three of the six disciplinary subdivisions as they appear in the Distribution B requirement of the Political Science major described in the College of Liberal Arts and Science section of this Catalog. Cross-listed courses may count only once toward this distribution requirement.

The minor is offered by the Political Science Department.

## Professional Sales Leadership

The Professional Sales Leadership minor is designed to offer a basic understanding of professional sales and sales management and leadership topics. This minor is not available to Marketing majors.

### Requirements

Four (4) 3-credit 3000-4000 level MKTG (BADM) courses are required. Business students should register for the MKTG sections; non-business students should register for the BADM sections.

The four required courses are: MKTG 3101 (BADM 3750); MKTG 3452 (BADM 3452); MKTG 3454 (BADM 3454); and MKTG 4892 (BADM 4892).

MKTG/BADM 3452 and MKTG/BADM 3454 must be taken in residence at the University of Connecticut.

A minimum of nine credits required for this minor must be earned in residence at the University of Connecticut. Education Abroad courses may not be used to meet this residency requirement.

### Additional Details

Students must meet all prerequisites before registering for a course. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor. Students may require departmental permission to register for courses in the minor. School of Business students may only earn one minor offered by the School of Business. Non-business students are restricted to no more than 24 credits of course work offered by the School of Business.

## Psychological Sciences

Students seeking to complete a minor in Psychological Sciences are required to take at least 15 2000-level and above psychology credits from among the following courses, which are grouped as follows:

**Foundation:** 2100Q or 2100WQ

**Area I. Social, Developmental, Clinical, and Industrial/Organizational:** PSYC 2300/W, 2301, 2400, 2600, 2700.

**Area II. Experimental and Behavioral Neuroscience:** PSYC 2200, 2500, 2501, 3201 (EEB 3201), 3500, 3501.

**Area III. Cross Area (I and II):** PSYC 2110, 2201, 3100/W, 3102, 3105, 3400, 3601.

**Area IV. Advanced and Specialty Lecture Courses:** PSYC 2101, 2701, 3101, 3103 (COMM 3103), 3104, 3106 (AFRA 3106), 3200/W, 3300/W, 3301, 3470/W, 3502, 3503, 3600/W, 3670/W, 3770, 3883, 3884, 3885.

**Laboratory Courses:** PSYC 3150, 3250W, 3251, 3252, 3253, 3350W, 3450W, 3550W, 3551W, 3552.

**Research:** PSYC 3889, 3899, 4197W

The requirements for the Minor in Psychological Sciences are as follows:

- One Area I course
- One Area II course
- Any three additional 2000-level and above Psychology courses listed above.

No more than three credits of either PSYC 3889 or 3899 may be counted toward the minor. PSYC 3880 cannot be used. The courses composing the minor should be selected in consultation with the student's major advisor to form a coherent program relevant to the student's academic and/or career interests and objectives.

The minor is offered by the Department of Psychological Sciences.

## Public Policy

This minor provides an overview of public policy processes and the design, management, and evaluation of public policies and programs. The Minor requires either 15 credits at the 2000 level or above, or 12 credits at the 2000 level or above plus PP 1001.

### Requirements:

Students choose 15 credits of Public Policy courses in consultation with their academic advisors. PP 1001 is the only 1000-level course that meets the course requirement. PP/URBN 2100; ECON 2328/W, 2431, 2439, 2456 and Public Policy graduate courses can be used to meet this requirement.

Prospective students should contact Eric Brunner of Public Policy at eric.brunner@uconn.edu.

## Real Estate

Students majoring in the School of Business may not earn this minor. Students may only earn one minor offered by the School of Business. Students who are not majors in the School of Business are restricted to no more than 24 credits of coursework offered by the School of Business. The minor is designed to offer a basic understanding of real estate topics.

**Requirements:** To receive this minor, a student must complete five (5) 3-credit, 3000 level or above courses offered by the School of Business to include: one from the following: FNCE 3230 or BADM 3730 (FNCE 3101); four courses from the following: FNCE 3230; BADM 3730 (FNCE 3101); FNCE 3332, 3333, 3334, BLAW 3274; ECON 3439; FNCE 4895 when offered as Commercial Real Estate Appraisal.

Credits from internships cannot be used to satisfy requirements of the minor. No more than one 3-credit course used to satisfy requirements for this minor may be from any transfer or Education Abroad credits earned.

Courses designed for students pursuing this minor can be found in the Business Administration (BADM) course description section of the Undergraduate Catalog. Other courses offered to business majors may be available to students pursuing a minor, but students will typically require departmental permission to register for those classes. Students should also note that they must meet all prerequisites for those classes. Access to courses for this minor is on a space available basis, and the School of Business cannot guarantee completion of this minor.

The minor is offered by the School of Business. For more information, contact the Finance Department, School of Business, phone 860-486-3040. Permission number requests for these courses can be found at undergrad.business.uconn.edu/forms.

## Religion

Fifteen credits at the 2000 level or above are required, six credits from Group A, *Foundational Courses*, and nine additional credits from either Group A or B, *Topical Courses*. No more than six credits may be taken in one department.

**Group A. Foundational Courses:** ANTH 3400, 3401; INTD 3260; PHIL 3231; SOCI 3521

**Group B. Topical Courses:** ANTH/WGSS 3402; ANTH/WGSS 3403; ARTH 3140/CAMS 3251; ARTH 3150, 3210, 3220, 3230, 3240; CAMS 3213, 3244, 3245, 3295\*, 3298\*; CAMS 3243/HIST 3340, CAMS 3250/HIST 3335; CAMS 3253/HIST 3301, CAMS 3256/HEJS 3218/HIST 3330; ENGL 3617, 3621\*, 3623\*, 3627\*; HEJS 3201, 3202, 3298, 3511, 5300-97; HDFS 3252; HIST 3098\*, 3360, 3361, 3371, 3704; INDS 3293\*, 3295\*, 3298\*, 3299\*; INTD 3999\*; PHIL 3261.

\*Variable subject courses may be applied to the Minor depending on content and the approval of the Minor Coordinator.

The minor is offered by the College of Liberal Arts and Sciences. For more information, contact the Anthropology Department by phone 860-486-2137 or e-mail Jocelyn.Linnekin@uconn.edu.

## Sociology

Students must complete SOCI 1001, 1251, 1501, or 1701 and five different 2000-level or above Sociology courses (totaling 15 credits), including either SOCI 3201 or 3251.

The minor is offered by the Sociology Department.

## Spanish

Students wishing to complete a Minor in Spanish are expected to take at least 18 credits of 2000, 3000 and 4000-level Spanish courses. The requirements are:

- One advanced grammar or writing course from SPAN 3178, 3240W or 3293
- One course from each of the following groups:
  - **GROUP 1 (Literature):** SPAN 3207, 3208, 3230, 3231, 3232, 3233, 3234, 3260, 3261, 3262, 3263, 3264, 3266, 3267W, 3293, 4200W; SPAN/LLAS 3265.
  - **GROUP 2 (Culture):** SPAN 3179, 3200, 3201, 3204, 3205, 3206, 3207, 3208, 3214, 3250, 3251, 3252, 3254, 3293, 4200W.
  - **GROUP 3 (Language and Communication):** SPAN 3170, 3177, 3178/W, 3179, 3204, 3240W, 3241, 3242, 3261, 3267W, 3293, 4200W.
- Two additional courses from any group.

In addition, the following rules apply: AP courses may not be used toward the minor. A maximum of three transfer credits and a maximum of three SPAN 3293 may be used toward the minor, but students applying transfer credits toward completion of the minor may use only two SPAN 3293. In any case, a minimum of nine credits in residence are required.

The minor is offered by the Literatures, Cultures and Languages Department.

## Statistics

This minor requires at least 15 credits at the 2000 level or above. Students must choose one of two options:

- Track I. STAT 2215Q, 3115Q, 3375Q, 3445, plus one course from the *Optional List* below.
- Track II. STAT 2215Q, 3025Q, 3115Q, plus two courses from the *Optional List* below.
- *Optional List:* STAT 3515Q, 3675Q, 3965, 4475, 4525, 4625, 4825, and 4875.

Students who have passed MATH 1132Q or 1152Q and also MATH 2110Q or 2130Q are strongly advised to take Track I. Students who have passed only MATH 1132Q or 1152Q should take Track II.

The minor is offered by the Statistics Department.

## Studio Art

The minor in Studio Art provides an opportunity to explore studio arts across a range of media and artistic practices. Students wishing to complete this minor must fulfill the following requirements:

1. A minimum of 18 credits in ART courses
2. Either ART 1010 or 1030 or 1040
3. Five ART courses at the 2000 level or above (minimum of 15 credits)

ART 4901 is not open toward the minor.

A maximum of six credits of ART 2993 or 3993, Foreign Study, may be used to fulfill the requirements of the minor.

No portfolio review is required for students enrolling in the minor.

The Studio Art minor is offered by the Department of Art and Art History. Students interested in the minor must meet with the Studio Art minor coordinator to develop an initial plan of study, and fill out and submit the Studio Art Minor Declaration Form.

## Sustainable Food Crop Production

This minor provides an overview of issues related to sustainable food crop production within the context of environmental stewardship.

Students must complete a minimum of 15 credits including: HORT 3620; SOIL 3620; and three of: HORT 3765; PLSC 1150, 3810, 3820, 3830, 3840, 3990

To include PLSC 3990 Field Internship, the memorandum of understanding must be approved by the Minor Advisor.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Department of Plant Science and Landscape Architecture.

## Therapeutic Horsemanship Education

This minor provides students with an opportunity to pursue an interest in therapeutic riding programs, and provides a basis for further study and certification as a therapeutic riding instructor or director. Riding experience at Intermediate Level II is required to enroll in ANSC 4457, one of the required courses of this minor.

The requirements for this minor are at least 16 credits of coursework. The student must complete all of the following courses: ANSC 2251, 3456, 3691, 4457. The student must also complete a minimum of eight credits of coursework by choosing from the following courses: ARE 3215, 4217; BADM 3740; HDFS 2100, 2200; PNB 2264 or 2265; PNB 2274 or 2275; SLHS 1150.

At least 12 of the credits taken to satisfy the minor must be from courses that are not required for the student's major or other minors within the College of Agriculture, Health and Natural Resources.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

This minor is offered by the Animal Science Department.

## Turfgrass Management

The minor in Turfgrass Management provides an introduction to the management and maintenance of turfgrasses used for aesthetics (residential and commercial lawns, parks, institutional grounds), recreation (golf courses, athletic and sports fields), and functional purposes (sod farms, highway medians, inland and coastal erosion control sites, conservation). This minor will also assist those interested in sales, marketing, or any other business aspects of industries associated with turfgrass and ornamental horticulture.

All students are required to complete a minimum of 16 credits including:

- TURF 1100, 3200/W, 3800; SOIL 2120
- And any two of the following: TURF 3100, 3300, 3400, 3720; SOIL 3520

At least 12 credits must not duplicate courses used to satisfy the 36 credit requirement for the student's major, or for another minor in the College of Agriculture, Health and Natural Resources. Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Department of Plant Science and Landscape Architecture.

## Urban and Community Studies

The minor in Urban and Community Studies is an interdisciplinary minor with a focus on educating citizens on the multiple dimensions of urban and community life and preparing students for careers in public and community service. While available with any undergraduate major, this minor provides an especially appropriate complement to majors in the social sciences, as well as departments and schools that emphasize human services such as Human Development and Family Studies or Education.

The minor requires passing 15 credits at the 2000 or above level as follows:

1. URBN 2000
2. Two of the following with no more than one per department (Cross-listed courses count towards the non-URBN department): ECON 2439, 2456; GEOG/URBN 3200; GEOG 2000, 2400, 4210; HIST/URBN 3541; HIST 3554; HIST/AFRA 3564; HIST 3674/LLAS 3220; POLS 3632/W or URBN 3632W; POLS 3842 or PP 3031; PP 4034; SOCI 3425, 3911; SOCI 3901/URBN 3275; URBN 3000.
3. Two additional courses selected from group 2 or the following list: ANTH 3150, ECON 2328, 2431, 3431; ECON/URBN 3439; EDLR 3547; ENGL 3235W; GEOG 2500, 4200W; HIST 3102, 3520; HIST 3530/AASI 3578; HIST/AFRA/HRTS 3563; HIST/AFRA 3568; HDFS 2001, 3110, 3510, 3530, 3540; INTD 3584; POLS 2622, 3406, 3617, 3847; POLS/AFRA 3642; POLS/HRTS 3212; POLS 3662/LLAS 3270; PP 3001, 3020, 4033; PP 3033/AFRA 3033/POLS 3633; SOCI/HRTS 3429; SOCI 3459/HDFS 3240; SOCI 2301, 3501, 3521, 3601, 3907; SOCI/AFRA/HRTS 3825; URBN 3276; URBN 3981/3991 (three credits combined), or INTD 3594; URBN 3993, 3995, 3998, 4999.

Students interested in pursuing a minor in Urban and Community Studies are advised to complete 1000-level courses in the social sciences that may be prerequisites for courses in the Urban and Community Studies minor. These include, but are not limited to GEOG/URBN 1200; ECON 1201; POLS 1602; PP 1001; SOCI 1001, 1251; STAT 1000Q/1100Q; and URBN 1300W. They should also plan on enrolling in URBN 2000 as soon as possible.

The minor is offered by the Urban and Community Studies Program.

## Wildlife Conservation

This minor provides students with a basic understanding of wildlife resources management. Students will be required to complete at least 18 credits that include a common core for all students and a selection of courses based on a specific area of interest. Any student but Natural Resources majors can graduate with this minor.

Students will be required to complete NRE 2345 and 3335 and nine or more credits from the following courses: NRE 3201, 3105, 3305, 3345W, 3365, 3699 (wildlife topic related), 4335, 4689 (wildlife topic related), 4697W (wildlife topic related); and three or more credits from the following courses: NRE 2000, 2415, 3205, 3475.

At least 12 of the credits taken to satisfy the minor must be from courses that are not required for the student's major or other minors within the College of Agriculture, Health and Natural Resources.

Students must earn a combined grade point average of 2.5 or higher for all courses listed above.

The minor is offered by the Department of Natural Resources and the Environment.

## Women's Gender and Sexuality Studies

Fifteen hours of course work in Women's, Gender, and Sexuality Studies courses or cross referenced courses, of which one course may be at the 1000 level.

Not more than two courses may be counted toward both the minor and the major.

Not more than six credits for the Internship Program may be applied to the minor.

The minor is offered by the Women's, Gender, and Sexuality Studies Program.

# Regional Campuses

The University of Connecticut expands beyond just the Storrs campus. With four regional campuses around the state, access to UConn is readily available throughout Connecticut. Small classes, access to talented faculty, and exclusive internships and majors provide unique opportunities while benefitting from a quality education. The Regional Campuses - Avery Point, Greater Hartford, Stamford, and Waterbury - provide Connecticut's citizens with diversified educational programs: master's degrees, four-year undergraduate degrees, two-year general education programs for Storrs-bound students, and, for returning adult students, a bachelor of general studies degree and non-credit courses. Each regional campus has a specific mission based on the strengths and needs of its community and region, but all have faculty with active research programs and all take pride in individualized student support services. Faculty, students, and courses meet the same criteria as those at Storrs, and are also linked to Storrs and to each other through the latest technology for distance learning.

## Avery Point Campus

Joseph Madaus, Ph.D., *Interim Director*

The Avery Point campus in Groton is a center of excellence for marine and maritime studies. Overlooking Long Island Sound, the Avery Point campus is home to the Connecticut Sea Grant College Program, Project Oceanology, the National Undersea Research Center, and the Long Island Sound Resource Center. Bachelor's degrees in American Studies, English, General Studies, Marine Sciences, and Maritime Studies are offered.

## Hartford Campus

Michael Menard, Ph.D., *Director*

Through on-going partnerships with schools, businesses, government, and national and neighborhood organizations, the Hartford campus provides

hands-on learning and serves as a model of community service, opportunity, and success. This vision will be further realized in fall 2017, when the campus will move to downtown Hartford. Hartford offers Bachelor's degrees in American Studies, Business Administration, Business Data Analytics, English, General Studies, Human Development and Family Studies, Psychology, and Urban and Community Studies in partnership with the Waterbury campus.

## Stamford Campus

Terrence Chang, M.F.A., *Director*

Stamford's campus located downtown provides access to internships, field placements and jobs with Fortune 500 companies and non-profit organizations, as well as performing arts centers, restaurants, and shops. Stamford offers Bachelor's degrees in American Studies, Business Administration, Business Data Analytics, Digital Media and Design, Digital Marketing & Analytics, Economics, English, General Studies, History, Human Development and Family Studies, and Psychology.

## Waterbury Campus

William J. Pizzuto, Ph.D., *Director*

For more than 60 years, UConn's Waterbury campus has opened doors to educational access and excellence to thousands of Connecticut residents, many of whom have distinguished themselves in community service, business, education, law, and politics. Waterbury offers Bachelor's degrees in American Studies, Business Administration, Business Data Analytics, English, General Studies, Human Development and Family Studies, Psychology, and Urban and Community Studies in partnership with the Hartford campus.

For more information about each campus, please visit each campus website.

# Directory of Courses

The following directory lists the undergraduate courses which the University expects to offer, although the University in no way guarantees that all such courses will be offered in any given academic year, and reserves the right to alter the list if conditions warrant. Students may ordinarily determine when courses are to be offered by consulting the Student Administration system's search feature via the internet.

**Numbering System.** Students are referred to the condensed curricula of the several colleges for information concerning the semester and year in which required courses should be taken. Courses numbered 0000-0999 are courses in the Ratcliffe Hicks School of Agriculture; baccalaureate students may not register for these courses. Courses numbered 1000-1999 are introductory courses, usually with no prerequisites, primarily for freshmen and sophomores; courses numbered 2000-2999 usually have no more than one prerequisite and are primarily intended for sophomores; courses numbered 3000-3999 are advanced undergraduate courses primarily intended for juniors and seniors; courses numbered 4000-4999 are advanced undergraduate courses primarily intended for seniors. Courses numbered 5000 and above are for graduate students and appear in the Graduate School Catalog or as School of Pharmacy courses that are available to Doctor of Pharmacy majors listed in the Undergraduate Catalog. University regulations allow undergraduates to take courses at the 5000's level only if they have a cumulative grade point average of 2.6 or above and if they are in the seventh or eighth semester of University standing; individual schools and colleges may have more stringent requirements which students must meet. Exceptions can be made only by the instructor and the dean of the school or college in which the student is registered.

Courses carrying hyphenated numbers are full year courses extending over the two semesters. The first semester of such courses is always a prerequisite to the second, but the student may receive full credit for the first semester without continuing with the second.

The University's course numbering systems changed with the 2008-2009 Undergraduate Catalog. If a course was formerly given under another number, the course cannot be taken for credit by students who have received credit for it under the old number.

**Skill Codes.** W and Q skill code designations and combinations of these have been added to courses where applicable. Students may find a comprehensive explanation of W and Q skill codes under "Competencies" in the Academic Regulations section of this publication. Note: The same 4-digit numerics are not repeatable, i.e. 1107, 1107W. Skill code versions of courses share the same attributes of the non-skill versions regarding credit restrictions.

**Content Areas.** Content area designations (CA 1-4) have been added to course descriptions

to identify those that meet General Education content requirements. Content areas 1 through 4 are defined in the Academic Regulations section of this publication.

**Course Hours.** Classes meet for the equivalent of three 50-minute periods, unless otherwise specified. Information about the specific times that a course will meet may be obtained through the Student Administration system's search feature via the internet before the opening of each semester.

Refer to the "Academic Regulations" section of this Catalog for further information regarding registration for courses.

**Course Fees.** Extra fees may be applied to courses. Those costs may be found in the descriptions of courses listed throughout this section of the Catalog. The fees serve as a guide, but are subject to change.

**Semester Offered.** Information about when a course is typically offered can be found by using the Browse Course Catalog feature in the Student Administration System. This does not represent a guarantee that the course will be offered in a specific semester. It is only an indication of when the offering is most likely. The Class Search feature in the Student Administration System shows exactly when courses are scheduled.

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## Accounting (ACCT)

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*Head of Department:* Professor George Plesko

*Department Office:* Room 417, School of Business

For major requirements, see the School of Business section of this *Catalog*. Accounting majors are required to achieve a 2.0 grade point average in all accounting courses taken at the University of Connecticut, excluding grades and credits for independent studies (ACCT 4899) and internships (ACCT 4891) as a requirement for graduation.

### 2001. Principles of Financial Accounting

Three credits. Not recommended for freshmen.

The study of the generation and interpretation of accounting information as a basis for financial statement analysis and management decision-making.

### 2101. Principles of Managerial Accounting

Three credits. Prerequisite: ACCT 2001; open only to Business majors of sophomore or higher status. Not open to students who have passed or are taking BADM 2710 or 3710.

Internal reporting to managers for use in planning and controlling operating systems, for use in decision making, formulating major plans and policies, and for costing products for inventory valuation and income determination.

### 3005. Introduction to a Profession

One credit. Prerequisite: ACCT 2001; open only to Business majors of junior or higher status. Required for Accounting majors.

Designed to help students (1) understand the professional responsibilities of accountants, (2) enhance one's knowledge of the structure of the accounting profession and the reporting process, (3) evaluate alternative accounting careers, and (4) prepare for accounting internship and career

opportunities. Consists of a series of evening seminars. Topics include: alternative accounting careers, accounting standard setting, professional certification for accountants, and analysis and interpretation of accounting information. The course will also introduce and allow students to interact with UConn accounting alumni in a variety of accounting careers.

### 3201. Intermediate Accounting I

Three credits. Prerequisite: ACCT 2101 or BADM 2710; ECON 1200 or ECON 1201 and 1202; open only to Business majors of junior or higher status.

An in-depth study of financial accounting, giving particular emphasis to balance sheet valuations and their relationship to income determination.

### 3202. Intermediate Accounting II

Three credits. Prerequisite: ACCT 3201; open only to Business majors of junior or higher status.

A continuation of ACCT 3201.

### 3221. Cost Accounting

Three credits. Prerequisite: ACCT 2101 or BADM 2710 and OPIM 3103 (may be taken concurrently); open only to Business majors of junior or higher status.

The study of (1) product costing as a basis for income determination and inventory valuation and (2) accounting concepts for planning and controlling organizational operations.

### 3260. Federal Income Taxes

Three credits. Prerequisite: ACCT 2001; open only to Business majors of junior or higher status.

A study of the underlying concepts of federal income taxation. Emphasis to be placed upon the impact of taxes on business decisions.

### 4203. Advanced Accounting

(Also offered as ACCT 5603.) Three credits. Prerequisite: ACCT 3202; open only to Business majors of junior or higher status.

An in-depth study of accounting for business combinations. Coverage will also be given to accounting for nonprofit entities and contemporary issues in financial accounting.

### 4204. Financial Statement Analysis and Business Valuation

Three credits. Prerequisite: Instructor consent required; open only to Business majors of junior or higher status; recommended for Honors students. Recommended preparation ACCT 3202.

Advances the understanding of financial information to analyze and value firms. Involves the application of accounting, economics, finance and other skills to better understand information contained in financial reports.

### 4243. Assurance Services

(Also offered as ACCT 5604.) Three credits. Prerequisite: ACCT 3202; open only to Business majors of junior or higher status.

Focuses on issues relevant to the public accounting profession, such as legal liability and ethics, audit risk analysis, planning of audit engagements, audit reports, and other assurance services and reports. Students will learn to think



critically about issues facing the accounting profession, primarily by analyzing cases and completing a number of individual and group research projects.

#### **4261. Taxation of Business Entities**

Three credits. Prerequisite: ACCT 3260; open only to Business majors of junior or higher status.

Application of basic tax concepts to business entities, with particular emphasis on C corporations and partnerships. At the end of the course, students should be able to identify and address the tax issues faced when forming, operating, and liquidating a business entity.

#### **4891. Field Study Internship**

One to six credits. Hours by arrangement. Prerequisite: ACCT 2101 or BADM 2710; ACCT 3201, and at least 3 credits of 3000-level ACCT courses; consent of instructor and department head; open only to Business majors of junior or higher status. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for supervised field work. Students will work with one or more professionals in their major academic area. Student performance will be evaluated on the basis of an appraisal by the field supervisor and an appropriate summative activity submitted by the student.

#### **4893. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of department head required, prior to the student's departure.

Special topics taken in a foreign study program.

#### **4895. Special Topics**

Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to Business majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

#### **4899. Independent Study**

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only to Business majors of junior or higher status; open only with consent of instructor and Department Head.

Individual study of special topics as mutually arranged between a student and an instructor.

#### **4997W. Senior Thesis in Accounting**

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only to Accounting Department Honors Students with consent of instructor and Department Head.

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### **African Studies (AFRI)**

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#### **3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of director required, normally to be granted prior to student's departure. May be repeated for credit.

#### **3995. Special Topics**

Credits up to a maximum of three. With a change in topic, may be repeated for credit.

#### **3999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

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### **Africana Studies (AFRA)**

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*Director:* Professor William Jelani Cobb

*Office:* 334 Wood Hall

#### **1100. Afrocentric Perspectives in the Arts**

(Formerly offered as AFAM 1100.) (Also offered as FINA 1100.) Three credits.

Lectures and discussions about assigned readings focus on historical and aesthetic perspectives of African American Arts and their African sources, with emphasis on how social and aesthetic context impacts on creative expression by African American artists. Presentations by guest lecturers and University of Connecticut faculty plus small group discussions. CA 1. CA 4.

#### **3025. Contemporary Africa**

(Formerly offered as AFAM 3025.) Three credits.

Africa since its partition in 1884. Urbanization, social stratification, racial and ethnic conflict.

#### **3033. Race and Policy**

(Formerly offered as AFAM 3033.) (Also offered as POLS 3633 and PP 3033.) Three credits.

Examination of contemporary public policy through the lens of race.

#### **3042. Baseball and Society: Politics, Economics, Race and Gender**

(Formerly offered as AFAM 3042.) (Also offered as HDFS 3042 and WGSS 3042.) Three credits. Prerequisite: Open to juniors or higher.

Baseball in historical, political, sociological, and economic contexts. Topics may include: impact on individuals and families; racial discrimination and integration; labor relations; urbanization; roles of women; treatment of gay athletes; and implications of performance-enhancing drugs.

#### **3106. Black Psychology**

(Formerly offered as AFAM 3106.) (Also offered as PSYC 3106.) Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Empirical and theoretical literature on psychological experiences of African Americans. Impact of race, culture, and ethnicity on psychological development. CA 4.

#### **3131. African-American Theatre**

(Formerly offered as AFAM 3131.) (Also offered as DRAM 3131.) Three credits.

The significant developments in African American theatre and its antecedents and an examination of selected play scripts that exemplify those developments. CA 4.

#### **3132. African American Women Playwrights, 1900 to Present**

(Also offered as DRAM 3132.) Three credits. Two 75-minute periods. Recommended preparation: AFRA/DRAM 3131.

African American women's playwriting in relationship to social, historical, and political contexts. CA 1. CA 4.

#### **3152. Race, Ethnicity, and Nationalism**

(Formerly offered as AFAM 3152.) (Also offered as ANTH 3152.) Three credits.

Popular and scholarly theories of human group identity and diversity, in cross-cultural and historical perspective. Topics include: an overview of 'race' and 'ethnicity' in Western thought, ethnic group formation and transformation, political mobilizations of group identity, and systems of inequality. CA 2. CA 4.

#### **3206. Black Experience in the Americas**

(Formerly offered as AFAM 3206) (Also offered as HIST 3206.) Three credits. Recommended preparation: AFRA/HIST/HRTS 3563; AFRA/HIST 3564, 3620; or HIST/LLAS 3609.

Major themes in recent scholarship of African-descended communities in the Americas and their interconnection beyond geopolitical boundaries; race, gender, sexuality, class, religion, cultural movements and practices, slavery, political economy, political movements, and African consciousness, from historical perspective. CA 1. CA 4-INT.

#### **3211. Introduction to Africana Studies**

(Formerly offered as AFAM 3211.) Three credits.

Interdisciplinary overview of African American studies, giving consideration to the artistic, intellectual, political and cultural experiences of black people in the United States, Caribbean, Europe, and Africa. Relies on a wide range of materials and perspectives with particular focus on significant movements, ideas, people and events that have shaped and continue to shape Africa and the Diaspora.

#### **3214W. Black American Writers I**

(Formerly offered as AFAM 3214W) (Also offered as ENGL 3214W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Critical and historical examination of the literature of black American writers from Phyllis Wheatley to the present. CA 4.

#### **3216W. Black American Writers II**

(Formerly offered as AFAM 3216W.) (Also offered as ENGL 3216W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Extensive readings in the works of four or five contemporary black American writers.

#### **3252. Politics in Africa**

(Formerly offered as AFAM 3252.) (Also offered as POLS 3252.) Three credits. Prerequisite: Open to juniors or higher.

The political systems in contemporary Africa; the background of the slave trade, imperialism, colonialism, and the present concerns of nationalism, independence, economic development and military rule. Emphasis on sub-Saharan Africa.

#### **3295. Special Topics**

(Formerly offered as AFAM 3295.) Variable credits. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3299. Independent Study**

(Formerly offered as AFAM 3299.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor.

Supervised reading and writing on a subject of special interest to the student.

**3501. Ethnicity and Race**

(Formerly offered as AFAM 3501.) (Also offered as SOCI 3501.) Three credits. Prerequisite: Open to juniors or higher.

Ethnic groups, their interrelations, assimilation, and pluralism. Culture, and identity that arise from differences in race, religion, nationality, region, and language.

**3505. White Racism**

(Formerly offered as AFAM 3505.) (Also offered as HRTS 3505 and SOCI 3505.) Three credits. Prerequisite: Open to juniors or higher.

The origin, nature, and consequences of white racism as a central and enduring social principle around which the United States and other modern societies are structured and evolve. CA 4.

**3563. African American History to 1865**

(Formerly offered as AFAM 3563.) (Also offered as HIST 3563 and HRTS 3563). Three credits.

History of African-American people to 1865, from their West African roots, to their presence in colonial America, through enslavement and emancipation. Adaptation and resistance to their conditions in North America. Contributions by black people to the development of the United States.

**3564. African American History Since 1865**

(Formerly offered as AFAM 3564.) (Also offered as HIST 3564.) Three credits.

History of African-American people since the Civil war. Contributions by black people to American development. African-American activity in international arenas.

**3568. Hip-Hop, Politics and Youth Culture in America**

(Formerly offered as AFAM 3568.) (Also offered as HIST 3568.) Three credits.

History of hip-hop, its musical antecedents and its role in popular culture. Race, class, and gender are examined as well as hip-hop's role in popular political discourse.

**3619. History of the Caribbean**

(Also offered as HIST and LLAS 3619) Three credits.

Encounter experience; slavery, antislavery mobilization, and abolitionism; colonialism; citizenship and nation building; race and gender; political cultures and movements; migration/immigration; cultural production; and political economy; topics will be examined from a historical perspective. CA 1. CA 4-INT.

**3620. Cuba, Puerto Rico, and the Spanish Caribbean**

(Formerly offered as AFAM 3620.) (Also offered as HIST 3620.) Three credits.

Discovery and settlement, slavery and plantation economy, recent political and economic developments, and United States relations with the Spanish Caribbean.

**3622. History of Gender and Sexuality in Latin America and the Caribbean**

(Also offered as HIST, LLAS, and WGSS 3622.) Three credits.

Topics may include: empire and colonialism/anti-colonialism; slavery, science, and the state; cultural practices and institutions; feminisms and masculinities; law and public policies; immigration; forms of labor and political mobilization; sex and reproduction; and human rights from historical perspective.

**3642. African-American Politics**

(Formerly offered as AFAM 3642.) (Also offered as POLS 3642.) Three credits. Prerequisite: Open to juniors or higher.

Political behavior, theory, and ideology of African-Americans, with emphasis on contemporary U.S. politics. CA 4.

**3647. Black Leadership and Civil Rights**

(Formerly offered as AFAM 3647.) (Also offered as POLS 3647.) Three credits. Prerequisite: Open to juniors or higher.

Black leadership, emphasizing the principles, goals, and strategies used by African-American men and women to secure basic citizenship rights during the civil rights era.

**3652. Black Feminist Politics**

(Formerly offered as AFAM 3652.) (Also offered as POLS 3652 and WGSS 3652.) Three credits. Prerequisite: Open to juniors or higher.

An introduction to major philosophical and theoretical debates at the core of black feminist thought, emphasizing the ways in which interlocking systems of oppression uphold and sustain each other.

**3752. History of Pre-Colonial Africa**

(Formerly offered as AFAM 3752.) (Also offered as HIST 3752.) Three credits.

The history of pre-colonial Africa with particular attention to the rise and fall of African Kingdoms, interaction between different ethnic groups, African trade with other continents, and the impact of foreigners on African societies.

**3753. History of Modern Africa**

(Formerly offered as AFAM 3753.) (Also offered as HIST 3753.) Three credits.

The history of African perceptions of and responses to the abolition of the slave trade, Western imperialism and colonialism, and the development of nationalism and struggle for independence.

**3825. African Americans and Social Protest**

(Formerly offered as AFAM 3825.) (Also offered as HRTS 3825 and SOCI 3825.) Three credits. Prerequisite: Open to juniors or higher.

Social and economic-justice movements, from the beginning of the Civil Rights movement to the present.

**3898. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change of topic, may be repeated for credit.

**4994. Senior Seminar**

(Formerly offered as AFAM 4994.) Three credits. Prerequisite: AFRA 3211; ENGL 1010 or 1011 or 2011; open only to Africana Studies

majors in their senior year. With a change in content, may be repeated for credit.

Critical training and comprehensive examination of Africana studies, using primary and secondary sources.

**4994W. Senior Seminar**

(Formerly offered as AFAM 4994W.) Prerequisite: AFRA 3211; ENGL 1010 or 1011 or 2011; open only to Africana Studies majors in their senior year. With a change in content, may be repeated for credit.

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**Agricultural and Resource Economics (ARE)**

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*Head of Department:* Professor Rigoberto Lopez

*Department Office:* Room 305, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

**1110. Population, Food, and the Environment**

Three credits.

The role of agriculture in the growth and development of societies throughout the world. Economic and social problems of food and fiber needs and production in the developing and the advanced societies. CA 2.

**1150. Principles of Agricultural and Resource Economics**

Three credits. Taught with SARE 450.

An introduction to agricultural economics, the role of agriculture in today's United States economic system, and relationships that regulate the entire economic environment. CA 2.

**3150. Applied Resource Economics**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201.

Applications of intermediate level microeconomic theory to problems and policy issues in agriculture, natural resources, and the environment. Topics include supply, demand, market equilibrium, consumer and producer behavior, perfect and imperfect competition, externalities, common property resources, public goods, and welfare economics. Emphasis will be placed on using the theory in computational exercises.

**3210. Essentials of Accounting and Business**

Three credits. (Taught with SARE 460.)

An analysis of basic business principles, fundamentals and concepts for agribusiness entrepreneurs.

**3215. Business Management**

Three credits.

Analysis of marketing, management, and financial decision-making tools in agribusiness.

**3221. Business Strategies and Policy in Food Industries**

Three credits. Recommended preparation: ARE 3150.

Market structure and business strategies of firms, including pricing, advertising, entry and new products. Analysis of mergers and other antitrust issues from a public as well as firm perspective. Case studies of actual events.

**3222. Marketing and Consumer Behavior**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201. Recommended preparation: ARE 3215.

Principles of marketing and determinants of consumer choices. Particular attention to demographic economic factors and to changing concerns regarding health and food safety.

**3225. Price Analysis and Futures Trading**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201; and STAT 1000Q.

Principles and applications of market price determination, with special emphasis on the use of futures markets for profit and price risk management. Includes food and energy case studies, internet applications, and a futures simulation exercise.

**3235. Marine Resource and Environmental Economics**

Three credits. Recommended preparation: ARE 1150 or ECON 1200 or ECON 1201.

Fundamental theory, methods, and policy implications of environmental and resource economics, with an emphasis on coastal and marine environments. Topics include pollution policy, fisheries, water quality and allocation, international trade, wildlife and biodiversity, land use, and economic valuation. Designed for students with diverse departmental affiliations.

**3260. Food Policy**

Three credits. Recommended preparation: ARE 1150 or ECON 1200 or ECON 1201.

Analysis of food and agricultural policies in the United States and abroad. Designed for students with diverse departmental affiliations.

**3261W. Writing in Food Policy**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; open only to Resource Economics majors, others by consent. Corequisite: ARE 3260. Not open to students who have passed ARE 3260W.

A writing intensive course on issues related to food policy, integrated with course content in ARE 3260.

**3333. Computational Analysis in Applied Economics**

Three credits. Prerequisites: STAT 1000Q or 1100Q, or similar; laptop computer in class. Recommended preparation: ECON 1200 or 1201 or ARE 1150.

Fundamental concepts of statistics and economics through analysis of economic data using computer spreadsheets.

**3434. Environmental and Resource Policy**

Three credits.

Economic and policy aspects of natural resource use and environmental quality issues. Designed for students with diverse departmental affiliations.

**3436. The Economics of Integrated Coastal Management**

Three credits. Recommended preparation: ARE 1150 or ECON 1200 or ECON 1201.

Explores the theory and practice of integrated coastal management (ICM); introduces major concepts, processes, tools and methods of ICM; and analyzes United States and international experiences with ICM.

**3437. Marine Fisheries Economics and Policy**

Three credits. Recommended preparation: ARE 1150 or ECON 1200 or ECON 1201.

Explores the various natural, human and management components of the fishery system and presents the application of economic and policy analysis for the optimal allocation of resources to a fishery.

**3440W. Writing in Environmental and Resource Policy**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; open only to Resource Economics majors, others by consent. Corequisite: ARE 3434. Not open to students who have passed ARE 3434W.

A writing intensive course integrated with course content in ARE 3434.

**4217. Business Finance in Food and Resource Industries**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201; open to juniors or higher. Recommended preparation: ARE 3215.

Analysis of financial statements, credit, risk, and investment decision-making.

**4275. Managerial Economics**

Three credits. Prerequisite: One of MATH 1071Q, 1110Q, 1131Q, or 1151Q; STAT 1000Q or STAT 1100Q; ARE 1150 or ECON 1200 or ECON 1201; open to juniors or higher.

Management techniques for achieving the economic objectives and standards of the firm, with maximum efficiency in the use of capital, personnel, facilities and equipment. Directed toward those students who plan to enter agribusiness.

**4279. International Commodity Trade**

Three credits. Recommended Preparation: ARE 1150 or ECON 1200 or ECON 1201.

The basic principles of international commodity trade and market institutions. Applications to current problems of international commodity trade and policy.

**4305. The Role of Agriculture and Natural Resources in Economic Development**

(Formerly offered as ARE 3255.) Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201; MATH 1071Q or 1110Q or 1126Q or 1131Q. Credit may not be received for both ARE 4305 and 5305.

The role of agriculture in the economic development of less developed economies. Microeconomic dimensions of agricultural development, economics of food consumption and nutrition, agricultural technology and productivity, agricultural supply, land tenure and agrarian reform, foreign assistance, trade agreements, and agricultural price policy.

**4438. Valuing the Environment**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201.

Conceptual and practical understanding of main methods used to evaluate economic benefits of environmental protection and damages from degradation. Methods include: change in productivity, hedonic pricing, travel cost method, contingent valuation, defensive expenditures, replacement costs, and cost-of-illness. Topics covered include: recreation, soil-erosion, energy, forestry, hazardous waste,

air pollution, deforestation, wetlands, wildlife, biodiversity, noise, visibility, water and water pollution.

**4444. Economics of Energy, Climate, and the Environment**

Three credits. Prerequisites: ARE 1150 or ECON 1200 or ECON 1201; open only to juniors or higher.

Economics of energy issues with special reference to local and regional environmental quality, global climate change, and energy markets. Environmental and economic implications of developing alternative sources of energy. Regulatory policies in relation to transportation, industry, commercial and residential energy use.

**4462. Environmental and Resource Economics**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201; MATH 1071Q or 1110Q or 1126Q or 1131Q; open to juniors or higher. Credit may not be received for both ARE 4462 and 5462.

Natural resource use and environmental quality analysis using economic theory. Reviews of empirical research and relevant policy issues.

**4464. Benefit Cost Analysis and Resource Management**

Three credits. Prerequisite: ARE 1150 or ECON 1200 or ECON 1201; MATH 1071Q or 1110Q or 1126Q or 1131Q; and STAT 1000Q or 1100Q; open to juniors or higher. Credit may not be received for both ARE 4464 and 5464.

Theoretical foundations and applications of benefit-cost analysis in project appraisal and in evaluation of public policies regarding resource management and environmental protection.

**4897. Honors Thesis**

Three credits Prerequisite: ENGL 1010 or 1011 or 2011; open to seniors; open only with consent of instructor to students in the Honors Program.

**4981. Agribusiness Internship**

(Formerly offered as ARE 4081.) Variable credits (1-6). Repeatable for a total of six credits. Prerequisite: Open only to Junior-senior Resource Economics majors with Independent Study Authorization.

Provides students with an educational experience in agribusiness firms or agribusiness-related institutions. Each student taking this course must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

**4991. Resource Economics Internship**

(Formerly offered as ARE 4091.) Variable credits (1-6). Repeatable for a total of six credits. Prerequisite: Open only to junior and senior students majoring in Resource Economics who have demonstrated outstanding academic ability and possess excellent professional potential; requires Independent Study Authorization with consent of department head and advisor.

Provides students with a meaningful experience in a formalized agribusiness or natural resources program under supervised conditions. Each student taking this course must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

**4993. Foreign Study**

(Formerly offered as ARE 4093.) Variable credits (1-15). Hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor and Department Head. May be repeated for credit.

Special topics taken in a foreign study program.

**4994. Seminar**

(Formerly offered as ARE 4094.) Credits and hours by arrangement. May be repeated for credit with a change of topic.

Participation in staff conferences and discussions, reviews of important books, and reports on recent developments in economic theory and research.

**4995. Special Topics**

(Formerly offered as ARE 4095.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic.

Topics and credits to be published prior to the registration period preceding the semester offerings.

**4999. Independent Study**

(Formerly offered as ARE 4099.) Credit and hours by arrangement. Prerequisite: Open to students with Independent Study Authorization.

Designed primarily for Resource Economics majors.

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**Agriculture and Natural Resources  
(AGNR)**

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*For questions, please contact the Associate Dean, CAHNR Office of Academic Programs, Room 206, W. B. Young Building.*

**1089. Introduction to Research in Agriculture and Natural Resources**

One to three credits. Credits and hours by arrangement. Prerequisite: Open to freshmen and sophomores only; instructor and department head consent. May be repeated for credit with a change of topic for a maximum of six credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised student involvement with faculty projects to introduce students to current areas of research in their field of interest.

**1093. Foreign Study**

Credits and topics must be approved by department head or dean of the College of Agriculture, Health and Natural Resources. May be repeated for credit with change of topic.

Courses taken in agriculture, natural resources, and related areas as part of approved Education Abroad programs.

**1098. Current Topics in Agriculture and Natural Resources**

One credit. Prerequisite: Open to freshmen and sophomores only, others by instructor consent. May be repeated for credit with a change of topic for a maximum of 4 credits. Students taking

this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Readings, lectures, seminars, and field applications exploring content and associated scientific and social implications of current topics in agricultural, environmental, nutritional and health sciences.

**3091. Agriculture and Natural Resources Internship**

One to six credits. Prerequisite: Open to Junior-senior students in the College of Agriculture, Health and Natural Resources with consent of the Dean, the student's department head and advisor. May be repeated for credit with the total credits earned not to exceed six.

Designed to provide students with a meaningful experience in a formalized agricultural or natural resources program under supervised conditions. Each student taking this course must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

**3093. Foreign Study**

Credits and topics must be approved by department head or dean of the College of Agriculture, Health and Natural Resources. May be repeated for credit with a change of topic.

Courses taken in agriculture, natural resources, and related areas as part of approved Education Abroad programs.

**3095. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic.

**3099. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only to students with Independent Study Authorization. May be repeated for credit with a change of topic.

A course designed for the student who wishes to pursue an investigation of specific problems related to domestic and foreign agriculture with particular emphasis on current problems in instruction, extension education, and research.

**3316. Introduction to Agricultural Mechanics and Safety**

Two credits. One lecture, one 2-hour lab. Prerequisite: Open only to students majoring in Agriculture and Natural Resources; Animal Science; Natural Resources; and Sustainable Plant and Soil Systems.

Operation, safety, and applications of equipment and mechanical systems used in agricultural enterprises. Field trips may be required. A fee of \$35 is charged for this course.

**3350. Hispanic Culture and Communication in Agriculture**

Two lectures and one two-hour discussion. Prerequisite: Open only to students in the College of Agriculture, Health and Natural Resources Taught with SAAG 350. Not intended for students with advanced Spanish language skill. Does not fulfill the General Education foreign language requirement.

Covers everyday conversations in Latin American Spanish needed at the workplace in agriculture and natural resources. Emphasizes dialogues, commands and directions to improve

the relationship and understanding of workers and employers in several fields of agriculture. Prepares students in landscape, horticulture, animal science and agriculture economics with basic communication skills in Spanish and familiarizes students with Latin American cultural traditions.

**4500. Leadership Development in Extension Education**

Three credits. Prerequisites: Junior or senior standing or graduate student; open to students from the College of Agriculture, Health and Natural Resources, others with instructor consent.

Introduces students to extension, outreach education and other forms of public engagement (governmental and nongovernmental). Intended for students interested in a career in or knowing about outreach education and public engagement. The extension mission, history, organization, programming, program development, extension teaching and delivery methods, and the involvement and use of volunteers. Team-based collaborations, informal teaching/learning methods as well as social processes and influences, organizational behavior and relationships, program evaluation and assessment, communications, ethics, and decision making.

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**Air Force Studies (AIRF)**

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*Department Head:* Lieutenant Colonel Jason Chandler

*Department Office:* William Hall Building, Room 413

**1000. Air Force Studies I**

One credit. One class period and one 2-hour leadership seminar.

Military customs/courtesies, officership/leadership. Air Force mission, military as a profession, and basics of flight.

**1200. Air Force Studies I**

One credit. One class period and one 2-hour leadership seminar.

The organization, mission, and functions of the Department of Defense and the military services. Emphasis is on the U.S. Air Force.

**2000. Air Force Studies II**

One credit. One class period and one 2-hour leadership seminar.

Study of air power from balloons through World War II; WW I, Interwar Years, WW II. Principles of war, Berlin Airlift. Development of communication skills.

**2200. Air Force Studies II**

One credit. One class period and one 2-hour leadership seminar.

Air power from post-World War II to the present; Korean Conflict, War in Vietnam, force modernization. Development of communication skills.

**3000-3200. Air Force Studies III**

First semester: AIRF 3000. Second semester: AIRF 3200. Three credits each semester. One class period, and a 2-hour leadership seminar. Prerequisite: AIRF 1200 and 2200, or six

weeks field training; open only with consent of instructor. May not be taken concurrently with AIRF 4000-4200.

Management fundamentals, motivational processes, leadership, group dynamics, organizational power, managerial strategy. Development of communication skills.

### **3000W-3200W. Air Force Studies III**

First semester: AIRF 3000W. Second semester: AIRF 3200W. Prerequisite: AIRF 1200 and 2200, or six weeks field training; ENGL 1010 or 1011 or 2011; open only with consent of instructor. May not be taken concurrently with AIRF 4000-4200.

### **3500. Aviation Ground School**

Three credits.

Fundamentals of flight, flight operations, aviation, weather, navigation, human factors and integration of pilot skills with Federal Aviation Administration (FAA) regulations. Meets all requirements for the FAA private pilot's written examination.

### **4000-4200. Air Force Studies IV**

First semester: AIRF 4000 Second semester: AIRF 4200. Three credits each semester. One class period, and a 2-hour leadership seminar. Prerequisite: AIRF 3000-3200; open only with consent of instructor. May not be taken concurrently with AIRF 3000-3200.

American civil-military relations, defense policy formulation, role of the professional officer, military justice system, Air Force Commands.

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## **Allied Health (AH)**

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*Program Director:* Dr. Susan Gregoire

*Department Office:* Room 327, Koons Hall

For major requirements see the College of Agriculture, Health and Natural Resources, Department of Allied Health Sciences section of this Catalog.

### **1030. Interdisciplinary Approach to Obesity Prevention**

(Also offered as NUSC 1030.) Three credits. Prerequisite: Open to freshmen and sophomores in the Honors Program.

Explores the biology of obesity including genetic predispositions and behaviors that increase obesity risk (dietary, physical activity, social, psychological), the obesigenic environment, including how communities are physically built, as well as the economic relationship to obesity risk, and policy and ethical implications for obesity prevention. Multi-level obesity prevention approaches that involve the individual, family, organization, community, and policy. CA 3.

### **1095. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### **1100. Introduction to Allied Health Professions**

One credit. Lecture.

Overview of health professions, team approach to health care delivery.

### **1200. Introduction to the Martial Arts**

One credit. This course may be repeated with a change of activity and/or skill level; not to exceed 3 credits toward graduation of combined AH 1200 and KINS 1160.

Introduction to the techniques and philosophies of traditional Martial Arts disciplines. Development of practical martial arts skills (varies by discipline), and building of a state of mind which permits the successful application of self-defense.

### **2001. Medical Terminology**

One credit. Prerequisite: Open to students in the Department of Allied Health Sciences and Health Systems Management majors, others by instructor consent.

Introduction and mastery of medical terminology through presentation of word roots, prefixes and suffixes.

### **2093. International Study in Allied Health**

Variable credit (1-6). Hours by arrangement. Prerequisite: Department Head consent required prior to study abroad. May be repeated for credit; may count up to 6 credits toward the major with consent of advisor and Department Head. Students may only count a maximum combined credit total of 6 credits toward the Allied Health major of International Study, Independent Study and Internship credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Courses taken in Allied Health and related areas as part of an approved Education Abroad Program.

### **2330. Italy's Mediterranean Food and Our Health**

Three credits. May not be counted toward the Allied Health Sciences major's group A or science elective requirements.

Production and processing of the characteristic foods of Italy. Summary of the Italian Mediterranean diet: definitions, culture, history, food consumption patterns, nutrient composition and potential health benefits. Emphasis on the difference in diet between Italians and Americans in relation to the health differences between the two populations. CA 4-INT.

### **3000. U.S. Healthcare Systems and Professional Practice**

Three credits. Prerequisite: Open only to Allied Health Sciences majors juniors and higher; others by consent. Not open to students who have passed NURS 1130 or AH 2000.

Essentials of the U.S. healthcare system, its history to present day structure including the role of the government and delivery systems; patient, ethical and legal responsibility; financing and reimbursement structures; and Allied Health professionals' practice within the system.

### **3005. Biostatistics for Health Professions**

(Also offered as STAT 3005.) Three credits. Prerequisite: A course in pre-calculus or higher; STAT 1000Q or 1100Q or higher; open to CAHNR students and Statistics majors, juniors or higher; others with instructor consent. Not open for credit to students who have passed STAT 4625.

Introduction to biostatistical techniques, concepts, and reasoning using a broad range of biomedical and public health related scenarios. Specific topics include description of data, statistical hypothesis testing and its application to group comparisons, and tools for modeling different type of data, including categorical, and time-event, data. Emphasis on the distinction of these methods, their implementation using statistical software, and the interpretation of results applied to health sciences research questions and variables.

### **3021. Environment, Genetics and Cancer**

(Formerly offered as ANSC 221.) Three credits. Prerequisite: BIOL 1107; CHEM 2241 or 2443; open to Environmental Sciences and Allied Health Sciences majors, others with instructor consent; open to juniors or higher. Concurrent enrollment in one of the following is strongly recommended: MCB 2000, 2410, 2413 or 2210, 3010.

Basic principles in tumor biology will be presented including the biochemical basis of cell transformation, proliferation, and metastasis. Molecular mechanisms by which environmental chemicals interact with DNA and other cellular components will be discussed. The role of proto-oncogenes, tumor suppressor genes, and their products will be covered. Biological markers of cancer risk and exposure will be included.

### **3091. Allied Health Sciences Internship**

Variable (1-6) credits. Hours by arrangement. Prerequisite: Open to juniors or higher; open to Department of Allied Health Sciences students with consent of advisor and department head. May be repeated for credit with a maximum of 6 credits applied to the major. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). Students may only count a maximum combined credit total of 6 credits toward the Allied Health major of International Study, Independent Study and Internship credits.

Provides Allied Health students actual work experience in their area of concentration. Students work with professionals in their concentration to meet objectives consistent with their major. A fee of \$17 is charged for this course.

### **3099. Independent Study in Allied Health**

Credits and hours by arrangement, not to exceed four. Prerequisite: Open only with consent of instructor, advisor and department head. May be repeated for credit. Students may only count a maximum combined credit total of 6 credits toward the Allied Health major of International Study, Independent Study and Internship credits.

Individualized study in a specialized area in the field of allied health.

### **3101. Health and Wellness for Life**

Three credits. Prerequisite: BIOL 1103 or 1107 or equivalent; open only to Allied Health Sciences majors junior or higher; all others by instructor consent. Not open to students who have passed AH 1201.

Wellness, holistic health, mind-body connection, health and wellness models, mental wellness, positive self-concept, preventing heart disease and cancer, licit and illicit drugs, stress

management, diet, nutrition, weight control, aerobic and anaerobic exercise, healthy lifestyle behaviors, applications to life. All students are required to participate in at least one Community Based Outreach Engagement Program.

### **3121. Immunology for the Medical Laboratory Sciences**

(Formerly offered as MLS 3121.) Three credits. Three hours of lecture. Prerequisite: MCB 2610 which may be taken concurrently; open to students in the following majors: Allied Health Sciences, Diagnostic Genetic Sciences, and Medical Laboratory Sciences; open to juniors or higher.

Mechanisms of innate and acquired immunity, antigen-antibody interactions, function of the human immune system in normal and diseased states.

### **3133. Cancer and Your Health**

(Formerly offered as CYTO 220.) Three credits. Three hours of lecture. Prerequisite: One course in Biology or concurrent enrollment in a Biology course; open only to Allied Health Sciences majors; open to juniors or higher; others by instructor consent.

Introduces cancer risk reduction education, causes, early detection methods, prevention, and public education.

### **3173. Psychology of Workplace Safety**

Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences-OEHS concentration majors juniors or higher, and OSH Certificate students; others with consent. Recommended preparation: One 1000-level or above psychology course.

Knowledge of the human factors and behaviors that have an impact upon the safety performance of employees in the workplace, and intervention strategies to improve individual and organizational safety performance.

### **3174. Environmental Laws, Regulations and Issues**

Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences OEHS concentration majors juniors or higher; others with consent.

Overview of the history and framework of federal environmental legislation to protect the environment along with environmental issues, laws and regulations associated with industrial operations.

### **3175. Environmental Health**

(Formerly offered as ANSC 226.) Three credits. Prerequisite: BIOL 1102 or equivalent; CHEM 1122 or equivalent; open to Allied Health Sciences majors, BGS students, Environmental Sciences, Environmental Studies and Engineering majors, others with instructor consent; open to juniors or higher. Recommended preparation: a course in animal anatomy and physiology. *Silbart*

Course will focus on the environmental health consequences of exposure to toxic chemicals, food contaminants and radiation. Basic principles of toxicology will be discussed, followed by lectures on specific topics such as: cancer, occupational hazards, radiation, genetic biomonitoring, risk assessment techniques, risk/benefit analysis, social/legal aspects of

regulating toxic chemicals, and other related topics.

### **3203. Aging: Implications for Health Professionals**

Three credits. Three hours of lecture. Prerequisite: Open to Allied Health Sciences majors, others with instructor consent; open to juniors or higher. Course requirements include student participation in a health education field work experience off-campus.

Age-related physiological changes and pathologies, psychological function in health behaviors and care, role change and transition, health care issues, therapeutic relationships.

### **3231. Program Planning for Health Promotion**

Three credits. Three hours of lecture. Prerequisite: Open only to Health Promotion students; others by consent; open to juniors or higher.

Presents meaningful and constructive tools, methods and techniques for Health Care practitioners to plan, develop and deliver community based (outreach) Health Promotion programs which would provide opportunities to improve the quality of life as well as the quantity.

### **3234. Fitness for Health**

Three credits. Prerequisite: Open only to Allied Health Sciences majors; others with instructor consent; open to juniors or higher.

Emphasizes preventative health practices, which promote healthful lifestyles and reduce risk factors associated with disease. Designed to provide theory and concepts related to the development and maintenance of physical fitness, general health and performance.

### **3270. Fire and Security Management**

Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences-OEHS concentration majors juniors or higher, and OSH Certificate students; others with consent.

Comprehensive overview of fire and security management in an occupational setting. Topics include principles of fire and security protection, the development of fire and security management systems to protect people and property, the application of measures to prevent fires and security breaches, the review of governmental and professional agencies and their roles, life safety for building occupants, crisis management, current risks and threats, and teaming to maximize fire safety, security and crisis response.

### **3275. HAZWOPER**

Three credits. Prerequisite: Open only to Allied Health Sciences majors, Environmental Sciences majors, Environmental Engineering majors, and OSH Certificate students, others with instructor consent; open to juniors or higher.

Provides individuals the necessary knowledge and training to meet the criteria for certification recognized by the Occupational Safety and Health Administration (OSHA) in work activities related to hazardous waste sites and cleanup operations involving hazardous substances. Mandatory off-site field exercise required.

### **3278. Workers' Compensation Law and Related Issues**

Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences-OEHS concentration majors juniors or higher, and OSH Certificate students; others with consent.

Knowledge of state and federal workers' compensation laws, and the interrelationship of these laws with other laws; laws governing workplace injuries and practical considerations for handling of claims.

### **3320. Introduction to Infectious Diseases**

Two credits. Prerequisite: BIOL 1107; open only to junior or higher Allied Health majors, others with consent of instructor. Recommended preparation: CHEM 2241 or 2443 and 2444.

The role of the healthcare professional in dealing with infectious diseases. Epidemiology and public health, healthcare epidemiology, pathogenesis and diagnosing of infectious diseases, overview of the major infectious diseases of humans.

### **3570. Health and Safety Management in the Workplace**

Three credits. Students who have passed either AH 280 or 282 will receive only 2 credits toward graduation. Prerequisite: Open only to BGS students and Allied Health Sciences-OEHS and HADM concentration majors juniors or higher, and OSH Certificate students; others with consent. Not open for credit to students who have passed both AH 280 and 282.

Knowledge and skills necessary to develop a sustainable occupational health and safety management program in the workplace toward the goal of preventing illness and injury, and property damage.

### **3571. Health Hazards in the Workplace**

(Formerly offered as AH 3271.) Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences-OEHS concentration majors juniors or higher, and OSH Certificate students; others with consent. Recommended preparation: AH 2001.

Anticipation, recognition, evaluation, control, and communication of health hazards in the workplace.

### **3573. Health and Safety Standards in the Workplace**

(Formerly offered as AH 3273.) Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences-OEHS concentration majors juniors or higher, and OSH Certificate students; others with consent.

Comprehensive overview of workplace health and safety regulatory processes and standards.

### **3574. Ergonomics**

(Formerly offered as AH 3274.) Three credits. Prerequisite: Open only to BGS students and Allied Health Sciences juniors or higher, and OSH Certificate students; others with consent.

Knowledge and skills for achieving optimal relationships between humans and their work environment.

### **4092. EMT Training**

Four credits. Prerequisite: Instructor consent required.

Instruction in basic life support skills, treatment of bleeding control and shock recognition, care for trauma victims, medical emergencies. Supervised practice experience and hands-on instruction of theory. Includes a 10 hour observation experience outside of classroom instruction. Meets the performance requirements of the National Registry of Emergency Medical Technicians (NREMT) certification exam. Students must first register for Hartford Hospital's EMT training program (separate Hartford Hospital program costs apply).

#### **4093. International Study in Allied Health**

Variable (1-6) credits. Hours by arrangement. Prerequisite: Department Head consent required prior to study abroad. Students may only count a maximum combined credit total of 6 credits toward the Allied Health major of International Study, Independent Study and Internship credits. May be repeated for credit; may count up to 6 credits toward major with consent of advisor and Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Courses taken in Allied Health and related areas as part of an approved Education Abroad Program.

#### **4095. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Investigation of a special topic in allied health related to the basic core or interdisciplinary areas.

#### **4221W. Trends in Environmental and Occupational Safety and Health**

Three credits. Prerequisite: AH 3570; ENGL 1010 or 1011 or 2011; open to BGS students and Allied Health Sciences OEHS concentration majors juniors or higher; others with consent of instructor.

Impact of issues in the workplace in promoting prevention of injuries and illness to workers, and protection of property and the environment.

#### **4225. Genetic Testing and Genomic Medicine**

Three credits. Prerequisite: BIOL 1107 and MCB 2400 or 2410; open to juniors or higher.

Genetic testing and genome analyses with emphasis on topics relating to the clinical laboratories and to the diagnosis and treatment of human disease. Scientific and clinical aspects of genetics and genomics in health care integrated with case presentations, current literature, and discussions.

#### **4239. Research Methods in Allied Health**

Two credits. Two hours of lecture. Prerequisite: A course in statistics; open only to Allied Health Sciences majors; others with instructor consent; open to juniors or higher. Corequisite: AH 4240W. Not open for credit to students who have passed AH 4241.

Research questions/hypothesis, finding and using research literature, ethical considerations, research design, sampling, measurement, reliability and validity, descriptive and inferential statistics, computer analysis of data, evaluating research, reviews of literature and proposals.

#### **4240W. Writing for Allied Health Research**

One credit. One hour of lecture/discussion. Prerequisite: ENGL 1010 or 1011 or 2011; a course in statistics; open only to Allied Health Sciences majors; others with consent of instructor; open to juniors or higher. Corequisite: AH 4239. Not open to students who have passed AH 4241W.

Develop scientific writing skills through completing a scientific research proposal.

#### **4241. Research for the Health Professional**

Two credits. Two hours of lecture. Prerequisite: A course in statistics, open only to Allied Health Sciences/OEHS concentration majors, Dietetics, Diagnostic Genetic Sciences and Medical Laboratory Sciences majors; others with consent of instructor; open to juniors or higher. Not open to students who have passed AH 4239.

Research questions/hypothesis, finding and using research literature, ethical considerations, research design, sampling, measurement, reliability and validity, descriptive and inferential statistics, computer analysis of data, evaluating research, reviews of literature and proposals.

#### **4242. Counseling and Teaching for the Health Professional**

Three credits. Three hours of lecture. Prerequisite: Open to Allied Health Sciences, Dietetics, Medical Laboratory Sciences, Diagnostic Genetic Sciences and Nutritional Sciences majors, others with consent of instructor; open to juniors or higher.

Learning theory and counseling strategies; role of health professional as teacher and counselor; communicating with special groups, individuals and groups.

#### **4243. Current Issues in Health**

Three credits. Prerequisite: Open to Allied Health Sciences, Dietetics, Medical Laboratory Sciences, Diagnostic Genetic Sciences and Nutritional Sciences and Health Systems Management majors, others with consent of instructor; open to juniors or higher.

Individual, community and institutional health care needs and issues from a bio-medical and socio-cultural point of view. Health and its relationship to genetics, poverty, ethnicity, life-cycle events, ethics, etc.

#### **4244. Management for the Health Professional**

Three credits. Three hours of lecture. Prerequisite: Open to Allied Health Sciences, Dietetics, Medical Laboratory Sciences, Diagnostic Genetic Sciences and Nutritional Sciences majors, others with consent of instructor; open to juniors or higher.

Basic management principles and concepts of planning, organizing, supervising, controlling and evaluating in health care environments. Leadership, motivation, supervision, time management, labor relations, quality assurance/proficiency, financial management.

#### **4291. OSH Internship**

(Also offered as OSH 4291.) Variable (1-6) credits. Hours by arrangement. Prerequisite: Open only to BGS students and Allied Health Sciences OEHS concentration majors juniors or higher with consent of advisor and OEHS program coordinator. May be repeated for credit to a maximum of 6 credits applied to the major. Students taking this course will be

assigned a final grade of S (satisfactory) or U (unsatisfactory).

Application of the principles and concepts of hazard assessment and safety management to an actual workplace under the supervision of an approved onsite supervisor.

#### **4297W. Honors Thesis in Allied Health Sciences**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; instructor consent required; open only to Department of Allied Health Sciences students, juniors or higher.

Completion of written thesis based on student-designed honors research project under supervision of a faculty advisor.

#### **4501. International Health**

Three credits. Prerequisite: Open to juniors and higher.

Global (medical, cultural and economic) health challenges. Children's and women's health. Communicable and non-communicable diseases.

#### **4503. Poverty and Public Health**

Three credits. Taught with GPAH 5503. Prerequisite: Open to juniors or higher.

Social determinants of health and poverty. Health impact assessments. Improving the social determinants of health and poverty, including countries in conflict.

#### **4570. Pollution Control, Prevention and Environmental Management Systems**

Three credits. Prerequisite: AH 3174; open only to BGS students and Allied Health Sciences OEHS concentration majors juniors or higher; others with consent.

Basic knowledge of environmental management systems, and techniques in controlling and preventing pollution from industrial activities.

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### **American Sign Language (ASLN)**

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*Head of Department:* Professor Jonathan Bobaljik

*Department Office:* Room 368, Oak Hall

#### **1101-1102. Elementary American Sign Language Levels I and II**

#### **1103-1104. Intermediate American Sign Language Levels I and II**

1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

#### **1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

#### **2500. Introduction to Interpreting: American Sign Language and English**

Three credits.

Basic theories, principles, and practices of professional interpreting.

#### **2600. Process of Interpreting: American Sign Language and English**

Three credits. Prerequisite: ASLN 1102 or higher or consent of the instructor.

Theory and practice of ASL/English interpreting. Models of interpretation including text analysis and the goal of linguistic equivalency. Discourse analysis, visualization, listening and comprehending, shadowing, paraphrasing, abstracting, dual-task training, and cloze skills.

### 3193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3254. Women and Gender in the Deaf World

(Also offered as WGSS 3254.) Three credits. Prerequisite: One of WGSS 1104, 1105, or 1124; or consent of the instructor. Recommended preparation: Any 2000-level WGSS course. *Simons*

The roles of women inside and outside the Deaf world. How language and cultural barriers perpetuate the roles defined for and by d/Deaf women within Deaf and hearing societies.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3298. Variable Topics

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

### 3305. Advanced American Sign Language

Three credits. Prerequisite: ASLN 1104.

Advanced study of American Sign Language and Deaf culture.

### 3650. Deaf Writers and American Sign Language Literature

Three credits. Prerequisite: ASLN 1102. *Simons*

Discussion of deaf, hard of hearing, and hearing scholars in the examination of original ASL poetry. Critical examination of comparative literature in the Deaf Community and linguistic themes from different perceptions and analyses.

## American Studies (AMST)

*Director:* Associate Professor Christopher Vials

*Office:* Philip E. Austin Building Room 118

### 1201. Introduction to American Studies

(Also offered as ENGL 1201 and HIST 1503.) Three credits.

What is an American? A multi-disciplinary inquiry into the diversity of American societies and cultures. CA 4.

### 1700. Honors Core: American Landscapes

Three credits. Prerequisite: Open only to freshman and sophomore honors students.

Real and imagined landscapes in the Americas as seen through the history of the land and its uses and through changing representations of those landscapes in art, literature, science, and popular culture. CA 1.

### 3265W. Seminar in American Studies

(Also offered as ENGL 3265W.) (Formerly offered as INTD 265W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011, open to juniors or higher.

An in-depth study of an event, historical period, or cultural production from an interdisciplinary perspective.

### 3281. Internship

Credit and hours by arrangement, not to exceed six credits per semester. Open to juniors or higher; open only with consent of instructor. No more than eight credits may be earned in a single placement, and no more than three credits may be counted towards completion of requirements for the American Studies major. May be repeated for credit. Students taking this course will be assigned a grade of S (satisfactory) or U (unsatisfactory).

### 3695. Special Topics

Credits and hours by arrangement. Open to juniors or higher. Other prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3699. Independent Study

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor and approval of the director. May be repeated for credit with a change of topic. Supervised reading and writing on a subject of special interest to the student.

### 4897. Honors Thesis

Credits and hours by arrangement. Open to juniors or higher; open only with consent of instructor.

## Animal Science (ANSC)

*Head of Department:* Professor Steven Zinn

*Department Office:* Room 107, George White Building (Animal Science)

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

For 2-year program course listing, refer to Ratcliffe Hicks School of Agriculture (SAAS).

### 1001. Introduction to Animal Science

Three credits. Two class periods and one 2-hour discussion or laboratory period. Taught with SAAS 101. *Darre*

The biological, physical, and social factors that influence animal production and utilization.

### 1111. Principles of Animal Nutrition and Feeding

Three credits. Two class periods and one 2-hour discussion and laboratory period. Taught with SAAS 113. Not open for credit to students who have passed ANSC 2111. *Safran*

Digestive anatomy of various species and the classes of nutrients including their digestion, metabolism and sources. Nutrient requirements and feeding standards for livestock, companion animals, exotics and aquatics for purposes of reproduction, lactation, growth, work and maintenance. Classes of feedstuffs, their characteristics, proper utilization, formulating rations and nutritional programs for animal enterprise.

### 1602. Behavior and Training of Domestic Animals

Three credits. Two class periods and one 2-hour laboratory. Taught with SAAS 202. *Darre*

Application of behavior of cattle, horses, sheep, goats, swine and poultry to their management, training and welfare. Basic principles of genetics and physiology of behavior, perception, training, learning, motivation, and stress with consideration of integrated behavioral management and animal welfare.

### 1645. The Science of Food

(Also offered as NUSC 1645.) Three credits. *Mancini*

An introductory level course for students interested in the application of science to food. Nutritional and functional attributes of various food constituents are discussed. Issues concerning food processing and food safety are covered. CA 3.

### 1676. Introduction to Companion Animals

Three credits. Taught with SAAS 276. *Safran*  
Basic concepts of the nutrition, physiology, health and management of companion animals.

### 1693. Foreign Studies in Animal Science

Variable credits (1-15). Hours by arrangement. Prerequisite: Open only by instructor consent. May be repeated for credit.

Variable topics.

### 1695. Special Topics Lecture

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### 2251. Horse Science

Three credits. Two class periods and one 2-hour laboratory or discussion period. Taught with SAAS 251. *Nadeau*

Valuable to animal science majors. Includes horse types and breeds and their nutrition, breeding, evaluation, behavior, care and management with attention given to detailed studies of the problems and practices of horse production and use.

### 2271. Principles of Poultry Science

Three credits. Two class periods and one 2-hour laboratory period. *Darre*

The application of the basic scientific principles to the management of poultry, egg and meat production systems. Field trips are required.

### 2690. Animal Science Field Excursions

One credit. Prerequisite: Open only with instructor consent. May be repeated for credit with a change of topic. Students taking this



course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

A multiple day field trip format. Students in this course will travel with the instructor to visit and tour agri-businesses that represent commercial aspects of different animal science activities. Students will interview agri-business personnel and gain an understanding of how agricultural principles are applied in the field. Each student must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor. Field trip is required.

#### **2695. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with instructor consent. May be repeated for credit with a change of topic. Contact Department Main Office for list of current topics and instructors.

#### **2699. Independent Study**

Credits and hours by arrangement of instructor. Prerequisite: Instructor consent required. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). May be repeated for credit.

#### **3121. Principles of Animal Genetics**

Three credits. Prerequisite: BIOL 1108; open to sophomores or higher. Recommended preparation: BIOL 1107. *Safran, Tang*

Principles of Mendelian and molecular genetics. Biosynthesis and function of DNA, RNA, and protein. This course also includes introductions to population and quantitative genetics. Information on molecular methods of genetic analysis and examples of genetics in animals of agricultural significance are also provided.

#### **3122. Reproductive Physiology**

Four credits. Three class periods and one 2-hour laboratory period. *Milvae*

A study of the reproductive anatomy and physiology of domestic animals. Laboratory will include macro and micro anatomy, hormone action, and techniques used in reproductive management of domestic animals. A fee of \$75 is charged for this course.

#### **3194. Seminar**

One credit. One 2-hour discussion period. Prerequisite: Open to sophomores or higher. *Govoni*

A discussion of current employment opportunities in animal agriculture. In addition, students will prepare resumes and make oral presentation.

#### **3261. Dairy Cattle Management**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Open to juniors or higher. Taught with SAAS 261. *Kazmer*

Management of dairy cattle including milking procedures, sanitation, selection, nutrition, reproduction, physiology and anatomy of milk secretion and record keeping. Field trips required.

#### **3272. Laboratory Animal Science**

Three credits. Two class periods and one 2-hour laboratory or discussion period. Prerequisite:

BIOL 1107. Recommended preparation: BIOL 1108 or equivalent. *Milvae*

Principles and practices of laboratory animal care and management in relation to animal characteristics, handling and restraint, animal house design, reproduction and nutrition and legal regulations. Various laboratory animal techniques will be covered. A \$75 fee is charged for this course.

#### **3273. Livestock Management**

Four credits. Three class periods and one 2-hour laboratory period. Taught with SAAS 273. *Hoagland*

The production and management of beef cattle, sheep, and swine. Laboratories involve theory and practice in livestock management, skills, and techniques.

#### **3311. Comparative Exercise Physiology**

Three credits. Two class periods and one 2-hour lab/discussion period. Prerequisite: PVS 2100 or PNB 2265 or 2275; open to juniors or higher. *Reed*

A comparative study of the effects of exercise on the body, focusing on the three primary athletic species (canine, equine, human). Particular emphasis will be placed on the physiological mechanisms which allow for adaptation to exercise and inactivity. Discussion/lab periods will focus on critical review of current scientific literature and hands on activities.

#### **3312W. Scientific Writing in Comparative Exercise Physiology**

One credit. One class period. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite: ANSC 3311. *Reed*

A writing intensive class integrated with course content in ANSC 3311.

#### **3313. Growth Biology and Metabolism in Domestic Livestock**

Three credits. Two class periods and one 2-hour discussion period. Prerequisite: Open to juniors or higher. Recommended preparation: PVS 2100. *Govoni*

Focuses on the embryonic and postnatal growth and development of domestic livestock with emphasis on metabolic and hormonal regulation of processes that influence growth and development. Discussion period will focus on methods used to measure growth and metabolism.

#### **3314W. Scientific Writing in Growth Biology and Metabolism of Domestic Livestock**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite: ANSC 3313. *Govoni*

A writing intensive class integrated with course content in ANSC 3313.

#### **3316. Endocrinology of Farm Animals**

Three credits. Two class periods. Prerequisite: Open to juniors or higher. Recommended preparation: PVS 2100 or equivalent. *Zinn*

Focuses on endocrine systems and endocrine function in farm animals with emphasis on hormones involved in metabolism, growth, lactation, feed intake and digestion in cattle, pigs, horses and poultry.

#### **3317W. Scientific Writing in Endocrinology of Farm Animals**

One credit. One class period. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite: ANSC 3316. *Zinn*

A writing intensive class integrated with course content in ANSC 3316.

#### **3318. Probiotics and Prebiotics**

Three credits. Three 50-minute class periods. Recommended preparation: MCB 2610 or equivalent; can be taken concurrently. *Amalaradjou*

Biology, uses, effectiveness and safety of probiotics and prebiotics. Molecular mechanisms underlying the health benefits attributed to the consumption of pre- and probiotics. Application of pre- and probiotics to promote human and animal health, including safety and regulation.

#### **3323. Animal Embryology and Biotechnology**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: ANSC 3122 or MCB 4219. *Tian*

Introduction to recent research in animal embryology and related reproductive biotechnologies. Basic principles, methodology and state of the technology for numerous established and emerging animal biotechnologies such as transgenesis and cloning.

#### **3324W. Scientific Writing in Embryo Biotechnology**

One credit. One class period. Prerequisite: ENGL 1010, or 1011, or 2011; open to juniors or higher. Corequisite: ANSC 3323. *Tian*

A writing intensive class integrated with course content in ANSC 3323.

#### **3343. Animal Food Products**

Three credits. Two class periods and one 3-hour laboratory. Prerequisite: Open to juniors or higher. *Mancini*

A study of the food products derived from animal agriculture, including dairy, meat, poultry and fish. Emphasis will be placed on inspection, grading, processing, biochemistry, nutritive value and food safety concerns of these products. A fee of \$50 is charged for this course.

#### **3344W. Scientific Writing in Animal Food Products**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite: ANSC 3343. *Mancini*

A writing intensive class integrated with course content in ANSC 3343.

#### **3452. Horse Breeding Farm Management**

Three credits. One class period and two 2-hour laboratory or discussion periods. Prerequisite: ANSC 2251; open to juniors or higher. *Reed*

Designed to develop technical and managerial skills necessary for operating horse breeding farms. Programs for herd health, hoof care, nutrition, breeding, foaling, and record keeping will be included.

#### **3453. Pleasure Horse Appreciation and Use**

One credit. One 1-hour lecture and one 1-hour laboratory. Not open to students who have passed ANSC 3456. *Meacham*

Open to all University students interested in pleasure horses. The principles of horse

management and horsemanship. A \$75 fee is charged for this course.

#### **3454. Horse Selection and Evaluation**

Two credits. One 4-hour laboratory or discussion period. Taught with SAAS 254. Prerequisite: Consent of instructor is required. Not open for credit to graduate students. *Bennett*

Comparative evaluation, classification and selection of horses according to conformation, breed characteristics and performance. Judging skills including justification of placings through presentation of oral reasons will be developed. The Intercollegiate Horse Judging Team may be selected from this course. Field trips are required.

#### **3455. Developing the Driving Horse**

Two credits. One 1-hour lecture and two 1-hour laboratories. Prerequisite: Open to juniors or higher; open by consent only. *Bennett*

Techniques related to training the driving horse will be described. Prior working experience with horses is recommended.

#### **3456. Light Horse Training and Management**

Two credits. Three 1-hour laboratories and one 1-hour lecture period. Prerequisite: ANSC 2251; open only with consent of instructor. *Bennett, Meacham*

The theory, fundamentals and practice of breaking, training, fitting, showing, and the use of horses for riding. Primarily for Animal Science majors.

#### **3621. Animal Biotechnology Laboratory**

Two credits. One class period and one 3-hour laboratory period. Prerequisite: ANSC 3121 (or equivalent); PLSC 3210 (or equivalent); instructor consent required. Recommended preparation: ANSC 3122 (or equivalent). *Tian*

Laboratory techniques used in agricultural biotechnology research, including embryo manipulation, immunofluorescence, real-time PCR, karyotyping, SNP analysis, high throughput sequencing, RNA-seq, genome construction, and gene database searches.

#### **3641. Animal Food Products: Dairy Technology**

Three credits. Two class periods and one 2-hour laboratory or discussion period. Prerequisite: Open to juniors or higher. *D'Amico*

Production and processing of milk and milk-products from a food science perspective including chemical, physical and microbiological components. Technological aspects of the transformation of milk into various food products. Public health regulations, good manufacturing practices, cleaning and sanitizing procedures. Unit operations in dairy food manufacturing, packaging, labeling and quality control procedures.

#### **3642W. Scientific Writing in Animal Food Products: Dairy Technology**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011. Corequisite: ANSC 3641. *D'Amico*

A writing intensive course integrated with course content in ANSC 3641.

#### **3663. Dairy Management Decision-making**

One credit. One 2-hour discussion period. Prerequisite: Open to juniors or higher; consent

of instructor required. May be repeated twice for credit. *Kazmer*

Participation in all phases of dairy herd management including decision-making activities, with particular emphasis on impact of decisions on financial health and stability. Course requires participation beyond specific semester calendars.

#### **3664. Dairy Cattle Evaluation**

One credit. One 2-hour laboratory or discussion period. Prerequisite: Open to juniors or higher. *Kazmer*

An introduction to the evaluation of dairy cattle on the basis of conformation. Breed classification and type improvement programs, score card criteria in relation to longevity, physiological efficiency and performance are included. Attention is also given to fitting and showing methods. Field trips may be required.

#### **3674. Livestock and Carcass Evaluation**

Two credits. Two 2-hour laboratory periods. Taught with SAAS 274. Not open for credit to graduate students. *Hoagland*

Classification, form to function relationships, grades and value differences of livestock are included. Objective and subjective methods of appraisal are used to evaluate beef cattle, horses, sheep and swine.

#### **3675. Advanced Animal and Product Evaluation**

One credit. One 2-hour laboratory or discussion period. Prerequisite: Open to juniors or higher; open only with instructor consent. Taught with SAAS 275. Not open for credit to graduate students. May be repeated once for credit.

Intensive training in the evaluation of selected species of farm animals or their products. Type standards and the relation of anatomical features to physiological function are emphasized. Evaluation skills including justification of decisions will be developed. Intercollegiate dairy cattle, horse, livestock, poultry judging teams will be selected from this course. Field trips are required, some of which may occur prior to the start of the semester.

#### **3691. Professional Internship**

Credits and hours by arrangement. Prerequisite: Open only to juniors and seniors with instructor consent. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Andrew, Darre, Milvae*

#### **3693. Foreign Studies in Animal Science**

Variable credits, 1-15. Hours by arrangement. Prerequisite: Open only by instructor consent. May be repeated for credit.

Variable topics.

#### **3695. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only by instructor consent. May be repeated for credit with a change of topic. Contact Department Main Office for list of current topics and instructors.

#### **4311. Advanced Animal Nutrition**

Three credits. Two class periods and one 2-hour lab/discussion period. Prerequisite: ANSC 1111; open to juniors or higher. *Andrew, Safran*

A comparative study of nutritional, physiological, microbiological, immunological and biochemical aspects of digestion and metabolism in

the non-ruminant and ruminant animal, particularly livestock and companion animals. Topics include digestive system structures, utilization of nutrients, energy metabolism, control of nutrient metabolism, and experimental techniques used in the study of animal nutrition.

#### **4312W. Scientific Writing in Advanced Animal Nutrition**

One credit. One class period. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite ANSC 4311. *Andrew*

A writing-intensive class integrated with course content in ANSC 4311.

#### **4341. Food Microbiology and Safety**

Three credits. Prerequisite: BIOL 1107; open to juniors or higher. A one semester course in organic chemistry is recommended. *Venkitanarayanan*

Current topics in food safety will be discussed, with special emphasis on microbial and chemical contamination of food. Specific topics including the safety of natural versus synthetic chemicals, food additives, irradiation and other practices, basic microbiology and toxicology, current regulatory practices and risk assessment will also be included. The Hazard Analysis Critical Control Points (HACCP) approach to food safety will be discussed.

#### **4342W. Scientific Writing in Food Microbiology and Safety**

One credit. One class period. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite: ANSC 4341. *Venkitanarayanan*

A writing-intensive class integrated with course content in ANSC 4341.

#### **4457. Methods of Equitation Instruction**

Two credits. One class period and one 2-hour laboratory or discussion period. Taught with SAAS 257. Prerequisite: Consent of instructor required; Intermediate II or above riding experience required. *Meacham*

The techniques and procedures of teaching equitation including the theories of riding and teaching methods. Practice teaching will be required under the supervision of the instructor.

#### **4642. Food Microbiology Laboratory**

One credit. One 3-hour laboratory session. Prerequisite: Open to juniors or higher. Recommended preparation: MCB 2610. *Venkitanarayanan*

An introductory laboratory course in sampling of foods for microbiological analysis, enumeration of microorganisms in foods, and isolation and identification of major foodborne pathogens from foods.

#### **4662W. Dairy Herd Management**

Three credits. Two class periods and one 2-hour laboratory period. Taught with SAAS 262. Prerequisite: ANSC 3261; ENGL 1010 or 1011 or 2011; open to juniors or higher. *Kazmer*

Dairy farm management practices with emphasis on business and economic decision making. The effects of various programs in selection, nutrition, facilities, reproduction and herd health on overall business health will be evaluated. Each student will manage a computer simulated herd during the semester. Field trips are required.

**4697W. Undergraduate Honors Thesis Writing in Animal Science**

One credit. Hours by arrangement. Prerequisite: Three credits of ANSC 2699, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.

Writing of a formal thesis based on independent research conducted by the student. Thesis proposal and final thesis must follow guidelines developed by the department.

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## Anthropology (ANTH)

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*Head of Department:* Professor Pamela I. Erickson

*Department Office:* Room 438, Beach Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1000. Other People's Worlds**

Three credits.

A survey of the development, contributions, and contemporary social problems of selected non-Euroamerican peoples and cultures. CA 2. CA 4-INT.

**1000W. Other People's Worlds**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2. CA 4-INT.

**1001W. Anthropology through Film**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

An introduction to cultural anthropology, approached through the medium of ethnographic film. Particular attention is given to how films represent humans' varied beliefs and behavior. CA 1. CA 4-INT.

**1006. Introduction to Anthropology**

Three credits. Two class periods and one 1-hour discussion.

The biological and cultural development of humans from their origin to the present. A brief survey of human evolution is followed by a comparative study of behavior and beliefs of our own and other societies. CA 2. CA 4-INT.

**1010. Global Climate Change and Human Societies**

Three credits.

A multidisciplinary examination of the nature, anthropogenic drivers, range of expressions, and impacts of contemporary and future global climate change as well as cultural understandings of this significant environmental process and diverse human responses to it. CA 2. CA 4-INT.

**1093. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head is required before departure. May count toward the major with the consent of the advisor. May be repeated for credit (to a maximum of 17).

Special topics taken in a foreign study program.

**1095. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

**1500. Great Discoveries in Archaeology**

Three credits.

Survey of important discoveries in archaeology spanning the whole of human prehistory across the globe. Current issues, methods, and techniques in the field of archaeology. CA 2. CA 4-INT.

**2000. Social Anthropology**

Three credits.

Comparative study of social structure including an analysis of kinship, marriage, community organization, political and economic institutions, and the role of the individual in these institutions. CA 2. CA 4.

**2000W. Social Anthropology**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2. CA 4.

**2400. Honors Core: Analyzing Religion**

Three credits. Recommended for first-year and sophomore students in the Honors Program; open to all.

An introduction to religion from interdisciplinary and cross-cultural perspectives. Theories, analytic frameworks, and critiques. Religious orientations. Components of religion. The science-and-religion debate. CA 2. CA 4-INT.

**2501. Introduction to Archaeology**

Three credits.

The concepts, methods and practice of anthropological archaeology.

**2502. Human Evolution**

Three credits.

The processes and events leading to the origin of human beings. Human physical and cultural development from its beginning to the dawn of settled life, through the approaches of physical anthropology and archaeology.

**2510. Methods in Maritime Archaeology**

Three credits. Recommended preparation: ANTH 2501.

Methods and techniques in underwater archaeology covering both maritime (ships, ports, etc.) and submerged settlements archaeology. Overview of the aqueous environment, underwater archaeological methods, geophysical/geotechnical surveying and data interpretation, diver and ROV-based documentation and excavation techniques survey methods.

**3002. Culture, Language, and Thought**

Three credits.

Anthropological contributions to the study of language, culture, and their relationship. Topics include the Sapir-Whorf hypothesis and the application of cognitive anthropological methods and theory to the study of folk classification systems.

**3003. Field Research in Social Settings**

Three credits. Prerequisite: ANTH 1000 or 1006.

Methods and techniques of field research in social settings, including observational procedures, interviewing, and the construction and use of questionnaires.

**3004. Cultural Research**

Variable (one to three) credits.

The theoretical foundations and basic methods used to collect and analyze cultural data.

**3021. Contemporary Latin America**

(Also offered as LLAS 3021.) Three credits.

Survey of anthropological contributions to the study of contemporary Mexico, Central America, South America, and the Hispanic Caribbean. Special focus on the comparative analysis of recent ethnographic case studies and local/regional/national/international linkages.

**3026. Peoples and Cultures of North America**

Three credits.

A survey of representative Native American cultures as they existed prior to the twentieth century, together with a view of the changing life of modern Native Americans.

**3027. Contemporary Native Americans**

Three credits.

Analysis of Native American reservations and urban communities and their relationship to the larger U.S. society. Special focus on federal policy and economic development, cultural identity, and politics of Native Americans.

**3028. Indigenous Rights and Aboriginal Australia**

(Also offered as HRTS 3028.) Three credits. Recommended preparation: ANTH 2000.

An introduction to the study and understanding of Aboriginal ways of life and thought. An exploration of the complexity of contemporary indigenous social orders and land rights issues. CA 4-INT.

**3028W. Indigenous Rights and Aboriginal Australia**

(Also offered as HRTS 3028W.) Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: ANTH 2000. CA 4-INT.

**3029. The Caribbean**

(Also offered as LLAS 3029.) Three credits.

Comparative perspectives on the cultural formation of Caribbean societies; the region's demographic, economic and political links with the wider world.

**3030. Peoples of the Pacific Islands**

Three credits.

Survey of the indigenous societies and cultures of the Pacific Islands, from the first settlement to the postcolonial period. Topics include prehistoric canoe voyaging, modes of subsistence, political forms, ritual and religion, ceremonial exchange, gender ideologies, European colonization, and modern indigenous nationalism. Ethnographic examples will be drawn from Polynesia, Melanesia, and Micronesia. CA 4-INT.

**3038. Peoples and Cultures of the Middle East**

Three credits.

Selected social and cultural features of past and contemporary Middle Eastern social forms, and the origins and varieties of Western perceptions of these features.

**3041. Latin American Minorities in the United States**

(Also offered as LLAS 3241.) Three credits.

Emphasis on groups of Mexican, Puerto Rican and Cuban origin, including treatment and historical background, social stratification, informal social relations, ethnic perceptions, relations and the concept of Latino identity.

**3042. Contemporary Mexico**

Three credits.

Analysis and interpretation of interrelated economic, political and cultural processes in the contemporary social life of Mexico and the U.S.-Mexico borderland. Draws broadly on the social science literature with a special focus on anthropological contributions.

**3090. Directed Field Research in Anthropology**

Course may be repeated, but credits may not exceed 12. Hours by arrangement. Prerequisite: ANTH 3003 or instructor consent.

The investigation of a sociocultural and/or archaeological problem in some domestic or foreign field location.

**3093. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3095. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change of content, may be repeated for credit.

**3098. Variable Topics**

Three credits. Prerequisites, required preparation, and recommended preparation vary. With a change in topic, may be repeated for credit.

**3099. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

**3150. Migration**

Three credits. Recommended preparation: ANTH 1000 or ANTH 1006.

The social, cultural and economic causes and consequences of internal and international migration in the modern era. Topics include migrant selection, social adaptation, effects on home and host societies, and cultural identity. CA 4.

**3150W. Migration**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: ANTH 1000 or 1006. CA 4.

**3152. Race, Ethnicity, and Nationalism**

(Also offered as AFRA 3152.) Three credits.

Popular and scholarly theories of human group identity and diversity, in cross-cultural and historical perspective. Topics include: an overview of 'race' and 'ethnicity' in Western thought, ethnic group formation and transformation, political mobilizations of group identity, and systems of inequality. CA 2. CA 4.

**3153W. Human Rights in Democratizing Countries**

(Also offered as HRTS 3153W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor.

Human rights, political violence, political and legal anthropology, prosecutions of human rights offenders, truth and memory, reconciliation, international justice. CA 4-INT.

**3200. Human Behavioral Ecology**

Three credits.

The application of the theory of natural selection to the study of human culture and behavior, with emphasis on the interaction between humans and their environment.

**3202W. Illness and Curing**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Cross-cultural analysis of ethnomedicine, major medical systems, alternative medical systems, curing and healing illness and social control, gender and healing, and the role of traditional and cosmopolitan medical systems in international health. CA 4.

**3250. Cognitive Anthropology**

Three credits. Recommended preparation: ANTH 3002.

The study of how the content of thought or knowledge is created, organized, and distributed in human communities. Topics include cultural models of the mind, emotions, personality, and relationships.

**3251. Psychological Anthropology**

Three credits.

Cross-cultural overview of critical issues regarding the relationship between individual personality and sociocultural systems, and mental health and illness.

**3300. Medical Anthropology**

Three credits.

An introduction to the theory, method, and content of medical anthropology.

**3302. Medical Ecology**

Three credits. Recommended preparation: ANTH 3300.

Anthropological perspectives on the interrelationships among culture, biology, environment, and disease. Major topics include ecology and adaptation, population dynamics, nutrition, reproduction, disease in sociological context, health seeking behavior, and the complexity of the interaction of western and non-western medical systems.

**3304. Anthropology of Drug Use**

Three credits.

Uses the anthropological lens to examine the intersection of societies, cultures and psychoactive substances based on a historically informed, cross-cultural, ethnographic and political economic perspective on drug use and related behaviors.

**3309. Violence and Human Rights**

Three credits. Prerequisite: Open to sophomores or higher.

Violence and human rights as cultural constructs; human rights claims; war, genocide, terrorism, street crime, domestic violence; deterrence and intervention policy.

**3325. Introduction to Global Health**

Three credits. Prerequisite: Open to sophomores or higher.

Anthropological perspectives on public health in a globalized world, health inequalities within and across countries; diverse social, cultural, and other determinants of global health; pressing global

health issues; organizational players involved in addressing global health issues.

**3339. Cultural Designs for Sustainability**

Three credits. Prerequisite: Open to sophomores or higher.

Correspondences among cultural institution design, collective action failure and success, and cultural resilience.

**3350. Anthropological Perspectives on Women**

(Also offered as WGSS 3350.) Three credits.

Major conceptual and historical problems in the study of gender in anthropology. Women's roles in different historical and contemporary settings, and new understandings of family, kinship, power, and cultural ideologies.

**3351. Sex and Gender**

Three credits.

Cross-cultural and interdisciplinary analysis of biological sex, gender, sex roles, and sexuality.

**3400. Culture and Religion**

Three credits. Prerequisite: ANTH 1000 or 1006.

Major theories and approaches in the study of religion as a social institution and cultural system. Topics include myth, ritual, taboos and pollution beliefs, shamanism, magical practices, fundamentalism and religion in modern society.

**3401. World Religions**

Three credits.

A survey of religious belief systems, both polytheistic and monotheistic, from around the world. CA 1. CA 4-INT.

**3402. Women in the Bible**

(Also offered as WGSS 3402.) Three credits.

An introduction to Biblical interpretation from a feminist perspective, examining how women are represented in the Hebrew Scriptures and the New Testament. Issues of authorship, translation, point of view, cultural context and language.

**3403. Women and Religion**

(Also offered as WGSS 3403.) Three credits.

Gender issues in the world's religions. Survey of women's theological standing, ritual activities and participation in a cross-cultural sample of religions, both monotheistic and polytheistic.

**3450W. Anthropological Perspectives on Art**

Prerequisite: ENGL 1010 or 1011 or 2011.

Approaches to cultural creativity and aesthetics in the graphic and plastic arts of pre-state societies. Examples from North America, Oceania, and Africa. CA 1.

**3503. Old World Prehistory**

Three credits.

The origin of humanity in Africa, hunters and gatherers of the Paleolithic, the origins of agriculture and the transition to settled life, and the emergence of civilizations in Africa, Asia and the Near East.

**3506W. Laboratory Techniques in Archaeology**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

The analysis, interpretation, and presentation of archaeological data sets including lithics, ceramics, floral and faunal remains and spatial information from excavated sites.

**3512. African Prehistory**

Three credits.

The African archaeological record from first artifacts to historic times. The stone age, the domestication of crops, the ways of life of early herding societies, the development of metal working, and the rise of early African kingdoms.

**3513. Near Eastern Prehistory**

(Also offered as HIST 3300.) Three credits.

From the earliest hunter-gatherers to the rise of the state: the transition from food gathering to food production and the development of complex societies in the Near East.

**3514. European Prehistory**

Three credits.

Interdisciplinary survey of the archaeological, biological, cultural, and behavioral evolution of prehistoric humans and their societies across Europe and portions of western Asia.

**3515. Ancient Civilizations of the Old World**

Three credits. Recommended preparation: ANTH 1006 or 1500.

Examination of early civilizations in Mesopotamia, Egypt, the Indus Valley, and sub-Saharan Africa. Theories explaining the development and collapse of early state-level societies are critically considered.

**3522. Ecological Anthropology Seminar**

Three credits.

Interdisciplinary study of the ecology of humans, integrating ecological and anthropological theory with archaeological, historical, and contemporary case-studies.

**3522W. Ecological Anthropology Seminar**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3523. The Origins of Agriculture**

Three credits.

The origins and spread of agriculture worldwide. Economic, social and ideological ramifications of the agricultural transition. Processes of plant and animal domestication.

**3531. Maritime Archaeology of the Americas**

(Also offered as HIST 3209 and MAST 3531.) Three credits. Recommended preparation: ANTH 1500, 2501, 2510, or HIST 3544.

Archaeological and historical sources to examine the development of seafaring practices, exploration, waterborne trade and economic systems, naval warfare and shipbuilding in the Americas from the fifteenth to the beginning of the twentieth century.

**3532. Archaeology of the Age of Sail**

(Also offered as HIST 3210 and MAST 3532.) Three credits. Recommended preparation: ANTH 1500, 2501, or 2510.

Overview of archaeological and historical sources on the development of seafaring and navigation, exploration, waterborne trade and economic systems, colonialism and empire building, naval warfare and shipbuilding in Europe, Asia and Australia from the fifteenth to the beginning of the twentieth century.

**3555. Archaeological Science**

Three credits. Prerequisite: Open to sophomores or higher. Consent of instructor required.

Survey of scientific methods used to answer archaeological questions. Methods, applications and lab demonstrations.

**3701. Lithic Technology**

Three credits.

The properties of stone tools – the primary evidence of human behavior for humanity's first 2.5 million years – and the processes of their manufacture. Analysis of prehistoric tools and tool replication.

**3702. Human Osteology**

Three credits. Recommended preparation: ANTH 2502.

Human skeletal anatomy from an evolutionary and functional perspective. Identification and interpretation of bones of the human skeleton, methods for aging, sexing, and identifying pathologies.

**3703. Zooarchaeological Method and Theory**

Three credits.

Method and theory of archaeological faunal analysis, including training in the identification of skeletal materials, the formation of the zooarchaeological record, and the interpretation of zooarchaeological data.

**3704W. Experimental Archaeology**

Prerequisite: ANTH 2501; ENGL 1010 or 1011 or 2011.

Method and theory of experimental archaeology, including hands-on study of past human behavior through experimentation with modern material culture, and the execution of an experimental research project addressing an archaeological question.

**3705. Paleoanthropology**

Three credits. Recommended preparation: ANTH 2501, 2502, or 3503.

Fossil evidence for the evolution of the human family, Hominidae. Anatomical features, behavior, and evolutionary relationships of extinct hominids; the use of biological, geological, and archaeological evidence to reconstruct past hominid adaptations.

**3706. Archaeobotany**

Three credits. One hour lecture followed by a two hour laboratory. Prerequisite: Instructor consent required.

Method and theory of studying archaeological plant remains in the laboratory, including sampling, identification, and interpretation of data.

**3720. Lab Methods in Archaeological and Forensic Science**

One credit. Consent of instructor required. Repeatable to a maximum of three credits.

Introduction to scientific lab methods used in archaeology and forensics. Includes three standalone modules, each dedicated to a different method. Each module consists of 15 contact hours comprising labs and lectures and takes place during a single weekend.

**3902. North American Prehistory**

Three credits.

Prehistoric cultures of North America from the earliest traces to European contact, with emphasis on the region east of the Mississippi. CA 4.

**3904. Ethnohistory of Native New England**

Three credits.

Combines archaeological and ethnohistorical data to reconstruct the lifeways of the Native Americans of New England from the prehistoric period to the present. CA 4.

**3990. Field Work in Archaeology**

Variable credits. Prerequisite: Open only with consent of instructor.

Training in the techniques of archaeological site excavation; mapping; recording; field conservation, and preliminary analysis of materials.

**4001W. The Development of Anthropological Theory**

Three credits. Prerequisite: ANTH 2000; ENGL 1010 or 1011 or 2011. Recommended for seniors.

Historical and contemporary theories in social and cultural anthropology.

**4510. The Neanderthals**

Three credits. Recommended preparation: ANTH 1500, 2501, or 2502.

An interdisciplinary consideration of the biological, cultural, technological, and behavioral evolution of the Neanderthals and their societies.

**4801. Quantitative Methods for Archaeologists**

Three credits.

Quantitative methods appropriate to the analysis of artifact data, radiocarbon dating, and the spatial distribution of sites.

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## Arabic (ARAB)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

**1101. Elementary Arabic Level I****1103. Intermediate Arabic Level I**

Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

**1111. Elementary Arabic I**

Four credits each semester. Four class periods and additional laboratory practice. Not open for credit to students who have had three or more years of Arabic in high school.

Development of ability to communicate in Arabic, orally and in writing.

**1112. Elementary Arabic II**

Four credits each semester. Four class periods and additional laboratory practice. Not open for credit to students who have had three or more years of Arabic in high school. Prerequisite: ARAB 1111.

Development of ability to communicate in Arabic, orally and in writing.

**1113. Intermediate Arabic I**

Four credits each semester. Four class periods and additional laboratory practice. Prerequisite: ARAB 1112.

Development of ability to communicate in Arabic, orally and in writing.

**1114. Intermediate Arabic II**

Four credits each semester. Four class periods and additional laboratory practice. Prerequisite: ARAB 1113.

Development of ability to communicate in Arabic, orally and in writing.

**1121. Traditional Arab Literatures, Cultures, and Civilizations**

Three credits. Taught in English.

Representative works from the cultures of the Arab world. Pre-Islamic poets to later writers and thinkers. Relation of literary and artistic forms to their historical contexts. CA 1. CA 4-INT.

**1122. Modern Arabic Culture**

Three credits. Taught in English.

Introduction to modern Arabic culture from Napoleon's Egyptian Campaign to modern Islamism. Survey of institutions, philosophy, and social customs seen through the medium of literature. CA 1. CA 4-INT.

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3212. Arabic Composition and Conversation**

Three credits. Prerequisite: ARAB 1114 or by instructor consent. May be repeated for up to 6 credits.

In-depth development of speaking and writing skills.

**3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

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## Art (ART)

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*Acting Head of Department:* Professor Cora Lynn Deibler

*Department Office:* Room 100, Art Building

**1000. Art Appreciation**

Three credits. Not open to Art majors. Intended primarily for students who are not art majors.

Introduction to the visual arts, past and present. The visual language of artists, historical and cultural significance of works of art. CA 1.

**Studio Courses****1010. Foundation: Studio Concepts**

Three credits. Two 3-hour studio periods.

Introduction to key concepts and practice in art making. A fee of \$20 is charged for this course.

**1020. Foundation: Criticism and Interpretation**

Three credits. One 3-hour class period.

An introduction to various current critical approaches to the producers, contexts, audiences, and histories of contemporary visual culture.

**1030. Drawing I**

Three credits. Two 3-hour or three 2-hour studio periods.

Fundamental principles of drawing based on observation. A fee of \$10 is charged for this course.

**1040. Drawing II**

Three credits. Two 3-hour or three 2-hour studio periods. Prerequisite: ART 1030.

Observational drawing; emphasis on spatial organization and structure. A fee of \$10 is charged for this course.

**2010. Life Drawing I**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1040.

Introduction to figure drawing. A fee of \$20 is charged for this course.

**2011. Introduction to Digital Media**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1010 and ART 1030.

Introduction to digital media. A fee of \$35 is charged for this course.

**2110. Graphic Design: Process and Thinking**

Three credits. Two 3-hour periods. Prerequisite: ART 1010 and 1030.

Introduction to the methods of design thinking and the process involved in translating that thinking into form. Content, meaning, form, typography, layout, structure, craft and process in graphic design, emphasizing conceptual analysis, visualization, and skillful making through the adept use of analog and digital tools. A fee of \$35 is charged for this course.

**2120. Graphic Design 1: Typography**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2110, portfolio review and consent of instructor.

Introduction to typographic terms, technology, and the foundations and fundamentals of typography and visual structure as a medium for expressive, conceptual, and intellectual communication. A fee of \$35 is charged for this course.

**2210. Illustration**

Three credits. Two 3-hour or three 2-hour studio periods. Prerequisite: ART 2010 and 2310.

Introduction to principles of illustration, media, and techniques. A fee of \$35 is charged for this course.

**2220. Animation Fundamentals**

Three credits. Two 3-hour studio periods. Prerequisites: ART 1040.

Fundamental skills required for animation.

**2310. Basic Studio, Painting**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1010 and 1030.

Introduction to the principles and techniques of painting media. A fee of \$20 is charged for this course.

**2410. Basic Studio, Photography**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1010 and 1030.

Introduction to techniques and aesthetics of photography, with emphasis on the camera. A fee of \$20 is charged for this course.

**2420. Intermediate Photography**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2410.

Principles and techniques of black-and-white photography in fine-art applications, with emphasis on darkroom work. A fee of \$35 is charged for this course.

**2510. Basic Studio, Printmaking**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1010 and 1030.

Introduction to practice and principles of printmaking, including intaglio, relief and lithographic processes. A fee of \$35 is charged for this course.

**2610. Basic Studio, Sculpture**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1010 and 1030.

Introduction to principles and techniques of sculpture. A fee of \$50 is charged for this course.

**2993. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure to study abroad. May be repeated with a change in course content.

Special topics taken in a foreign study program.

**2995. Special Topics Seminar**

Credits and hours as determined by the Senate Curricula and Courses Committee. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic. This course may or may not count for credit toward graduation. Students should consult the course syllabus and the Dean's Office of their School or College.

**3010. Life Drawing II**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2010.

Drawing from the figure. A fee of \$20 is charged for this course.

**3020. Advanced Figure Drawing**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3010; open to juniors or higher. May be repeated once.

Advanced studies in figure drawing. A fee of \$20 is charged for this course.

**3030. Advanced Drawing**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3010 and consent of instructor; open to juniors or higher. May be repeated with a change in course content to a maximum of 9 credits.

Advanced studies in drawing. Course content varies with instructor. A fee of \$10 is charged for this course.

### **3110. Graphic Design 2: Visual Systems**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2120; open only to majors; open to non-majors by instructor consent.

Investigate creative and effective visual design systems through the use of visual structure, typography, image, grid, information hierarchy and architecture. A fee of \$35 is charged for this course.

### **3120. Graphic Design 3: Relational Design**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2120 and 3110; open only to majors; open to non-majors by instructor consent.

Exploration of form, content, function, strategy; collaborative and integrative thinking in problem solving; using diverse communication design methodologies. A fee of \$35 is charged for this course.

### **3130. Fundamentals of Web Design**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2011 and 2120 or instructor consent.

Introduction to basic HTML web page design using Cascading Style Sheets. A fee of \$35 is charged for this course.

### **3131. Interactive Design**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2120 and 3130 or instructor consent.

Introduction to the design of interactive screen-based experiences.

### **3132. Graphic Design: Motion Graphics**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2011, 2110 or instructor consent; open only to majors; open to non-majors by instructor consent.

Introduction to the multifaceted diversity of motion design, including film and television title sequences, data visualizations, web-based animations, and sound branding with an emphasis on typography in motion. Students develop competency in producing motion graphics via ideation and conceptualization, sketching, storyboarding and animatics, using both analog and digital methods, leading to final animations.

### **3170. Graphic Design: Survey**

Three credits. Two 1½-hour class periods. Prerequisite: ART 2110; open only to majors, open to non-majors by instructor consent; open to sophomores and higher.

Survey of contemporary graphic design practice as an artistic and professional discipline in visual media. In addition to critical readings, presentations, and discussions, field trips are planned to engage in dialogues with practicing professional designers and studios. A fee of \$35 is charged for this course.

### **3210. Topics in Illustration**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3010 and 2210; open to juniors or higher. May be repeated with a change of course content up to 9 credits.

Continuing problems in illustration. Projects may include book, editorial, reportage, or self-promotion illustration. A fee of \$10 is charged for this course.

### **3250. Stop and Go: Explorations in Stop-Motion Animation**

Three credits. Six studio hours each week. Prerequisite: ART 2220.

A survey of stop-motion animation topics.

### **3270. Going Pro**

Three credits. One 3-hour period. Prerequisite: ART 3210. Open only to juniors or higher studio art majors, others by instructor consent.

Professional practices in illustration and animation, including market preparedness, portfolio development, branding, business communication and tools, networking, and promotion.

### **3310. Intermediate Painting**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2310. May be repeated once for credit (up to 6 credits) with a change in course content.

Conceptually-oriented painting projects. A fee of \$10 is charged for this course.

### **3330. Advanced Painting**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3310 or 3360; open to juniors or higher. May be repeated for up to 6 credits with a change in course content.

Individually determined painting projects. A fee of \$35 is charged for this course.

### **3350. Aqua Media I**

Three credits. Two 3-hour studio periods. Prerequisite: ART 1040.

Introduction to the materials and methods of painting in aqua media. A fee of \$35 is charged for this course.

### **3360. Aqua Media II**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3350.

Continuing study in aqua media. A fee of \$20 is charged for this course.

### **3370. Advanced Figure Studies**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2010, 2310, 3010; open to juniors or higher. May be repeated for up to six credits with a change in course content.

Advanced studies with the figure using a variety of media. A fee of \$20 is charged for this course.

### **3375. Indian Art and Popular Culture: Independence to the Present**

(Also offered as AASI 3375 and INDS 3375.) Three credits. Prerequisite: Open to juniors or higher. *Myers*

An interdisciplinary lecture/studio art course introducing diverse forms of Indian Art from the traditional through the contemporary. Students complete either research or studio art assignments responding to course content. CA 1. CA 4-INT.

### **3410. Introduction to Video Art**

Three credits. Prerequisite: ART 2410; open to Art and Art History majors only; others by

consent of instructor. May be repeated once with a change of content.

Introduction to techniques and aesthetics of video art. A fee of \$35 is charged for this course.

### **3420. Digital Imaging**

Three credits. Prerequisite: ART 2410 and 2011; open to Art and Art History majors only; others by consent of instructor; open to juniors or higher.

Introduction to the use of the computer to digitize and manipulate photographic imagery. A fee of \$50 is charged for this course.

### **3430. Alternative Processes (Photography)**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2420; open to Art and Art History majors only; others by consent of instructor. May be repeated once with a change of content.

Photographic printmaking systems outside conventional silver imaging processes. A fee of \$75 is charged for this course.

### **3440. Color Photography**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2410; open to Art and Art History majors only; others by consent of instructor. May be repeated once with a change of content.

The processes and aesthetics of color photography. A fee of \$35 is charged for this course.

### **3450. Documentary Photography and Video**

Three credits. Prerequisite: ART 2420; open to Art and Art History majors only.

Investigation of techniques and aesthetics of documentary photography and video.

### **3455. Portrait Photography**

Three credits. Prerequisite: ART 2420; open to Art and Art History majors only; others by consent of instructor.

Studio practice in fine art portraiture with discussion of contemporary and historical approaches to the genre.

### **3460. Large Format Photography**

Three credits. Prerequisite: ART 2420; open to Art and Art History majors only; others by consent of instructor.

Introduction to the use of the large format camera to create photographs.

### **3465. Landscape Photography**

Three credits. Prerequisite: ART 2420; open to Art and Art History majors only; others by consent of instructor.

Studio practice in landscape photography with discussion of contemporary and historical approaches to the genre.

### **3470. Studio Photography**

Three credits. Prerequisite: ART 2420; open to Art and Art History majors only; others by consent of instructor.

Techniques and aesthetics of studio photography.

### **3510. Intaglio Printmaking**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2510.

Investigation of black-and-white and color intaglio techniques. A fee of \$35 is charged for this course.

### **3520. Lithography**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2510.

Investigation of lithographic techniques. A fee of \$35 is charged for this course.

### **3530. Printmaking Workshop**

Variable credit. Two 3-hour studio periods. Prerequisite: ART 3510 or 3520. May be repeated for credit with a change in course content to a maximum of 18 credits.

Workshop for students to continue developing ideas in a print medium. A fee of \$35 is charged for this course.

### **3605. Ceramic Art: Materials and Methods**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610 or instructor consent.

Introduction to contemporary ceramic art materials, methods and studio practices, including clay properties and preparation, ceramic surface treatment investigations, kiln function and firing. Studio assignments focus on enhancement of skill in design and fabrication of ceramic objects. Presentations, discussions and critiques explore ideas and issues in the field of ceramic art.

### **3610. Pottery and the Vessel**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610. May be repeated for credit with a change in course content to a maximum of 9 credits.

Vessel-oriented ceramics, wheel-thrown and hand-built. Basic technical information on clay, glazes and kiln firings. A fee of \$50 is charged for this course.

### **3620. Sculpture: Clay**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610. May be repeated for credit with a change in course content to a maximum of 9 credits.

Basic principles and techniques of ceramic sculpture. Technical information on clay, glazes and kilns. A fee of \$50 is charged for this course.

### **3630. Sculpture: Wood**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610. May be repeated for credit with a change in course content to a maximum of 9 credits.

Investigation of sculptural form, process, and environment, using wood. A fee of \$75 is charged for this course.

### **3640. Sculpture: Metals**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610. May be repeated for a maximum of 9 credits.

Investigation of sculptural form, process, and environment, using metal fabrication techniques such as welding, forging, and casting. A fee of \$50 is charged for this course.

### **3650. Sculpture: Moldmaking/Casting**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610. May be repeated for credits with a change in course content to a maximum of 9 credits.

Investigation of mold-making techniques and casting processes, including ceramic slip casting, for students in any area of concentration. A fee of \$75 is charged for this course.

### **3660. Sculpture Seminar**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2610 and 9 credits in any area of concentration; open to juniors or higher.

For the advanced undergraduate in any area of concentration. Exploration of 3-dimensional issues in a studio seminar format. A fee of \$50 is charged for this course.

### **3990. Cooperative Education in Art**

Three credits. Hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practicum for students participating in the off-campus Cooperative Education Program.

### **3991. Studio Internship**

Three credits. Hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised practical experience in studio and studio related work. Section one: Communication Design Studio Internship. Supervised practical experience in a commercial design studio, agency, or related work. Prerequisite: B average in communication design classes, ART 3120, and consent of instructor. Section two: Photography Studio Internship. Supervised practical experience in a commercial photography studio, agency or in related work. Prerequisite: B average in photography classes, ART 4410 and consent of a photography instructor. Section three: Art Studio Internship. Supervised practical experience in an art studio. Prerequisite: B average in major junior and senior course work and consent of instructor from the major.

### **3993. Foreign Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of department head required. May be repeated with a change in course content.

Special topics taken in a foreign study program.

### **3995. Investigation of Special Topics**

Credits and hours by arrangement. Prerequisite: Consent of instructor; open to juniors or higher. May be repeated for credit with a change in course content.

Special topics. Field trips may be required. A fee of \$20 is charged for this course.

### **3998. Variable Topics**

One to six credits. May be repeated with a change in content for a maximum of six credits. Prerequisites and recommended preparation vary. Instructor consent required.

### **3999. Independent Study**

Maximum of up to 6 credits. May be repeated for a total of 6 credits. Prerequisite: Open to juniors or higher. Limited to advanced 5th semester or higher standing and a GPA 3.0,

with no outstanding incompletes for any other 3999. Exceptions only by the approval of the department head.

For advanced students to develop a special project in advanced studio art.

### **4110. Graphic Design 4: Communication Dynamics**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3120; open only to majors; open to non-majors by instructor consent.

Team taught by professional guest designers, this course explores graphic design as a personal, social, political, and cultural activity and investigates modality of production in visual media. A fee of \$35 is charged for this course.

### **4120. Publication Design**

Three credits. Two 3-hour studio periods. Prerequisite: ART 3110.

Introduction to publication design. A fee of \$50 is charged for this course.

### **4130. Graphic Design: Design Center Studio**

Three credits. May be repeated to a maximum of six credits. Two 3-hour studio periods. Prerequisite: ART 3120 and consent of instructor; open only to majors.

Professional graphic design studio housed in its own independent design environment providing students with real world practical experience. Design students work on commissioned, client-based, collaborative, commercial and cultural projects from concept to delivery across all media platforms. A fee of \$35 is charged for this course.

### **4410. Advanced Photography**

Three credits. Two 3-hour studio periods. Prerequisite: ART 2420; open to Art and Art History majors only; others by consent of instructor; open to juniors or higher. May be repeated once with a change of content.

Advanced problems in the use of photography as an art medium. A fee of \$35 is charged for this course.

### **4901. Senior Project**

Three credits. Hours by arrangement. Prerequisite: Open to juniors or higher; open only by instructor consent. To fulfill graduation requirement for B.F.A. students, must be passed with grade of C or better.

Project developed in student's area of concentration, to be exhibited in the Annual Senior Show. A vigorous and consistent thematic body of work which articulates both technical and conceptual concerns required. A fee of \$35 is charged for this course.

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## **Art History (ARTH)**

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*Acting Head of Department:* Professor Cora Lynn Deibler

*Department Office:* Room 100, Art Building

### **1128. Global Perspectives on Western Art: Renaissance to the Present**

Three credits. Lecture with discussion groups. Greeley, Orwicz

Survey of Western art (15th Century through the present) within a global perspective. Explores



transformations in Western art, in relation to the West's fundamental interconnection with non-Western societies. CA 1. CA 4-INT.

**1137. Introduction to Art History: Prehistoric - 14th Century**

Three credits.

Survey of art and architecture from prehistoric times through the fourteenth century. CA 1.

**1138. Introduction to Art History: 15th Century - Present**

Three credits.

Survey of art and architecture from the fifteenth century to the present day. CA 1.

**1140. Introduction to Asian Art**

Three credits. Three hours lecture.

Asian art and architecture from prehistory to the present. Asian artistic practices as well as transcultural artistic connections in Asia and beyond. CA 1.

**1141. From Sun Gods to Lowriders: Introduction to Latin American Art**

Three credits.

Survey of Latin American art from 200 B.C. to the present. CA 1. CA 4-INT.

**1162. Introduction to Architecture**

Three credits.

An introduction to the history of architecture considered in its social, technological and urban context. CA 1.

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of department head required, normally before the student's departure to study abroad. May be repeated for credit with a change in course content.

Special topics taken in a foreign study program.

**2198. Variable Topics**

Three credits. Three hours of lecture per week. May be repeated for credit for a maximum of 9 credits with a change in topic.

**2993. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of department head required, normally before the student's departure to study abroad. May be repeated for credit with a change in course content.

Special topics taken in a foreign study program.

**3005. Museums and the Interpretation of Culture**

Three credits. Prerequisite: Open to sophomores or higher.

The history and philosophy of museums.

**3015. Women and Body Art**

Three credits. Prerequisite: Open to sophomores or higher. Not open for credit to students who have passed WGSS 3251.

Women's use of body art to express aspects of gender identity and interpretation of body art from a variety of cultures. "Body art" encompasses cosmetics, painting, hair styling, tattoo, scarification, clothing, ornaments, plastic surgery and exercise.

**3020. Asian American Art and Visual Culture**

(Also offered as AASI 3220.) Three credits. Prerequisite: Open to sophomores or higher.

Topics in contemporary Asian American art and visual culture, 1960's to present.

**3020W. Asian American Art and Visual Culture**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors; open to juniors or higher; others with consent of instructor.

**3030. The Artist and Society**

Three credits. Prerequisite: Open to sophomores or higher.

An investigation of the artist's professional function throughout history in different Western societies.

**3035. History of the Print**

Three credits. Prerequisite: Open to sophomores or higher.

Survey of printmaking in Europe and America from the Renaissance to the present.

**3050. African-American Art**

Three credits. Prerequisite: Open to sophomores or higher.

The artistic and social legacy of African American art from the eighteenth century to the present day. CA. 4.

**3050W. African-American Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. CA. 4.

**3140. Greek Art**

(Also offered as CAMS 3251.) Three credits. Prerequisite: Open to sophomores or higher.

Greek art and architecture from the ninth century B.C. to the first-century A.D.

**3140W. Greek Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open to art history and art majors, others with consent of instructor.

**3150. Roman Art**

Three credits. Prerequisite: Open to sophomores or higher.

History of Roman art and architecture.

**3150W. Roman Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3210. Late Antique and Byzantine Art**

Three credits. Prerequisite: Open to sophomores or higher.

Art and architecture of the late Roman Empire and the Byzantine East.

**3210W. Late Antique and Byzantine Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3220. Early Medieval Art**

Three credits. Prerequisite: Open to sophomores or higher. Early medieval art from the fifth through the tenth centuries. Germanic metalwork, Hiberno-Saxon manuscripts, and the art of the era of Charlemagne and his successors.

**3220W. Early Medieval Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3230. Romanesque Art**

Three credits. Prerequisite: Open to juniors or higher.

Topics in medieval painting, architecture and sculpture through the twelfth century.

**3230W. Romanesque Art**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3240. Gothic Art**

Three credits. Prerequisite: Open to sophomores or higher.

Gothic art and architecture, with emphasis on the court styles of England and France.

**3240W. Gothic Art**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3260. The Early Illustrated Book**

Three credits. Prerequisite: Open to sophomores or higher.

The early history of the illustrated book, from antiquity through the introduction of printing.

**3260W. The Early Illustrated Book**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3330. Art of the Northern Renaissance**

Three credits. Prerequisite: Open to sophomores or higher.

Painting, sculpture, graphic arts of the Lowlands and Germany, 1400-1600.

**3330W. Art of the Northern Renaissance**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3340. Baroque Art**

Three credits. Prerequisite: Open to sophomores or higher.

Art and architecture of the seventeenth and early eighteenth centuries with emphasis on Italy, Netherlands, France and Spain.

**3340W. Baroque Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3360. Eighteenth Century European Art**

Three credits. Prerequisite: Open to sophomores or higher.

Art and architecture of the eighteenth century with emphasis on England and France.

**3430. Nineteenth Century European Art**

Three credits. Prerequisite: Open to sophomores or higher.

European art from Neo-Classicism to Realism.

**3430W. Nineteenth Century European Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3440. Nineteenth Century American Art**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in American Art, 1770-1900.

**3440W. Nineteenth Century American Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3445. Impressionism and Post-Impressionism**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in French Painting, 1860-1900.

**3445W. Impressionism and Post-Impressionism**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3450. American Architecture**

Three credits. Prerequisite: Open to sophomores or higher.

American architecture from the colonial era to the present. Field trips may be required.

**3460. History of Photography: 1839 - World War I**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in the history of photography from 1839 to World War I.

**3460W. History of Photography I: 1839 - World War I**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3500. Urban Architecture: International Perspectives**

Three credits. Prerequisite: Open to sophomores or higher.

The historical development of the urban, built environment in Europe, Asia and the Americas.

**3500W. Urban Architecture: International Perspectives**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3510. Modern Art**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in the art of the first half of the twentieth century.

**3510W. Modern Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3530. Contemporary Art**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in the art of the second half of the twentieth century.

**3530W. Contemporary Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3560. History of Photography: World War I - Present**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in the history of photography from World War I to the present.

**3560W. History of Photography: World War I - Present**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3570. History and Theory of Digital Art**

Three credits. Prerequisite: Open to sophomores or higher.

Examines the aesthetics and cultural impact of digital art in various modes including performance, online, and object production.

**3575. Human Rights and Visual Culture**

(Also offered as HRTS 3575.) Three credits. Three hours of lecture. Prerequisites: Open to sophomores or higher.

The problematics of visual representation and media in defining, documenting and visualizing human rights and humanitarianism from the 19th century birth of photography to 21st century social media.

**3575W. Human Rights and Visual Culture**

Three credits. Three hours of lecture. Prerequisites: ENGL 1010 or 1011 or 2011; open to sophomores or higher.

**3610. Art of Mesoamerica**

Three credits. Prerequisite: Open to sophomores or higher.

A survey of art from Mexico and Central America 2000 BS-CE 1500. Cultures covered include Olmec, Zapotec, Maya, Toltec, and Aztec.

**3610W. Art of Mesoamerica**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3620. Colonial Mexican Art**

Three credits. Prerequisite: Open to sophomores or higher.

**3620W. Colonial Mexican Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to art history and art majors, others with consent of instructor; open to juniors or higher.

**3630. Alternative Modernities: Visual Culture of Latin America**

Three credits. Prerequisite: Open to sophomores or higher.

A thematic survey of Latin American art from the nineteenth century to present. CA 4-INT.

**3630W. Alternative Modernities: Visual Culture of Latin America**

Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4-INT.

**3640. Mexican and Chicano Art from Muralism to La Raza**

Three credits. Prerequisite: Open to sophomores or higher.

Topics in Mexican and Chicano art from Mexican Independence to the present. CA 4.

**3640W. Mexican and Chicano Art from Muralism to La Raza**

Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4.

**3645. From Revolution to Reggae: Modern and Contemporary Caribbean Art**

Three credits. Prerequisite: Open to sophomores or higher.

A survey of art and visual production in the Caribbean from the 1804 Haitian Revolution to the present. CA 4.

**3645W. From Revolution to Reggae: Modern and Contemporary Caribbean Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4.

**3720. The Art of China**

Three credits. Prerequisite: Open to sophomores or higher.

Survey of major art forms in China c. 2500 B.C. to the twentieth century.

**3720W. The Art of China**

Prerequisite: ENGL 1010 or 1011 or 2011. Open to juniors or higher.

**3730. The Art of Japan**

Three credits. Prerequisite: Open to sophomores or higher.

A survey of major art forms in Japan, prehistoric to the present.

**3740. Far Eastern Painting**

Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: ARTH 3720 or 3730.

Major trends in painting in China from the Han Dynasty to the present; in Japan from the Nara Period to the present.

**3740W. Far Eastern Painting**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: 3720 or 3730. Open to juniors or higher.

**3745. Buddhist Art in the Orient**

Three credits. Prerequisite: Open to sophomores or higher.

Buddhist sculpture, painting, and architecture in India, China and Japan.

**3760. African Art**

Three credits. Prerequisite: Open to sophomores or higher.

A survey of African art from antiquity to present.

**3760W. African Art**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3991. Field Studies Internship in Art History**

Variable credit to a maximum of 12 credits. May be repeated for credit. Prerequisite: two 1000-level Art History courses, two 3000-4000 level Art History courses and consent of instructor; open to sophomores or higher.

Supervised practical experience in museum and museum related work. Section one: Wadsworth Atheneum Internship. Participation in Museum Studies Seminars, staff meetings and completion of individual project at the Atheneum. Application must be approved by Wadsworth Atheneum Education Department; deadlines are in April for first semester and November for second semester.

**3992. Cooperative Education in Art**

Three credits. Hours by arrangement. Prerequisite: Prerequisite: Open to sophomores or higher; open only with consent of Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practicum for students participating in the off-campus Cooperative Education Program.

**3993. Foreign Study**

Credits and hours by arrangement. Prerequisite: Open to sophomores or higher; consent of Department Head required, normally before the student's departure to study abroad. May be repeated with a change of content.

Special topics taken in a foreign study program.

**3995. Investigation of Special Topics**

Credits and hours by arrangement. Prerequisite: Open to sophomores or higher. May be repeated for credit with a change in course content.

Special topics.

**4099. Independent Study**

Variable credit to a maximum of 6 credits. May be repeated for a total of 6 credits. Prerequisite: Open to juniors or higher with a departmental G.P.A. of 3.0 or higher; consent of instructor required. Exceptions only by approval of Department Head.

Designed for advanced students who wish to pursue the study of a special topic, culminating in a project in art history.

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### Asian and Asian American Studies Institute (AASI)

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*Director:* Associate Professor Cathy Schlund-Vials

*Office:* Room 417, Beach Hall

**3201. Introduction to Asian American Studies**

Three credits. Prerequisite: Open to juniors or higher. *Machida*

A multidisciplinary introduction to major themes in Asian American Studies. Concepts of identity and community, migration and labor histories, Asians and the law, representations of Asians in visual and popular culture, gender issues, interracial and interethnic relations, and human rights. CA 1. CA 4.

**3212. Asian American Literature**

(Also offered as ENGL 3212.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or 3800; open to juniors or higher. Schlund-Vials

Literature, theatre, film about Asian American communities and culture in the United States from the mid-nineteenth century to the present. CA 4.

**3220. Asian American Art and Visual Culture**

(Also offered as ARTH 3020.) Three credits. Prerequisite: Open to sophomores or higher.

Topics in contemporary Asian American art and visual culture, 1960's to present.

**3221. Sociological Perspectives on Asian American Women**

(Also offered as HRTS 3571 and SOCI 3221.) Three credits. Prerequisite: Open to juniors or higher. *Purkayastha*

An overview of social structures, inter-group relations, and women's rights, focusing on the experience of Asian American women. CA 4.

**3222. Asian Indian Women: Activism and Social Change in India and the United States**

(Also offered as HRTS 3573 and SOCI 3222.) Three credits. Prerequisites: SOCI 1001, 1251 or 1501; open to juniors or higher.

How gender, class and ethnicity/race structure everyday lives of Asian Indian women in both India and the United States.

**3295. Special Topics in Asian American Studies**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary; open to juniors or higher.

**3375. Indian Art and Popular Culture: Independence to the Present**

(Also offered as ART 3375 and INDS 3375.) Three credits. Prerequisite: Open to juniors or higher. *Myers*

An interdisciplinary lecture/studio art course introducing diverse forms of Indian Art from the traditional through the contemporary. Students complete either research or studio art assignments responding to course content. CA 1. CA 4-INT.

**3473. Asian-Pacific American Families**

(Also offered as HDFS 3473.) Three credits.

Overview of social, cultural, educational, demographic and economic characteristics of Asian-Pacific American families. Examination and critique of values, customs, traditions and beliefs that distinguish families of this heterogeneous ethnic population.

**3531. Japanese Americans and World War II**

(Also offered as HIST 3531.) Three credits. *Buckley*

The events leading to martial law and executive order 9066, the wartime experience of Japanese Americans, and national consequences. CA 1. CA 4.

**3578. Asian American Experience Since 1850**

(Also offered as HIST 3530.) Three credits. *Chan*

Survey of Asian-American experiences in the United States since 1850. Responses by Asian-Americans to both opportunities and discrimination.

**3808. East Asia to the Mid-Nineteenth Century**

(Also offered as HIST 3808.) Three credits.

The major problems and issues of traditional Chinese and Japanese history and historiography. Special emphasis on the "Great Tradition" in ideas of both civilizations.

**3809. East Asia Since the Mid-Nineteenth Century**

(Also offered as HIST 3809.) Three credits.

The reactions of East Asia to the Western threat, and the rise of Asian nationalism, communism, and fascism. Special attention to the tensions caused by the conflict of ideas.

**3812. Modern India**

(Also offered as HIST 3812.) Three credits. *Buckley*

An introduction to the history of India from the Mughal and European invasions of the 16th century to the present. India's synthesis of Eastern and Western culture, traditional and new, will be the focus.

**3875. Asian Diasporas in the Americas**

(Also offered as HIST 3875 and LLAS 3875.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HIST 3607, 3609, 3610, 3635, 3660W, or 3674. Not open to students who have passed HIST 3095 Asian Diasporas in the Americas.

Transnational history of migration and settlement of Chinese, Japanese, Korean, and South Asian diasporas across South, Central, and North America and the Caribbean, colonial through national period. Emphasis on political economy, racial formations, and constructions of national identity.

**3998. Variable Topics**

Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated once for credit.

**4999. Independent Study**

Credits, not to exceed 3 per semester, and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change of subject, this course may be repeated for credit.

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## Biology (BIOL)

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Students with inquiries about an undergraduate major should go to Torrey Life Sciences Building, Room 161.

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

For course descriptions of Biological Sciences, see these topics listed alphabetically throughout this Directory of Courses:

- Ecology and Evolutionary Biology (EEB)
- Molecular and Cellular Biology (MCB)
- Physiology and Neurobiology (PNB)

**1102. Foundations of Biology**

Four credits. Three class periods and one 2-hour laboratory period. Students may not receive more than 12 credits for courses in Biology at the 1000 level. Not open to students who have passed BIOL 1107, 1108 or 1110.

Major biological principles with emphasis on their importance to humans and modern society; designed for non-science majors. A fee of \$10 is charged for this course. CA 3-LAB.

**1103. The Biology of Human Health and Disease**

Four credits. Three lecture periods and one 2-hour laboratory. Students may not receive more than 12 credits for courses in Biology at the 1000's level. Not open for credit to students who have passed PVS 103. Smolin, Terry

A laboratory course designed for non-science majors to introduce the concepts of biology and their application to the individual, society and humankind by focusing on health and disease issues. A fee of \$10 is charged for this course. CA 3-LAB.

**1107, 1108. Principles of Biology**

May be taken in either order. Four credits. Three class periods and one 3-hour laboratory period. Students may not receive more than 12 credits for courses in biology at the 1000's level. A course in high school level chemistry or concurrent enrollment in CHEM 1127 are recommended for students enrolling in BIOL 1107.

Designed to provide a foundation for more advanced courses in Biology and related sciences. Topics covered include molecular and cell biology, animal anatomy and physiology (BIOL 1107); ecology, evolution, genetics, and plant biology, (BIOL 1108). Laboratory exercises in BIOL 1107 include dissection of preserved animals. A fee of \$10 is charged for this course. CA 3-LAB.

**1109. Topics in Modern Biology**

One credit. One class period. Corequisite: Current enrollment in BIOL 1107 or 1108 required. Designed primarily for, but not restricted to, honors students. Students may not receive more than 12 credits for courses in Biology at the 1000's level. May be repeated for credit with a change in content.

Readings, lectures, seminars, films and field trips exploring current developments in biology and their social and scientific implications.

**1110. Introduction to Botany**

Four credits. Three class periods and one 3-hour laboratory period. Students may not receive more than 12 credits for courses in biology at the 1000's level. *Goffinet*

Structure, physiology and reproduction of seed plants as a basis for an understanding of the broader principles of biology as well as the relation of plants to human life. Includes a survey of the important groups throughout the plant kingdom. A fee of \$10 is charged for this course. CA 3-LAB.

**1195. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

**1199. Introduction to Biological Research**

Credits not to exceed 3. Hours by arrangement; three laboratory hours for each credit. Prerequisite: BIOL 1107 or 1108 and consent of instructor. May be repeated for credit with a change in content.

Internship in Biology research.

**2200. Peer Mentoring in Biology**

One credit. Prerequisite: BIOL 1107 or 1108, and instructor consent; open to sophomores or higher. With a change in content, this course may be repeated once for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Fry*

Theories of learning: cognitive, affective, and metacomprehension domains. Covers learning and teaching styles, information processing, effective note-taking, affective/emotional variables that influence learning, and group dynamics. Students will also learn how to conduct study groups and workshops in the Biological Sciences.

**2289. Introduction to Undergraduate Research**

(Formerly offered as MCB 295.) One credit. Recommended preparation: BIOL 1107 and 1108, or equivalent. With a change in content, this course may be repeated for credit.

Introduction to the variety of research programs in the Life Sciences on the Storrs campus. Required of Sophomore Biology Honor students; also open to students interested in undergraduate research.

**3520W. Ethical Perspectives in Biological Research and Technology**

Three credits. Prerequisite: BIOL 1107 or 1108 or 1110; ENGL 1010 or 1011 or 2011. *Taigen*

Ethical and policy issues arising from advances in biological research and technology, including topics in ecology, molecular biology, and physiology.

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**Biomedical Engineering (BME)**

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*Program Director:* Professor Ki Chon

*Department Office:* 217 Bronwell Building

**1401. Honors Core: Computational Molecular Biology**

(Also offered as CSE 1401, MCB 1401, and PNB 1401.) Three credits. *Mandoiu, Nelson*

Introduction to research in computational biology through lectures, computer lab exercises, and mentored research projects. Topics include gene and genome structure, gene regulation, mechanisms of inheritance, biological databases, sequence alignment, motif finding, human genetics, forensic genetics, stem cell development, comparative genomics, early evolution, and modeling complex systems. CA 3.

**2101. Introduction to Biomedical Engineering**

(Formerly offered as BME 3101.) Three credits. Prerequisite or corequisite: MATH 1132Q and PHYS 1230 or 1501Q or 1530Q; open only to non-Biomedical Engineering majors with instructor consent. Recommended preparation: BIOL 1107.

Fundamental concepts and techniques of engineering and medical science and their integration. The art and science of medicine and the process of medical diagnosis and treatment. Topics include: diagnostic instrumentation, diagnostic measurements and their interplay; bioelectric phenomena, biomechanics, and biomaterials; biochemical engineering; computers in medicine; molecular medicine and biotechnology; medical imaging.

**3100. Physiological Modeling**

Three credits. Prerequisite or corequisite: MATH 1132Q. Prerequisite: Open only to Biomedical Engineering majors, others by instructor consent. Recommended preparation: BIOL 1107.

Techniques for analysis and modeling of biomedical systems. Application of advanced mathematics (including Differential Equations, Laplace Transforms and Statistics) and computer-aided methods to study problems at the interface of engineering and biology. Elements of physiological modeling and the solution of the transient and forced response for a variety of biomechanical, biomaterial, bioelectrical and biochemical systems.

**3120. LabVIEW Basics for Engineers**

One credit. One hour lecture period. Prerequisite: CSE 1010 or 1100; open only to Biomedical Engineering majors, others by instructor consent. Not open for credits to students who have passed ENGR 3120.

Introduces LabVIEW programming environment. The fundamentals of using graphical programming to collect, analyze, display and store data are covered. Learn techniques for designing stand-alone applications, creating interactive user interfaces and optimizing data flow.

**3130. LabVIEW Intermediate for Biomedical Engineers**

One credit. One 3-hour laboratory period. Prerequisite: BME 3120; open only to Biomedical Engineering majors, others by instructor consent.

Introduces structured practices to design, test, and use LabVIEW applications. Recommended development techniques for hierarchical VI development, event-based architectures, user-interface design, error handling and documentation are covered. Learn to extend application functionality and reduce development time by using connectivity technologies such as DLLs, ActiveX, and the Internet.

**3150. Statics and Dynamics for Biomedical Engineers**

Three credits. Prerequisite or corequisite: MATH 2410, BME 2101, MATH 2110, or 2130; open only to Biomedical Engineering majors, others by instructor consent.

Fundamentals of statics and dynamics using vector methods on physiological systems. Resolution and composition of forces; equilibrium of force systems; rectilinear and curvilinear motion, translation, rotation, plane motion, work, energy and power.

**3300. Biochemical Engineering for Biomedical Engineers**

Three credits. Prerequisite: BME 2101 or MATH 2410; open only to Biomedical Engineering majors, others by instructor consent. Corequisite: CHEM 2443.

Introduction to chemical reaction kinetics; enzyme and fermentation technology; microbiology, biochemistry, and cellular concepts; biomass production; organ analysis; viral dynamics.

**3301. Introduction to Biochemical Engineering**

(Also offered as CHEG 3173.) Three credits. Prerequisite: CHEG 3151; open only to School of Engineering students.

Enzyme and fermentation technology; microbiology, biochemistry, and cellular concepts; biomass production; equipment design, operation, and specification; design of biological reactors; separation processes for bio-products.

**3400. Biosystem Analysis**

Four credits. Prerequisite: BME 2101; open only to Biomedical Engineering majors, others by instructor consent. This course and ECE 3101 may not be both taken for credit.

A lecture and laboratory that covers Fourier analysis, Laplace analysis and Z-transforms. Techniques for generating quantitative

mathematical models of physiological control systems; the behavior of physiological control systems using both time and frequency domain methods.

#### **3500. Biomedical Engineering Measurements**

Four credits. Prerequisite: BME 2101. Prerequisite or corequisite: BME 3400 or ECE 3101; open only to Biomedical Engineering majors, others by instructor consent.

A lecture and laboratory course that covers fundamentals of biomedical measurement and patient safety. Measurements of physical quantities by means of electronic instruments, mechanical devices and biochemical processes. Analysis of measurement systems using mathematical models. Methods of measuring signals in the presence of noise. Use of computers in measurement systems.

#### **3600. Biomechanics**

Four credits. Lecture and laboratory. Prerequisite: BME 2101; BME 3150 or CE 2110; open only to Biomedical Engineering majors; others by instructor consent.

Application of solid mechanics theory to describe and analyze mechanical behaviors of biological tissues. Basic concepts in mechanics of materials, including the essential mathematics, kinematics of deformation and motion, stress, constitutive relations. Biomechanics principles; identifying, formulating and solving problems related to bone, cartilage, tendon, cardiac and vascular tissues. Introduction of experimental methods and computational modeling of biological tissues. A separate laboratory component will introduce students to experimental methods in more detail. Laboratory reports with revisions are required.

#### **3600W. Biomechanics**

Four credits. Lecture and laboratory. Prerequisite: BME 2101; BME 3150 or CE 2110; ENGL 1010 or 1011 or 2011; open only to Biomedical Engineering majors; others by instructor consent.

#### **3700. Biomaterials**

Four credits. Prerequisites: MSE 2101 and BME 2101; MATH 2410; open only to Biomedical Engineering majors, others by instructor consent. Not open to students who have passed MSE 3700.

A lecture and laboratory course that introduces a series of implant materials including metals, ceramics, glass ceramics, polymers, and composites. These materials are compared with the natural materials, with consideration given to issues of mechanical properties, biocompatibility, degradation of materials by biological systems, and biological response to artificial materials. Particular attention is given to the materials for the total hip prosthesis, dental restoration, and implantable medical devices.

#### **3810. Computational Genomics**

(Also offered as CSE 3810.) Three credits. Prerequisite: BIOL 1107, CSE 1010 or 1100 or 1729; and either STAT 3025Q or 3345Q; open only to Biomedical Engineering majors, others by instructor consent.

Computational methods for genomic data analysis. Topics covered include statistical modeling of biological sequences, probabilistic

models of DNA and protein evolution, expectation maximization and Gibbs sampling algorithms, genomic sequence variation, and applications in genomics and genetic epidemiology.

#### **3900. Junior Design**

Three credits. Prerequisites: BME 2101, 3500, and 3600/W.

Students work through a structured process that emulates an open-ended, real-world design of a biomedical engineering product. Project definition and product specifications, project scheduling and management, team interactions, failure and safety criteria, progress reporting, marketing concepts, ethical issues, prototype development, proper documentation and technical presentation of the final project outcomes. Includes a significant writing component, makes use of computers and design software, and involves hands-on design explorations. Students will complete a semester-long design project that demonstrates the skills and knowledge learned during the course in preparation for the capstone design experience.

#### **4201. Introduction to Medical Imaging**

Three credits. Prerequisite: PHYS 1502Q, BME 3500 and ECE 3101; open only to Biomedical Engineering majors, others by instructor consent.

Introduction to spatial signals including spatial impulse response, spatial sampling and filtering, spatial Fourier transforms, and back projection. Principles, systems and clinical applications of X-ray, X-ray CT, ultrasound, Positron Emission Tomography (PET) and Single Photon Emission Tomography (SPECT), and MRI imaging.

#### **4300. Physiological Control Systems**

Three credits. Prerequisite: BME 3400 or ECE 3101; open only to Biomedical Engineering majors, others by instructor consent.

Analysis of human physiological control systems and regulators through the use of mathematical models. Identification and linearization of system components. Systems interactions, stability, noise, and the relation of system malfunction to disease. The analysis and design of feedback systems to control physiological states through the automatic administration of drugs.

#### **4400. Dynamical Modeling of Biological Networks**

Three credits. Prerequisites: ECE 3101; open only to Biomedical Engineering majors, others by instructor consent. Not open for credit to students who have passed BME 4985 when taught as Dynamical Modeling of Biological Networks.

Construction and analysis of biochemical pathway models. Mass action kinetics and the S-matrix formalism, nonlinear differential equations, bistability, bifurcations, linear stability analysis, and nonlinear oscillations. Possible applications include kinetic proofreading, classical enzyme kinetics, biological switches, and dynamical behavior of simple biochemical circuits.

#### **4500. Bioinstrumentation**

Three credits. Prerequisite: BME 3500; open only to Biomedical Engineering majors, others by instructor consent.

Modeling, analysis, design, and operation of transducers, sensors, and electrodes, for physiological systems; operational and instrumentation amplifiers for bioelectric event signal conditioning, interfacing and processing; A/D converters and hardware and software principles as related to sampling, storing, processing, and display of biosignals and digital computers.

#### **4600. Biosolid Mechanics**

Three credits. Prerequisite: BME 3600W; open only to Biomedical Engineering majors, others by instructor consent.

Mechanical behavior of biological solids. Applications of the theories of elasticity, viscoelasticity, and poroelasticity to bones, ligaments and tendons, skeletal muscle, and articular cartilage. Axial, bending, shearing and torsional loadings. Bone morphology and growth. Biphasic theory. Failure theories. Topics may be modified slightly to accommodate student interests.

#### **4701. Advanced Biomaterials**

Three credits. Prerequisite: BME 3700; open only to Biomedical Engineering majors, others by instructor consent. Not open to students who have passed BME 272 or MSE 4701.

Offers opportunity to gain in-depth knowledge of a series of biomaterials for various applications. Topics include calcium phosphates and composites for hard tissue replacement, drug delivery systems, issues unique to the biomedical field, and regulations for new products and standards.

#### **4710. Tissue Engineering**

Three credits. Prerequisite: BME 3700; open only to Biomedical Engineering majors, others by instructor consent.

Presents basic principles of biological, medical, and material science as applied to implantable medical devices, drug delivery systems and artificial organs.

#### **4800. Bioinformatics**

(Also offered as CSE 3800.) Three credits. Prerequisite: BIOL 1107; CSE 1010 or 1100 or 1729; and either STAT 3025Q or STAT 3345Q; open only to Biomedical Engineering majors, others by instructor consent.

Fundamental mathematical models and computational techniques in bioinformatics. Exact and approximate string matching, suffix trees, pairwise and multiple sequence alignment, Markov chains and hidden Markov models. Applications to sequence analysis, gene finding, database search, phylogenetic tree reconstruction.

#### **4900. Biomedical Engineering Design I**

Three credits. Prerequisite: BME 3500, 3600W, 3700, or by instructor consent; open only to Biomedical Engineering majors. This course is taken by seniors in the semester before BME 4910.

Discussion of the design process; project statement, specifications project planning,

scheduling and division of responsibility, ethics in engineering design, safety, environmental considerations, economic constraints, liability, manufacturing, and marketing. Projects are carried out using a team-based approach. Selection and analysis of a design project to be undertaken in BME 4910 is carried out. Written progress reports, a proposal, an interim project report, a final report, and oral presentations are required.

#### **4910. Biomedical Engineering Design II**

Three credits. Prerequisite: BME 4900; open only to Biomedical Engineering majors.

Design of a device, circuit system, process, or algorithm. Team solution to an engineering design problem as formulated in BME 4900, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentation are required.

#### **4985. Special Topics in Biomedical Engineering**

Credits and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course; open only to Biomedical Engineering majors. With a change in topic, this course may be repeated for credit.

Classroom and/or laboratory courses in special topics as announced for each semester.

#### **4999. Independent Study**

Credits and hours by arrangement or as announced. Prerequisite: Consent of instructor; open only to Biomedical Engineering majors. With a change in content, this course may be repeated for credit.

Independent study project carried on by the student under the guidance of a faculty member. The student is required to submit a report on the study at the end of the semester.

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## **Business (BUSN)**

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### **1801. Contemporary Issues in the World of Business**

Hours and credits by arrangement up to a maximum of three credits. May be repeated in different sections for up to three credits maximum. Prerequisite: Open to freshmen and sophomores; others with consent of instructor. May not be used to satisfy junior-senior level major requirements of the School of Business.

The world of business has changed. No longer can we refer to the cliché “business as usual.” Today’s business world is a complex, challenging and exciting place. Each section of this course will capture some aspect of that challenge and excitement. Students will be exposed to undercurrents that challenge and perplex today’s managers and executives around the globe. Students should consult the scheduling booklet for specific topics offered.

#### **2891. Foreign Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Open only to School of Business students; consent of Associate Dean for Undergraduate Programs required. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides to students the opportunity to be engaged in meaningful professional activity without the expectation of a significant level of prior academic experience in business.

#### **3005. Career Development in Business**

(Formerly offered as BADM 4072 and MGMT 3072.) One credit. Meeting once per week. Prerequisite: Open only to business majors of sophomore or higher status. It is recommended that students take this course in the second term of their sophomore year.

A roadmap for the college to career experience. Students will: gain an understanding of the job search lifecycle in order to create opportunities for internships, first entry level roles, or identify future career paths; complete a polished and professional job search communication portfolio (including a resume, cover letter, target-marketing plan, and social media presence); learn how to develop an effective job search marketing plan and gain insight on major labor market trends that impact employment; learn job search presentation skills including how to introduce themselves in networking situations and other job search settings; and practice interviewing skills and techniques.

#### **4891. Field Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Open to juniors or higher; consent of the Associate Dean for Undergraduate Programs required; open only to students admitted to the School of Business. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for field work relevant to one or more major areas within the School. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report, submitted by the student.

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## **Business Administration (BADM)**

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### **1801. Contemporary Issues in the World of Business**

Hours and credits by arrangement up to a maximum of 3 credits. May be repeated in different sections for up to three credits maximum. Prerequisite: Open to freshmen and sophomores; others with consent of instructor. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

The world of business has changed. No longer can we refer to the cliché “business as usual.” Today’s business world is a complex, challenging and exciting place. Each section of this course will capture some aspect of that challenge and excitement. Students will be exposed to undercurrents that challenge and perplex today’s managers and executives around the globe. Students should consult the scheduling booklet for specific topics offered.

#### **2710. Principles of Managerial Accounting**

(Formerly offered as BADM 3710.) Three credits. Prerequisite: ACCT 2001; open only to non-Business students of sophomore or higher

status. Not open to students who have passed or are taking ACCT 2101. May substitute for ACCT 2101 for students who enter the School of Business.

A survey of internal reports to managers for use in planning and controlling operating systems, for use in decision-making, formulating major plans and policies, and for costing products for inventory valuation and income determination.

#### **2891. Foreign Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Consent of Associate Dean for Undergraduate Programs required. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students the opportunity to be engaged in meaningful professional activity without the expectation of a significant level of prior academic experience in business.

#### **2893. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of the Associate Dean is required prior to the student’s departure. With a change in content, may be repeated for credit.

Special topics taken in a foreign study program.

#### **3234. Opportunity Generation, Assessment, and Promotion**

(Formerly offered as BADM 3741.) Three credits. Prerequisite: Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MGMT 3234. It is highly recommended that students take BADM 3740 or MGMT 3101 and ACCT 2101 or BADM 2710 prior to BADM 3234.

A hands-on experience in opportunity development, exposing students to three distinct modules. The first, creativity and innovation, stimulates the flow of ideas. The second, feasibility analysis, runs these ideas through a comprehensive assessment framework. The third module, getting the first customer, focuses on the initial sales and marketing process needed to get the idea off the ground.

#### **3235. Venture Planning, Management, and Growth**

(Formerly offered as BADM 3742.) Three credits. Prerequisite: BADM 3234 or MGMT 3234. Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MGMT 3235. It is highly recommended that students take BADM 3740 or MGMT 3101 and ACCT 2101 or BADM 2710 prior to BADM 3235.

An exposure to multiple facets of starting and managing new ventures in a very hands-on fashion. The course involves an integration of business skills that are required for preparing and pitching new business plans.

#### **3252. Corporate Social Impact and Responsibility**

Three credits. Prerequisite: Open only to non-business students of junior or higher status. Not open to students who have passed or are taking BLAW 3252.

Social impact and human rights implications related to global operations of multinational corporations; regulatory environment and competitive contexts that govern responsible business conduct on a global scale, how to navigate regulatory mandates and design social responsibility strategies to increase a firm's reputation, reduce costs, and improve its competitive positioning while respecting human rights principles.

#### **3254. Business Solutions to Societal Challenges**

Three credits. Prerequisite: Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking BLAW 3254 or HRTS 3254.

Market-based solutions to social and human rights challenges; how companies create value both for society and business, including role of for-profit businesses as agents for positive social impact in changing legal, regulatory, policy, and market environments. Regulatory and business strategies for long-term economic viability, sustainability, and human rights. Social innovation, statutory benefit corporations, corporate social certifications, social investment, shared value, strategic philanthropy, and business opportunities serving emerging markets.

#### **3274. Real Estate Law**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking BLAW 3274. May substitute for BLAW 3274 for business majors.

Examination of the legal and ethical aspects of real estate interests, transactions, zoning, and land use. A study is made of present and future land interests, non-possessory interests, fixtures, liens, co-ownership of real estate, residential and commercial landlord-tenant relationships, multi-unit real estate interests, real estate brokerage and fair housing, transfer and financing methods, environmental law, and taxation of real estate transactions.

#### **3370. Global Marketing Strategy**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are currently enrolled in MKTG 3370. May substitute for MKTG 3370 for business majors.

A study of the marketing concepts and analytical processes used in the development of programs in international markets. Emphasizes comparative differences in markets, marketing functions, and political considerations. It includes the application of a systems approach to the evaluation of opportunity and to the solution of major global marketing problems. Emphasis is placed on the analysis and synthesis of marketing programs to determine the appropriate marketing mix for various international business enterprises.

#### **3452. Professional Selling**

(Formerly offered as BADM 3752.) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students

who have passed or are currently enrolled in MKTG 3452. May substitute for MKTG 3452 for business majors.

Focuses on the tactical and strategic aspects of the professional selling process with particular emphasis upon managing the complex sale. Topics include account entry strategies, effective investigative techniques, objection prevention, the client decision process, negotiation skills, and account development strategies, and the use of technology to manage a portfolio of sales opportunities. Learning tools will include: participant interaction, role plays, work groups, and case studies.

#### **3454. Sales Management and Leadership**

(Formerly offered as BADM 4754.) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are currently enrolled in MKTG 3454. May substitute for MKTG 3454 for business majors.

Provides students with concepts and skills to understand and engage in sales force management, and to develop strong sales leadership abilities. Topics include strategic development of a sales force, sales teams, tactical development skills, and the integration with the rest of the organization to fulfill customer needs. Learning tools will include: participant interaction, role plays, work groups, and case studies.

#### **3625. Integrated Marketing Communications in the Digital Age**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are currently enrolled in COMM 4800 or MKTG 3625. May substitute for MKTG 3625 for business majors.

Provides students an understanding of the design, coordination, integration, and management of marketing communications. Students develop an integrated marketing communications campaign using traditional, social, and mobile media with an emphasis on the competitive and strategic value of communications in the marketplace.

#### **3627. Product and Price Policies**

(Formerly offered as BADM 3756.) Three credits. Prerequisites: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MKTG 3627. May substitute for MKTG 3627 for business majors.

Consideration in depth of the product and price variables as elements of marketing strategy and tactics. Emphasis will be placed on conceptual as well as decision-making aspects. The roles of technology, social change, innovation and creativity are included in the treatment of product. Institutional, behavioral, governmental and economic factors are included in the treatment of price.

#### **3660. International Business Law**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking BLAW

3660. May substitute for BLAW 3660 for business majors.

Designed to acquaint the student with international business law and with the legal and ethical environment of conducting international business. In examining the legal considerations involved in doing business internationally, this course explores the law surrounding international dispute resolution, the international sale of goods, international intellectual property law, and other issues. Also explores the legal system of selected foreign countries, major treaties and international entities such as the North American Free Trade Agreement, the World Trade Organization, the European Union, and related topics.

#### **3661. Marketing and Digital Analytics**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MKTG 3661. May substitute for MKTG 3661 for business majors.

Provides students with basic and advanced analytical tools to address strategic marketing concerns, including topics such as consumer profiling and behavioral targeting, media buying, retail forecasting, direct marketing effectiveness, analytics for web and social media engagement, and search. Students gain hands on computer-based experience in analyzing data.

#### **3665. Digital Marketing**

(Formerly offered as BADM 3755.) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-business students of junior or higher status. Not open to students who have passed or are taking MKTG 3665. May substitute for MKTG 3665 for business majors.

Provides students a framework and tools to develop integrated digital marketing strategies applied to segmentation, targeting, positioning, branding, and the marketing mix in pursuit of long-term marketing objectives.

#### **3673. Business Organizations and Governance**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking BLAW 3673. May substitute for BLAW 3673 for business majors.

Examination of the legal aspects of managing and financing partnerships, corporations, and other business organizations. In the study of these organizations, emphasis is placed on ethics and social responsibility, public policy issues concerning their activities, management of various types of financial risk, and the roles and fiduciary duties of professional service providers (such as accountants, asset managers, investment bankers, and risk managers). Securities, banking, and derivatives regulation, capital adequacy, mergers and acquisitions, and corporate governance, among other areas, are covered.

#### **3678. Intellectual Property Law and Ethics in the Digital Age**

Three credits. Prerequisite: BLAW 3175 or BADM 3720 or DMD 1000; open only to non-

Business students of junior or higher status. Not open for credit to students who have passed or are taking BLAW 3678. May substitute for BLAW 3678 for business majors.

Examination of the legal and ethical environment of intellectual property with a particular focus on its application to the production, protection, and use of digital media for private and professional purposes. Major ethical theories will be introduced and applied to digital media and technology firms. The application of intellectual property law as it pertains to various business areas such as marketing, media, sports, visual and performing arts will be examined. Freedom of expression, privacy, plagiarism, defamation, and commercial speech will also be explored. Covers related aspects of advertising, Internet law, and the global legal implication of digital media use.

### **3681. Legal Aspects of Entrepreneurship**

Three credits. Prerequisite: BLAW 3175 or BADM 3720 or DMD 1000; open only to non-Business students of junior or higher status. Not open for credit to students who have passed or are taking BLAW 3681. May substitute for BLAW 3681 for business majors.

Focuses on legal issues affecting new and growing businesses. Topics include choosing a legal form for the business, raising money and securities regulation, mergers, acquisitions, and liquidation. Also covers protecting intellectual property, employment, consumer protection, sales contracts and liability. In addition legal aspects of distribution, e-commerce, establishing a presence in a foreign market and environmental law are studied.

### **3720. The Legal and Ethical Environment of Business**

Three credits. Prerequisite: Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking BLAW 3175. May substitute for BLAW 3175 for business majors.

The meaning of law and the structure of the legal and regulatory system are studied with a view toward the impact of law upon the operation of global business. Key philosophies of ethics and social responsibility are examined through the lens of stakeholder analysis and other analytical tools. Examination of the institutional foundations of law including court systems, court procedures, and constitutional law. The application of law to shape the legal environment of business through government regulation and legal liability is examined through exploration of tort and product liability, worker protection, and business organization law.

### **3730. Financial Management**

Three credits. Prerequisite: ACCT 2001; ECON 1200 or both 1201 and 1202; MATH 1070Q, 1071Q, 1125Q, 1126Q, 1131Q or 1151Q; STAT 1000Q or 1100Q; open only to non-Business students of junior or higher status. Will not substitute for FNCE 3101 for students who enter the School of Business. Not open for credit to students who have passed or are taking FNCE 3101. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

An introductory examination of how a business plans its needs for funds, raises the necessary funds, and invests them to attain its goals.

### **3740. Managerial and Interpersonal Behavior**

Three credits. Prerequisite: Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MGMT 3101. Will not substitute for MGMT 3101 for students who enter the School of Business. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

Topics covered include individual work motivation, interpersonal communications in organizations, team building and group processes, leadership, decision-making, and understanding and managing cultural diversity. Classes will emphasize interpersonal and leadership skill-building through the inclusion of exercises which rely on active participation of class members.

### **3750. Introduction to Marketing Management**

Three credits. Prerequisites: ACCT 2001; ECON 1200 or both 1201 and 1202; ENGL 1010 or 1011 or 2011; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; and STAT 1000Q or 1100Q; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MKTG 3101. May substitute for MKTG 3101 for business majors.

An introduction to the marketing system, its foundations and institutions. Students are exposed to product, promotion, price, and distribution decision areas, strategic alliances, relationship marketing, and total marketing quality.

### **3753. Entrepreneurial Marketing**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MKTG 3753. May substitute for MKTG 3753 for business majors.

Focuses on the key marketing concepts and practices relevant to entrepreneurial ventures when introducing new products and services. It focuses on the assessment of market potential, marketing strategies and decisions in the context of limited resources and conditions of risk and market uncertainty, and the role of marketing in the commercialization process. Attention is given to product, pricing, promotion, and distribution decisions, and customer relationship management to co-create value with the customer.

### **3757. Strategic Brand Management**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to non-Business students of junior or higher status. Not open to students who have passed or are taking MKTG 3757. May substitute for MKTG 3757 for business majors.

Provides students an understanding of customer behavior in relation to marketing strategies in building, leveraging, and enhancing brand equity and formulating strategic brand

decisions, such as positioning and designing brands, building and leveraging brand community, measuring brand assets and brand performance, managing global brands, providing brand stewardship, and managing brand extensions. Provides concepts and perspectives relevant for any market offering (public/private, profit/nonprofit, commercial/noncommercial). Students will conduct a brand assessment project - a brand equity audit or brand marketing plan.

### **3760. Business Information Systems**

Three credits. Prerequisite: Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking OPIM 3103. Will not substitute for OPIM 3103 for students who enter the School of Business. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

Introduction to the information needs of managers, the structure of the information systems required to fill these needs, systems development, and business computing technology. Also covers selected management applications within the major business functions.

### **3761. Operations Management**

Three credits. Prerequisite: Open only to non-Business students of junior or higher status. Not open to students who have passed or are taking OPIM 3104 or MEM 2221. Will not substitute for OPIM 3104 for students who enter the School of Business. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

Introduction to the fundamentals of engineering management: the tasks of planning and controlling activities that have a technological component; the human element in production, research, and service organizations; and the stochastic nature of management systems. Extended coverage of technology management and value innovation.

### **4070W. Effective Business Writing**

One credit. Prerequisite: MGMT 3101 or MKTG 3101 or FNCE 3101; ENGL 1010 or 1011 or 2011; open only to Business majors of junior or higher status. Not open to students who have successfully completed BADM 4075W or MGMT 3070W.

Techniques to improve written business communication skills with focus on early-career writing tasks such as reports to supervisors, sales proposals, documentation of business policies, responses to complaints, general business letters, and memos.

### **4075W. Business Communications**

Three credits. Prerequisite: Open only to Business majors of junior or higher status; ENGL 1010 or 1011 or 2011. Not open to students who have successfully completed BADM 4070W or MGMT 3070W.

Techniques for improving professional writing and oral communications skills and ways in which visual communications, document design, and use of workplace technologies shape the message.

### **4891. Field Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Open to juniors or higher; consent of the Associate Dean for Undergraduate



Programs required. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for field work relevant to one or more major areas within the School. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report, submitted by the student.

#### **4892. Practicum in Professional Sales**

Three credits. Hours by arrangement. Prerequisite: completion of BADM 3750 and consent of instructor; open only to non-Business students of junior or higher status. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for supervised field work in professional sales. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

#### **4893. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of the Associate Dean for Undergraduate Programs is required.

Special topics taken in a foreign study program.

#### **4895. Special Topics**

Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to non-Business students of junior or higher status; consent of the Associate Dean for Undergraduate Programs is required. With a change in content, may be repeated for credit. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

Classroom course in special topics in business administration as announced in advance for each semester.

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## **Business Law (BLAW)**

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#### **3175. Legal and Ethical Environment of Business**

Three credits. This course is required for all School of Business students. Prerequisite: Open only to Business majors of sophomore or higher status. Not open to students who have passed or are taking BADM 3720.

The meaning of law and the structure of the legal and regulatory system are studied with a view toward the impact of law upon the operation of global business. Key philosophies of ethics and social responsibility are examined through the lens of stakeholder analysis and other analytical tools. Examination of the institutional foundations of law including court systems, court procedures, and constitutional law. The application of law to shape the legal environment of business through government regulation and legal liability is examined through exploration of tort and product liability, worker protection, and business organization law.

#### **3252. Corporate Social Impact and Responsibility**

Three credits. Prerequisite: Open only to Business majors of junior or higher status. Not open to students who have passed or are taking BADM 3252.

Social impact and human rights implications related to global operations of multinational corporations; regulatory environment and competitive contexts that govern responsible business conduct on a global scale, how to navigate regulatory mandates and design social responsibility strategies to increase a firm's reputation, reduce costs, and improve its competitive positioning while respecting human rights principles.

#### **3254. Business Solutions to Societal Challenges**

Three credits. Prerequisite: Open only to Business majors of junior or higher status. Not open to students who have passed or are taking BADM 3254 or HRTS 3254.

Market-based solutions to social and human rights challenges; how companies create value both for society and business, including role of for-profit businesses as agents for positive social impact in changing legal, regulatory, policy, and market environments. Regulatory and business strategies for long-term economic viability, sustainability, and human rights. Social innovation, statutory benefit corporations, corporate social certifications, social investment, shared value, strategic philanthropy, and business opportunities serving emerging markets.

#### **3274. Real Estate Law**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status. Not open for credit to students who have passed or are taking BADM 3274.

Examination of the legal and ethical aspects of real estate interests, transactions, zoning, and land use. A study is made of present and future land interests, non-possessory interests, fixtures, liens, co-ownership of real estate, residential and commercial landlord-tenant relationships, multi-unit real estate interests, real estate brokerage and fair housing, transfer and financing methods, environmental law, and taxation of real estate transactions.

#### **3277. Law and Ethics for Professional Accountants**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status. This course is required for all Accounting majors.

Exploration of the legal and professional liability of accountants and ethical decision making in commercial transactions. The legal and ethical framework of commercial transactions is explored through consideration of the law of contract formation, contract performance and breach, bankruptcy law, and the Uniform Commercial Code. Ethical reasoning, integrity, objectivity, independence and other core values as defined by the pertinent accounting institutions are presented.

#### **3660. International Business Law**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status. Not open for credit to students who have passed or are taking BADM 3660.

Designed to acquaint the student with international business law and with the legal and ethical environment of conducting international business. In examining the legal considerations involved in doing business internationally, this course explores the law surrounding international dispute resolution, the international sale of goods, international intellectual property law, and other issues. Also explores the legal system of selected foreign countries, major treaties and international entities such as the North American Free Trade Agreement, the World Trade Organization, the European Union, and related topics.

#### **3673. The Law of Risk Management and Business Governance**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status. Not open for credit to students who have passed or are taking BADM 3673.

Examination of the legal aspects of managing and financing partnerships, corporations, and other business organizations. In the study of these organizations, emphasis is placed on ethics and social responsibility, public policy issues concerning their activities, management of various types of financial risk, and the roles and fiduciary duties of professional service providers (such as accountants, asset managers, investment bankers, and risk managers). Securities, banking, and derivatives regulation, capital adequacy, mergers and acquisitions, and corporate governance, among other areas, are covered.

#### **3678. Intellectual Property Law and Ethics in the Digital Age**

Three credits. Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status. Not open for credit to students who have passed or are taking BADM 3678.

Examination of the legal and ethical environment of intellectual property with a particular focus on its application to the production, protection, and use of digital media for private and professional purposes. Major ethical theories will be introduced and applied to digital media and technology firms. The application of intellectual property law as it pertains to various business areas such as marketing, media, sports, visual and performing arts will be examined. Freedom of expression, privacy, plagiarism, defamation, and commercial speech will also be explored. This course also covers related aspects of advertising, Internet law, and the global legal implication of digital media use.

#### **3681. Legal Aspects of Entrepreneurship**

Three credits. Prerequisite: Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status. Not open for credit to students who have passed or are taking BADM 3681.

Focuses on legal issues affecting new and growing businesses. Topics include choosing a legal form for the business, raising money and securities regulation, mergers, acquisitions, and liquidation. Also covers protecting intellectual property, employment, consumer protection, sales contracts and liability. In addition legal aspects of distribution, e-commerce, establishing a presence in a foreign market and environmental law are studied.

#### 4891. Field Study Internship

One to six credits. Hours by arrangement. Prerequisite: Open only to Business majors of junior or higher status; completion of freshman-sophomore level School of Business Requirements and consent of instructor and Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for supervised field work relevant to one or more areas in business law. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

#### 4893. Foreign Study

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required prior to student's departure.

Special topics taken in a foreign study program.

#### 4895. Special Topics

Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to Business majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics in law as announced in advance for each semester.

#### 4899. Independent Study

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only to Business majors of junior or higher status; instructor consent required.

Individual study of special topics in law as mutually arranged between student and instructor.

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## Chemical Engineering (CHEG)

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*Interim Program Director:* Professor Douglas Cooper

*Department Office:* Room 204, Engineering II

For major requirements, see the School of Engineering section of this Catalog.

Students who do not have the suggested preparation for a course in the Chemical Engineering department are strongly advised to discuss their preparation with the instructor or the department Head before registering for the course.

#### 1200. Introduction to Food Science and Engineering

Three credits. Not open to School of Engineering students. Recommended preparation: high school algebra and chemistry. Mustain, Ma, Burkey

Introduction to the chemistry and engineering concepts related to the commercial and personal preparation of various foodstuffs, including meats, dairy, baking, and beverages. In-class demonstration and small laboratory projects. CA 3.

#### 2103. Introduction to Chemical Engineering

Three credits. Prerequisite: CHEM 1128 or CHEM 1125 and 1126; MATH 1132; and CSE 1010.

Application of the principles of chemistry and physics to chemical processes; units, dimensions, and process variables; material balances; equations of state (ideal and real); single component equilibria; energy balances; non-reactive and reactive processes; combined mass and energy balances.

#### 2111. Chemical Engineering Thermodynamics I

Three credits. Three class periods and one discussion period. Recommended preparation: MATH 2110, CHEM 1128, and CHEG 2103, or consent of Chemical Engineering Program Director. CHEG 2111 and ME 2233 may not both be taken for credit.

First and second law of thermodynamics; thermal and PVT properties of matter; exact differentials and thermodynamic identities; design and analysis of power cycles; analysis of refrigeration and liquefaction processes.

#### 3112. Chemical Engineering Thermodynamics II

(Formerly offered as CHEG 212.) Three credits. Three class periods and one discussion period. Prerequisite: MATH 2410, CHEG 2111; open only to School of Engineering students.

Properties and phase equilibria for ideal and non-ideal mixtures; design of equilibrium flash separators; phase equilibria using equations of state; chemical equilibria; optimum conditions for chemical reactions; applications include chemical, electrochemical and biochemical systems.

#### 3123. Fluid Mechanics

Three credits. Prerequisite: MATH 2110 and 2410, CHEM 1128, and CHEG 2103; open only to School of Engineering students. Corequisite: CHEG 3127.

Overall mass, energy, and momentum balances; fluid flow phenomena; theoretical and empirical relationships for design of incompressible fluid-flow systems.

#### 3124. Heat and Mass Transfer

Three credits. Prerequisite: MATH 2410, CHEG 3123. Corequisite: CHEG 3128, 3151; open only to School of Engineering students.

Conductive heat transfer; heat transfer coefficients and design of heat exchange systems. Radiation heat transfer, evaporation; design of mass transfer processes including distillation and extraction; analysis and design of diffusional processes such as gas absorption and humidification. Analytical and numerical methods for the solution of simple partial

differential equations describing transport phenomena.

#### 3127. Fluid Mechanics Laboratory

One credit. Corequisite: CHEG 3123; open only to School of Engineering students.

Provides hands-on experience with fluid mechanics phenomenon, including generation of pump curves, frictional losses in pipes, viscous forces versus inertial forces, and laminar versus turbulent flow regimes.

#### 3128. Chemical Engineering Junior Laboratory

Two credits. Prerequisite: CHEG 3123, 3127. Corequisite: CHEG 3124 and 3151; open only to School of Engineering students.

Provides hands-on experience with heat, mass, and kinetics processes, including steady-state heat transfer, transient heat transfer, membrane separation, liquid-phase reaction kinetics, gas-phase polymerization kinetics, and microfluidic devices.

#### 3145. Chemical Engineering Analysis

Three credits. Prerequisite: CHEG 2103 and MATH 2110 and 2410; open only to School of Engineering students.

Mathematical and numerical methods for solving engineering problems; description and computer modeling of physical and chemical processes with ordinary and partial differential equations; treatment and interpretation of engineering data.

#### 3151. Process Kinetics

Three credits. Prerequisite: CHEG 3112; open only to School of Engineering students. Corequisite: CHEG 3124, 3128.

Theory of chemical rate; homogeneous, heterogeneous and catalytic systems. Analysis and design of batch and flow reaction systems; analysis of rate data; temperature and catalytic effects in reactor design; mass transport effects; non-ideal reactor design.

#### 3156. Polymeric Materials

(Also offered as MSE 3156.) Three credits. Prerequisite: Open only to School of Engineering students. Recommended preparation: CHEM 2444. Not open for credit to students who have passed CHEM 3661.

Structure, properties, and chemistry of high polymers; solution and phase behavior; physical states, viscoelasticity and flow; production and polymer processing; design of polymers for specific applications.

#### 3173. Introduction to Biochemical Engineering

(Also offered as BME 3301.) Three credits. Prerequisite: CHEG 3151; open only to School of Engineering students.

Enzyme and fermentation technology; microbiology, biochemistry, and cellular concepts; biomass production; equipment design, operation, and specification; design of biological reactors; separation processes for bio-products.

#### 4137W. Chemical Engineering Laboratory

Three credits. Two 1-hour discussion periods. Two 3-hour laboratories. Prerequisite: CHEG 3112, 3123, and 3124; ENGL 1010 or 1011 or 2011.

Open-ended laboratory investigations in chemical engineering focusing on fluid mechanics, heat transfer, thermodynamics, and combined heat and mass transfer; emphasis on student teamwork and on design of experiments to meet objectives; technical report writing; oral presentations. A fee of \$50 is charged for this course.

#### 4139. Chemical Engineering Senior Laboratory

Two credits. Two 1-hour discussion periods. Two 3-hour laboratories. Prerequisite: CHEG 3112, 3123, and 3124; open only to Chemical Engineering majors. Recommended preparation: CHEG 3151, 4137W, 4147.

Open-ended laboratory investigations in chemical engineering focusing on reaction kinetics, reactor design, process control, and mass transfer; emphasis on student teamwork and on design of experiments to meet objectives; technical report writing; oral presentations. A fee of \$25 is charged for this course.

#### 4140. Chemical Engineering Capstone Design I

Three credits. Prerequisite: CHEG 3112, 3123, 3124, and 3151; open only to Chemical Engineering majors. Corequisite: CHEG 4142.

Theoretical treatment and design of chemical engineering processes and/or products. Comparison of alternative processing steps; instrumentation; cost estimation; economic analysis; process optimization; safety and environmental concerns in design; ethical considerations in chemical engineering design. Emphasis on the application of chemical engineering principles to conceptual design.

#### 4142. Unit Operations and Process Simulation

Three credits. Prerequisite: Open only to School of Engineering students. Corequisite: CHEG 4140.

Design and analysis of chemical engineering unit operations and process equipment, computer-aided design of equipment and flow sheets; design and analysis of complete process plants. Computer-based simulation of chemical engineering processes and integration of multiple processes into a holistic plant design using modern chemical engineering process design tools.

#### 4143W. Chemical Engineering Capstone Design II

Three credits. Prerequisite: CHEG 4140 and CHEG 4142; ENGL 1010 or 1011 or 2011; open to junior or higher Chemical Engineering majors.

Continuation of work on chemical process and simulation projects assigned in CHEG 4140. Group work, written and oral communication, and presentation of the final project, which analyzes a chemical process from technical, economic, safety, and environmental perspectives.

#### 4147. Introduction to Process Dynamics and Control

Three credits. Prerequisite: CHEG 3112 and 3124 and MATH 2110 and 2410; open only to School of Engineering students.

Chemical process modeling, dynamics, and analysis; measurement and control of process variables; design, and computer simulation of simple processes and control systems.

#### 4989. Introduction to Research

Credits and hours by arrangement or as announced. Prerequisite: Consent of instructor; open only to School of Engineering students. This course may be repeated for credit.

Methods of conducting research; design of laboratory investigations and experiments; correlation and interpretation of experimental results; writing of formal, technical reports; oral presentations; independent student effort, initiative and resourcefulness are required.

#### 4995. Special Topics in Chemical Engineering

Credits and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course; open only to School of Engineering students. This course, with a change in topic, may be repeated for credit.

A classroom course on special topics as announced.

## Chemistry (CHEM)

*Head of Department:* Professor Amy R. Howell

*Department Office:* Room A100, Chemistry Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### 1122. Chemical Principles and Applications

Four credits. Three class periods and one 1-hour discussion and one 2-hour laboratory per week. Not open for credit to students who have passed CHEM 1124, 1127Q or 1137Q or 1147Q.

Brief but comprehensive survey of important chemical theories and applications of chemistry. Preparation for one-semester courses in organic chemistry and biochemistry. Atomic structures, chemical bonding, chemical reactions, stoichiometry, states of matter, and theories of solutions. Does not fulfill the two-semester general chemistry requirement for majors in biology, chemistry, pharmacy, physics and agriculture and natural resources. Does not satisfy the admission requirements of medical and dental schools. A fee of \$50 is charged for this course. CA 3-LAB.

#### 1124Q. Fundamentals of General Chemistry I

Four credits. Three class periods and one 3-hour laboratory period. Not open to students who have passed CHEM 1127Q, 1137Q, or 1147Q. Recommended preparation: MATH 1011Q or equivalent.

The first semester of a 3-semester sequence that is designed to provide a foundation for the principles of chemistry with special guidance provided for the quantitative aspects of the material. Topics include the physical and chemical properties of some elements, chemical stoichiometry, gases, atomic theory and covalent bonding. A fee of \$20 is charged for this course. CA 3-LAB

#### 1125Q. Fundamentals of General Chemistry II

Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: CHEM 1124Q. Open by consent of instructor for only 1 credit to students who have passed CHEM 1127Q, 1137Q, or 1147Q. Not open to students who have passed CHEM 1128Q, 1138Q, or 1148Q.

Follows CHEM 1124Q. Topics include the properties of aqueous solutions and chemical equilibria. A fee of \$20 is charged for this course.

#### 1126Q. Fundamentals of General Chemistry III

Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: CHEM 1125Q. Not open to students who have passed CHEM 1128Q, 1138Q, or 1148Q.

Follows CHEM 1125Q. Topics include the properties of kinetics, complex ions, thermodynamics and electrochemistry. A fee of \$75 is charged for this course.

#### 1127Q-1128Q. General Chemistry

Four credits. Three class periods and one 3-hour laboratory period. Students who have passed CHEM 1122 will receive only 2 credits for CHEM 1127Q but 4 credits will be used for calculating the GPA. CHEM 1127 is not open for credit to students who have passed CHEM 1124Q or 1137Q or 1147Q; CHEM 1128Q is not open to students who have passed CHEM 1126Q or 1138Q or 1148Q.

Designed to provide a foundation for more advanced courses in chemistry. Atomic theory; laws and theories concerning the physical and chemical behavior of gases, liquids, solids, and solutions. Properties of some of the more familiar elements and their compounds. Quantitative measurements illustrating the laws of chemical combination in the first semester lab. Equilibrium in solutions and qualitative reactions of the common cations and anions in the second semester lab. A fee of \$10 is charged for this course for the first semester and \$27 for the second semester. CA 3-LAB.

#### 1137Q-1138Q. Enhanced General Chemistry

Four credits each semester. Three class periods and one 3-hour laboratory period. Prerequisite: One year of high school chemistry. Prerequisite or corequisite: MATH 1125Q or 1131Q; or consent of instructor. Primarily for majors in chemistry and related disciplines. This course can be used as an alternate wherever CHEM 1127Q-1128Q is listed as a prerequisite. Not open for credit to students who have passed CHEM 1124Q-1125Q-1126Q, or CHEM 1127Q-1128Q or CHEM 1147Q-1148Q.

Atoms, molecules, ions, chemical bonding. Gases, liquids, solids, solutions, equilibrium, thermodynamics, nuclear chemistry, kinetics and organic chemistry. May include modern materials, environmental chemistry, metallurgy, and biochemistry. A fee of \$75 is charged for this course for the first semester and \$75 for the second semester. CA 3-LAB.

#### 1147Q-1148Q. Honors General Chemistry

(Honors Course.) Four credits each semester. Three class periods and one 3-hour laboratory period. Prerequisite: Strong background in high school chemistry and physics. Prerequisite or corequisite: MATH 1125Q or 1131Q; consent of instructor. Designed primarily for exceptionally well-prepared science and engineering students, although any qualified honors student may take it. This course can be used as an alternate wherever CHEM 1127Q-1128Q is listed as a prerequisite. Not open for credit to students who have passed CHEM 1127Q-1128Q, or CHEM 1124Q-1125Q-1126Q or 1137Q-1138Q.

Atomic and molecular theory and the properties of gases, liquids, solids, and solutions. Topics which may be covered in depth are the nature of the chemical bond, chemical equilibria, thermodynamics, electrochemistry and nuclear chemistry. The laboratory work is primarily quantitative in nature. Considerable personal initiative will be demanded of students in carrying out laboratory assignments. A fee of \$75 is charged for this course for the first semester and \$20 for the second semester. CA 3-LAB.

#### 1189. Introduction to Chemical Research

Credits, not to exceed 3 and hours by arrangement; three laboratory hours for each credit. Prerequisite: CHEM 1127Q or 1137Q or 1147Q and instructor consent.

Internship in research laboratories.

#### 1194. The Science of Chemistry

One credit. One 1-hour class period.

Readings, lectures, films and field trips exploring the field of chemistry and its scientific and social implications.

#### 2241. Organic Chemistry

Three credits. Prerequisite: CHEM 1122 or 1124Q or 1127Q or 1137Q or 1147Q. Not open for credit to students who have passed CHEM 2443.

An abridged course in organic chemistry designed to provide a background for related fields in which a general rather than a detailed knowledge of the compounds of carbon is required.

#### 2242. Organic Chemistry Laboratory

One credit. One 4-hour laboratory period including discussion. Prerequisite or corequisite: CHEM 2241. Not open to students who have passed CHEM 2443.

A fee of \$75 is charged for this course.

#### 2443. Organic Chemistry

Three credits. (Two credits for students who have passed CHEM 2241.) Prerequisite: CHEM 1128Q or 1138Q or 1148Q or 1126. CHEM 1126Q may be taken concurrently.

Structure and reactions of the simpler classes of the compounds of carbon.

#### 2444. Organic Chemistry

Three credits. Prerequisite: CHEM 2443.

A continuation of CHEM 2443.

#### 2445. Organic Chemistry Laboratory

Three credits. (Students who have passed CHEM 2446 will receive only 2 credits for CHEM 2445. Students who have passed CHEM 2242 will receive only 2 credits for CHEM 2445, but 3 credits will be used for calculating GPA scores.) Two 3-hour laboratory periods and one 1-hour discussion period. Prerequisite or corequisite: CHEM 2444.

A fee of \$75 is charged for this course.

#### 2446. Organic Chemistry Laboratory

One credit. One 4-hour laboratory period. Not open for credit to students who have passed CHEM 2445. Prerequisite: CHEM 2443; open only to Chemical Engineering or Biomedical Engineering majors or by consent of instructor.

Introduction to techniques, manipulations, calculations and spectroscopy. A fee of \$75 is charged for this course.

#### 3170W. Technical Communications

Three credits. Prerequisite: CHEM 2443; ENGL 1010 or 1011 or 2011.

Covers various aspects of technical writing and oral presentation of technical reports. The student will be introduced to the broad spectrum of the chemical literature; various approaches to information retrieval, including computer searches, will be demonstrated. Short reports based on chemical literature will include references and bibliographies. A major paper on a technical topic will be evaluated and corrected at each stage of its development. An oral report based on this material will also be required.

#### 3189. Undergraduate Research

Credits, not to exceed 3 each semester, and hours by arrangement (three laboratory hours for each credit). Prerequisite: Open only with consent of instructor.

Original investigation carried on by the student under the guidance of a staff member. The student is required to submit a brief report at the end of each semester.

#### 3193. Foreign Study

Credits and hours by arrangement up to a maximum of six credits. Prerequisite: Consent of Department head required prior to student's departure. May count toward the major with consent of the Department Head. May be repeated for credit.

#### 3194. Undergraduate Seminar

One credit. Prerequisite: Open only to chemistry majors or by consent of instructor. With a change of subject, this course may be repeated once for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Discussion of topics relevant to further study and work in the field of chemistry.

#### 3195. Special Topics

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

#### 3198. Variable Topics

Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

#### 3199. Independent Study

Credits, not to exceed 3 per semester, and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change of subject, this course may be repeated for credit.

#### 3210. Descriptive Inorganic Chemistry

Two credits. Two class periods. Prerequisite: CHEM 1126Q or 1128Q or 1138Q or 1148Q.

Introduction to bonding, structure, spectroscopy, physical properties, and reactivity of inorganic compounds.

#### 3214. Intermediate Inorganic Chemistry

Three credits. Prerequisite: CHEM 3210. Recommended preparation: CHEM 3564.

A systematic presentation of bonding, structure, properties, and reactions of inorganic compounds.

#### 3215. Inorganic Chemistry Laboratory

Three credits. One class period and two 3-hour laboratory periods. Prerequisite or corequisite: CHEM 3214.

The preparation, isolation, purification, and characterization of inorganic compounds; special techniques and instrumentation may be required. A fee of \$75 is charged for this course.

#### 3332. Quantitative Analytical Chemistry

Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: CHEM 1126Q or 1128Q or 1138Q or 1148Q. Recommended preparation: CHEM 3563.

Fundamentals of analytical chemistry. While it is a course for chemistry majors, it is also suitable for students in other technical fields who have an interest in learning quantitative analytical chemistry procedures applicable to analytical instrumentation. Traditional wet chemical techniques and instrumental methods. Quantitative chemistry and chemical computations. A fee of \$20 is charged for this course.

#### 3334. Instrumental Analysis I

Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: CHEM 3332. Recommended preparation: CHEM 3564.

Instrumental analytical techniques including molecular spectroscopy, atomic spectroscopy, electrochemistry, separations, and introductory electronics. This course is an extension of the instrumental portion of CHEM 3332. A fee of \$75 is charged for this course.

#### 3442W. Advanced Organic Chemistry Laboratory

Three credits. One class period and two 3-hour laboratory periods. Prerequisite: CHEM 2445; ENGL 1010 or 1011 or 2011.

Advanced techniques and fundamentals of organic synthesis and identification. A fee of \$75 is charged for this course.

#### 3563-3564. Physical Chemistry

Four credits each semester. Prerequisite: CHEM 1126Q or 1128Q or 1138Q or 1148Q; PHYS 1230, or 1402Q, or 1502Q, or 1602Q; MATH 2110Q or 2130Q for CHEM 3563; and MATH 2410Q or 2420Q for CHEM 3564. CHEG 3112 may be substituted for CHEM 3563 as a prerequisite for CHEM 3564.

A study of gases, liquids, solids, solutions, and thermodynamics in CHEM 3563 and kinetics, atomic and molecular theory, and spectroscopy in CHEM 3564.

#### 3565W. Physical Chemistry Laboratory

Two credits. Two 3-hour laboratory periods. Prerequisite: CHEM 3564, may be taken concurrently; ENGL 1010 or 1011 or 2011.

A fee of \$75 is charged for this course.

#### 3566. Physical Chemistry Laboratory

One credit. One 3-hour laboratory period. Prerequisite or corequisite: CHEM 3563. Not open for credit to students who have passed CHEM 3565. This laboratory course is for students

majoring in chemical engineering and cannot be counted toward the chemistry major group.

Laboratory experiments in thermodynamics, kinetics and spectroscopy. A fee of \$75 is charged for this course.

### 3661. Polymeric Materials

Three credits. Prerequisite: CHEM 2444. Not open for credit to students who have passed CHEG 3156.

Structure, properties and chemistry of high polymers. Methods of production and applications.

### 4196W. Thesis for Undergraduate Chemistry Majors

Three credits. Hours by arrangement. Prerequisite: A minimum of three credits in CHEM 3189 or 3199; ENGL 1010 or 1011 or 2011; open only with consent of instructor.

A formal thesis is required, based on original investigation carried on by the student.

### 4370. Environmental Chemistry - Atmosphere

Three credits. Prerequisite: CHEM 2443, 2444, and 2445; or CHEM 2241, 2242. Corequisite or prerequisite: CHEM 3332, 3563; or instructor consent. Intended for senior chemistry majors choosing the environmental chemistry option, or as an elective, and for environmental science majors pursuing a concentration in environmental chemistry.

Sources, transport, effects, fate, analytical chemistry, monitoring and management of chemical species; chemical principles, equilibria and reactions. The earth's atmosphere and atmospheric pollution; acid rain, global warming, ozone.

### 4371. Environmental Chemistry - Hydrosphere

Three credits. Prerequisite: CHEM 2443, 2444, and 2445; or CHEM 2241, 2242. Corequisite or prerequisite: CHEM 3332, 3563; or instructor consent. Intended for senior chemistry majors continuing in the environmental chemistry option, or as an elective and for environmental science majors pursuing a concentration in environmental chemistry.

Sources, transport, effects, fate, analytical chemistry, monitoring and management of chemical species; chemical principles, equilibria and reactions. The hydrosphere, water and soil pollution. Inorganic metals and organic chemicals in the environment.

### 4551. Introduction to Quantum Chemistry

Three credits. Prerequisite: CHEM 3564.

An introduction to quantum theory and its applications to atomic and molecular structure and spectroscopy.

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## Chinese (CHIN)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

### 1101 Elementary Chinese Level I

Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

### 1111. Elementary Chinese I

Four credits each semester. Four class periods and additional laboratory practice. Not open for credit to students who have had three or more years of Chinese in high school.

Development of ability to communicate in Chinese, orally and in writing.

### 1112. Elementary Chinese II

Four credits each semester. Four class periods and additional laboratory practice. Not open for credit to students who have had three or more years of Chinese in high school. Prerequisite CHIN 1111.

Development of ability to communicate in Chinese, orally and in writing.

### 1113. Intermediate Chinese I

Four credits each semester. Four class periods and additional laboratory practice. Prerequisite CHIN 1112.

Development of ability to communicate in Chinese, orally and in writing.

### 1114. Intermediate Chinese II

Four credits each semester. Four class periods and additional laboratory practice. Prerequisite CHIN 1113.

Development of ability to communicate in Chinese, orally and in writing.

### 1121. Traditional Chinese Culture

Three credits. Taught in English.

Introduction to traditional Chinese culture prior to the 20th century. Survey of institutions, philosophy, art, literature, and social customs seen through a variety of media. CA 1. CA 4-INT.

### 1122. Modern Chinese Culture

Three credits. Taught in English.

Introduction to modern Chinese culture from the fall of the Qing Dynasty to the present period. Survey of institutions, philosophy, and social customs seen through literature and films. CA 1. CA 4-INT.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3210. Chinese Composition and Conversation I

Three credits. Three class periods. Prerequisite: CHIN 1114 or instructor consent.

Development of high intermediate to advanced speaking and writing competency. Taught in Chinese.

### 3211. Chinese Composition and Conversation II

Three credits. Three class periods. Prerequisite: CHIN 3210 or instructor consent.

Development of high intermediate to advanced speaking and writing competency. Taught in Chinese.

### 3220. Business Chinese

Three credits. Prerequisite: CHIN 3210 or equivalent.

Introduction to Chinese business culture. Development of advanced Chinese written and

oral competency in a business context. Taught in Chinese.

### 3230. Language and Identity in Greater China

Three credits.

Topics include role of language, linguistic indexing of socio-economic class, dialects and regional language variation, impact of state policies, linguistic borrowings, bilingualism and bicultural identity, and language shift and attrition in greater China. Taught in English. CA 4-INT.

### 3240. Contemporary Chinese Film

Three credits. Prerequisite: CHIN 1114 or equivalent.

Study of language and culture through contemporary Chinese films. In-depth development of listening and speaking skills. Films in Chinese with English subtitles. Taught in Chinese.

### 3250W. Advanced Chinese

Three credits. Prerequisite: CHIN 3210 or equivalent; ENGL 1010 or 1011 or 2011.

Development of advanced reading, speaking, and writing competency in Chinese through modern and contemporary Chinese literature. Taught in Chinese. CA 1. CA 4-INT.

### 3260. Contemporary Chinese Culture

Three credits. Prerequisite: CHIN 3210 or equivalent.

Introduction to popular culture in China and Chinese-speaking societies through contemporary literature, art, documentaries, and feature films. Taught in Chinese.

### 3270. Chinese Film

Three credits. Prerequisite: CHIN 1121 and 1122.

Chinese film from the silent era to the present. Analytical skills and critical vocabulary to study Chinese film in its social and historical contexts. Taught in English. CA 1.

### 3271. Topics in Chinese Literature

Three credits. Prerequisite: CHIN 1121 and 1122 or instructor consent.

Social and political issues in Chinese modernity and postmodernity. Taught in English.

### 3275. Introduction to Chinese Linguistics

Three credits. Prerequisite: CHIN 1112.

Introduction to Chinese phonetics, phonology, morphology, syntax, writing system, and sociolinguistic aspects. Taught in English.

### 3282. Women in Chinese Literature and Film

Three credits. Recommended preparation: CHIN 1121 and CHIN 1122 or equivalent.

Critical study of representations of women in Chinese film and literature from the early twentieth century to the present. Development of feminist movements in China and gender issues. In-depth development of listening and speaking skills. Films in Chinese with English subtitles. Taught in English and Chinese.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

## Civil and Environmental Engineering (CE)

*Head of Department:* Professor Amvrossios Bagtzoglou

*Department Office:* Room 302, F.L. Castleman Bldg.

For major requirements, see the School of Engineering section of this Catalog.

Courses in Applied Mechanics are listed as CE 2110, 2120, 3110, and 3120.

### 2010. Civil and Environmental Engineering Professional Issues Seminar

No credits. One 1-hour period. May be repeated. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Issues in the practice of Civil and Environmental Engineering: professional ethics, law/contracts, insurance/liability, global/societal issues (e.g., sustainable development, product life cycle), management, business, public policy, leadership, construction management and professional development and licensure.

### 2110. Applied Mechanics I

Three credits. Prerequisite or corequisite: MATH 2110Q or MATH 2130Q.

Fundamentals of statics using vector methods. Resolution and composition of forces; equilibrium of force systems; analysis of forces acting on structures and machines; centroids; moment of inertia.

### 2120. Applied Mechanics II

Three credits. Prerequisite: CE 2110 and MATH 2110Q or MATH 2130Q. May be repeated for credit.

Fundamentals of dynamics using vector methods. Rectilinear and curvilinear motion, translation, rotation, plane motion; work, energy and power; impulse and momentum.

### 2210. Decision Analysis in Civil and Environmental Engineering

(Also offered as ENVE 2330.) Three credits. Prerequisite: MATH 1132Q. May not be taken for credit if the student has passed CE 2251, 281, 2211, or ENVE 2251.

Time value of money. Evaluation of alternative projects. Fundamentals of probability theory and statistics. Hypothesis testing, linear and multiple regression.

### 2211. Engineering Economics I

One credit. Prerequisite: Open only to Civil and Environmental Engineering majors, instructor

consent. Not open for credit to students who have passed CE 2210 or ENVE 2330.

Time value of money. Simple, compound, nominal, and effective interest rate. Present, future, and annual worth methods. Single payment, annuity series, gradient series. Rate of return method. Evaluation of alternative projects.

### 2251. Probability and Statistics in Civil and Environmental Engineering

Three credits. Recommended preparation: MATH 1131Q or 1151Q. Not open for credit to students who have passed CE 2210 or ENVE 2330.

Fundamentals of probability theory and statistics. Hypothesis testing, linear and multiple regression.

### 2310. Environmental Engineering Fundamentals

(Also offered as ENVE 2310.) Three credits. Prerequisite: CHEM 1128Q or 1148Q.

Concepts of aqueous chemistry, biology, and physics applied in a quantitative manner to environmental problems and solutions. Mass and energy balances, chemical reaction engineering. Quantitative and fundamental description of water and air pollution problems. Environmental regulations and policy, pollution prevention, risk assessment. Written and oral reports.

### 2410. Introduction to Geospatial Analysis and Measurement

Four credits. Three lecture periods and one 3-hour laboratory. Recommended preparation: MATH 1060 or 1131.

Elementary plane surveying, geospatial coordinate systems, error and accuracy analysis, introduction to geographic information systems, theory and uses of global positioning systems, introduction to land-surface remote sensing in the context of civil and environmental engineering.

### 2710. Transportation Engineering and Planning

Three credits. Prerequisite: PHYS 1501. Recommended preparation: CE 2410.

Design of transportation facilities. Traffic flow and capacity analysis. Travel demand analysis and planning methods.

### 3110. Mechanics of Materials

Three credits. Prerequisite: CE 2110; enrollment in the School of Engineering.

Simple and combined stress, torsion, flexure and deflection of beams, continuous and restrained beams, combined axial and bending loads, columns.

### 3120. Fluid Mechanics

(Also offered as ENVE 3120.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CE 2110; MATH 2110Q and 2410Q; enrollment in the School of Engineering. Recommended preparation: CE 2120. This course and ME 3250 may not both be taken for credit.

Statics of fluids, analysis of fluid flow using principles of mass, momentum and energy conservation from a differential and control volume approach. Dimensional analysis. Application to pipe flow and open channel flow. Laboratory activities and written lab reports.

### 3251. Civil and Environmental Engineering Applications of Probability and Statistics

One credit. Prerequisite: STAT 1100. Recommended preparation: MATH 1121Q or 1131Q or 1151Q. This course and CE 2251 or ENVE 2251 may not both be taken for credit. Open only to Civil Engineering and Environmental Engineering majors.

Multiple regression. Analysis of variance. Student project applying probability or statistics in a civil or environmental engineering context.

### 3510. Soil Mechanics

Three credits. Three class periods. Prerequisite or corequisite: CE 3110; enrollment in the School of Engineering. Recommended preparation: CE 3120.

Fundamentals of soil behavior and its use as a construction material. Effective stress principle, seepage and flow nets, consolidation, shear strength, limit equilibrium analysis.

### 3520. Civil Engineering Materials Laboratory

Three credits. One class period and one 3-hour laboratory. Prerequisite or corequisite: CE 3110 and 3510; enrollment in the School of Engineering.

Engineering properties of steel, sieve and hydrometer analysis, properties and performance of soil, Portland cement concrete, bituminous cement concrete, and timber; laboratory measurement of properties; interpretation of results. Written reports. A fee of \$17 is charged for this course.

### 3530. Engineering and Environmental Geology

(Also offered as GSCI 3710 and ENVE 3530.) Three credits. Recommended preparation: GSCI 1050 or 1051.

Application of geological principles to engineering and environmental problems. Topics include site investigations, geologic hazards, slope processes, earthquakes, subsidence, and the engineering properties of geologic materials. Course intended for both geoscience and engineering majors.

### 3610. Basic Structural Analysis

Three credits. Prerequisite or corequisite: CE 3110; enrollment in the School of Engineering.

Analysis of statistically determinate structures; influence lines; deflection of trusses, beams, and frames; introduction to indeterminate analysis using consistent deformation and moment distribution; computer programming.

### 3630. Design of Steel Structures

Four credits. Prerequisite: CE 3610; enrollment in the School of Engineering.

Steel material and structural shapes; LRFD and ASD design philosophies; design of steel members for tension, compression, bending, and combined effects of axial forces and bending moments; design of simple connections; design project.

### 3640. Design of Reinforced Concrete Structures

Four credits. Prerequisite: CE 3610; enrollment in the School of Engineering.

Loads; design philosophies, current design codes to analyze and design reinforced concrete beams, columns, slabs, foundations for flexure, shear, axial loads and torsion; serviceability

considerations; applications to buildings, design project.

### 3995. Special Topics in Civil Engineering

Semester, credits, and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course; enrollment in the School of Engineering. Course may be repeated for credit.

Classroom or laboratory courses as announced for each semester. For independent study see CE 4999.

### 4210. Operations Research in Civil and Environmental Engineering

Three credits. Prerequisite: CE 2210; MATH 2110Q; and enrollment in the School of Engineering. This course and CE 256 may not both be taken for credit.

Critical path method for scheduling and managing engineering project tasks. Resource allocation subject to constraints. One and two-phase simplex method for linear programming. Optimization of non-linear problems.

### 4410. Computer Aided Site Design

Three credits. Two lecture periods and one 2-hour laboratory period. Prerequisite: CE 2410; enrollment in the School of Engineering. Recommended preparation: CE 2710.

Roadway and street network design and site development using computer software, including grading and earthwork, runoff and drainage structures.

### 4510. Foundation Design

Three credits. Prerequisite: CE 3510; enrollment in the School of Engineering.

Application of soil properties to design of foundations, retaining structures, excavation drainage, shallow footings, deep foundations, specifications, subsurface exploration.

### 4530. Geoenvironmental Engineering

Three credits. Prerequisite: CE 3510; enrollment in the School of Engineering.

Principles of solid waste management; design of landfills and waste containment systems; compacted clay liners and slurry walls; overview of soil remediation techniques.

### 4541. Advanced Soil Mechanics

Three credits. Prerequisite: CE 3510 or equivalent; enrollment in the School of Engineering. This course and CE 5541 may not both be taken for credit.

Introduction of soil as a multi-phase material; stress and strain analysis in soil; soil compression and consolidation; shear strength of sand and clay; critical state soil mechanics; advanced topics in complex constitutive relationships; introduction to fracture mechanics.

### 4542. Earthquake Engineering

Three credits. Prerequisite or corequisite: CE 3510 and 3610. Recommended preparation: CE/ENVE 3530/GSCI 3710. This course and CE 5542 may not both be taken for credit.

Global tectonics and earthquake sources, seismic wave propagation, strong ground motion analysis, seismic hazards, site effects and liquefaction, seismic load to slopes, retaining structures and foundations, structure response to dynamic loads.

### 4570. Bituminous Materials

Three credits. Lecture. Prerequisites: CE 3510 and CE 3520. This course and CE 5570 may not both be taken for credit; enrollment in the School of Engineering.

Properties, performance and design of bituminous materials for highway and airport paving; physical and chemical properties of binders; testing methods; specifications; production and construction.

### 4610. Advanced Structural Analysis

Three credits. Prerequisite: CE 3610; enrollment in the School of Engineering.

Analysis of indeterminate structures using force method and moment distribution method, matrix analysis of truss, beam, and frame structures using computer programming and graphical finite element software, particle dynamics, introduction of dynamic analysis of single degree of freedom structures under various loads.

### 4710. Case Studies in Transportation Engineering

(Also offered as CE 5710.) Three credits. Prerequisite: CE 2710; enrollment in the School of Engineering.

Analysis of case studies in transportation and urban planning and design. Application of transportation engineering and planning skills. Oral and written group reports, group discussions, individual written papers.

### 4720. Street and Highway Design

Three credits. Prerequisite: CE 2710; enrollment in the School of Engineering. Recommended preparation: CE 4410. This course and CE 5720 may not both be taken for credit.

Urban street and highway design: vertical and horizontal alignment, cross-section elements, traffic barriers, interchanges and intersections, pedestrian and bike facilities, traffic calming, community and roadside elements.

### 4730. Transportation Planning

Three credits. Prerequisites: CE 2210 and CE 2710; enrollment in the School of Engineering. This course and CE 5730 may not both be taken for credit.

Transportation economics, urban transportation planning process, evaluation of transportation improvements, transportation systems management.

### 4740. Traffic Engineering Characteristics

Three credits. Recommended preparation: CE 2210 and CE 2710; enrollment in the School of Engineering. This course and CE 5740 may not both be taken for credit.

Relationships among traffic flow characteristics; microscopic and macroscopic representations of traffic flow; capacity and level of service of highways; traffic stream models; shock wave analysis.

### 4750. Pavement Design

Three credits. Prerequisite: CE 3110 and CE 3520; enrollment in the School of Engineering. This course and CE 5580 may not both be taken for credit.

Analysis and design of flexible and rigid pavements; testing and characterization of paving materials.

### 4810. Engineering Hydrology

(Also offered as ENVE 4810.) Three credits. Prerequisite: CE/ENVE 3120 or CHEG 3123; enrollment in the School of Engineering.

Hydrologic cycle: precipitation, interception, depression storage, infiltration, evapotranspiration, overland flow, snow hydrology, groundwater and streamflow processes. Stream hydrographs and flood routing. Hydrologic modeling and design. Computer applications. Design project.

### 4900W. Civil Engineering Projects I

Two credits. Two 3-hour discussion periods. Prerequisite or Corequisite: CE 2210; CE 2410; CE 2710; CE 3110; CE 3510; ENVE 2310; and ENVE 3120; Prerequisite: ENGL 1010 or 1011 or 2011; open only to junior and senior Civil Engineering majors.

Issues in the practice of civil and environmental engineering: management, business, public policy, leadership, importance of professional licensure, professional ethics, procurement of work, law/contracts, insurance/liability, global/societal issues (e.g., sustainable development, product life cycle), and construction management. Students working singly or in groups prepare proposals for civil engineering design projects, oral presentation and written reports.

### 4910W. Civil Engineering Projects

Three credits. Two 3-hour laboratory periods. Prerequisite: Departmental consent required; ENGL 1010 or 1011 or 2011. This course can be taken no sooner than the semester in which the student completes the Professional Requirements for the B.S. degree.

Design of Civil Engineering Projects. Students working singly or in groups produce solutions to Civil Engineering design projects from first concepts through preliminary proposals, sketches, cost estimations, design, evaluation, oral presentation and written reports.

### 4920W. Civil Engineering Projects II

Two credits. Two 3-hour discussion periods. Prerequisite: CE 4900W and ENGL 1010 or 1011 or 2011; open only to junior and senior Civil Engineering majors.

Design of civil engineering projects. Students working singly or in groups implement previously developed proposals for civil engineering design projects from first concepts through preliminary proposals, sketches, cost estimations, design, evaluation, consideration of realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, oral presentation and written reports.

### 4999. Independent Study for Undergraduates

Credits by arrangement, not to exceed 4 per semester. Prerequisite: Open only with consent of supervising instructor; enrollment in the School of Engineering. Course may be repeated for credit.

Designed for students who wish to extend their knowledge in some specialized area of civil engineering.

## Classics and Ancient Mediterranean Studies (CAMS)

*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Literatures, Cultures and Languages Department section of this Catalog for requirements for Majors in Classics and Ancient Mediterranean Studies.

### 1101. Greek Civilization

Three credits. *Travis*

A survey of classical Greece, with emphasis on literature, thought, and influence on contemporary culture. Taught in English. CA 1.

### 1102. Roman Civilization

Three credits. *Johnson*

A survey of classical Rome, with emphasis on literature, thought, and influence on contemporary culture. Taught in English. CA 1.

### 1103. Classical Mythology

Three credits. *Travis*

Origin, nature, and function of myth in the literature and art of Greece and Rome and the re-interpretation of classical myth in modern art forms. Taught in English. CA 1.

### 1121-1122. Elementary Latin I and II

Four credits each semester. Four class periods. Not open for credit to students who have had three or more years of Latin in high school, except with Departmental consent.

A study of the essentials of Latin grammar designed to prepare the student to read simple classical Latin prose.

### 1123-1124. Intermediate Latin I and II

Three credits each semester. Prerequisite: CAMS 1122 or two years of Latin in high school.

Review of the essentials of grammar. Reading of classical Latin prose and poetry with emphasis on Cicero and Ovid or Vergil.

### 1171. Intensive Elementary Ancient Greek

Four credits. Four class periods. Not open for credit to students who have had three or more years of Greek in high school, except with departmental consent.

Intensive introduction to ancient Greek. Basic morphology, syntax, and vocabulary through simple readings from the New Testament.

### 1172. Intensive Intermediate Ancient Greek

Four credits. Four class periods. Prerequisite: CAMS 1171 or instructor consent.

Transition to classical Greek through selections from Xenophon, reading of Plato's "Apology" complete.

### 1193. Foreign Study

Credits and hours by arrangement. May be repeated for credit. Prerequisite: Consent of Department Head required, normally before the student's departure.

Special topics taken in a foreign study program.

### 3101. Topics in Advanced Greek

Credits and hours by arrangement. Prerequisite: CAMS 1172. With a change in content, may be repeated for credit. Involves reading in Greek.

Reading of Ancient Greek texts in the original.

### 3102. Topics in Advanced Latin

Credits and hours by arrangement. Prerequisite: CAMS 1124 or three or more years of Latin in high school. With a change in content, may be repeated for credit. Involves reading in Latin.

Reading of Latin texts in the original.

### 3207. Greek Philosophical Writings

Three credits.

Selections from Plato and Aristotle.

### 3208. Homer

Three credits.

Selections from the Iliad or Odyssey. Taught in English.

### 3211. Greek Drama

Three credits.

Selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes.

### 3212. Greek Historical Writings

Three credits.

Selections from Herodotus and Thucydides.

### 3213. Ovid and Mythology

Three credits.

Selections from Ovid, mainly from the *Metamorphoses*, and a study of the myths of Greece and Rome.

### 3221. Survey of Classical Latin Literature

Three credits.

Extensive reading of a relatively wide range of authors of representative classical Latin prose and poetry.

### 3224. Vergil and the Roman Epic

Three credits.

Books VII-XII of the Aeneid and a study of the relation of the Aeneid to earlier Greek epic and to the later epic tradition.

### 3225. Latin Drama

Three credits.

Selected plays of Plautus, Terence, and Seneca, with lectures on Roman theatre and the development of drama.

### 3226. Latin Lyric Poetry

Three credits.

Selections from the lyrics of Horace and Catullus, with lectures on metrical patterns and the influence of Greek lyrics.

### 3227. Latin Historical Prose

Three credits.

Selections from Sallust, Livy, and Tacitus.

### 3232. Medieval Latin

Three credits. Prerequisite: CAMS 1124, or three or more years of Latin in high school. Taught in Latin.

Reading of texts from a number of periods and in a variety of styles, with consideration of morphological, syntactical, and semantic developments.

### 3241W. Greek and Roman Epic

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: CAMS 1101 or 1102 or 1103.

A study of classical epic, with special emphasis on Homer's Iliad and Odyssey and Vergil's Aeneid, but including also other examples of the genre. Oral and literary epic, their social and political contexts, and the influence of classical epic on later literature. Taught in English.

### 3242W. Greek and Roman Drama

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: CAMS 1101 or 1102 or 1103.

Selected plays from the works of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence, and Seneca. The origin and development of Greek drama, its transformation in the Roman period, and the influence of classical drama on later literature. Taught in English.

### 3243. World of Late Antiquity

(Also offered as HIST 3340.) Three credits.

The profound social and cultural changes that redefined the cities, the frontiers, and the economies of the classical world and led to the Middle Ages. Developments in the eastern and western Mediterranean lands between the second and seventh centuries, including: neo-Platonism, the spread of Christianity, Rabbinic Judaism, and Islam.

### 3244. Ancient Fictions

Three credits. *Johnson*

Examines a range of novels and other fictions from the Greco-Roman world. Works read will include the Greek sentimental novels, the satirical Roman novels of Petronius and Apuleius, and a variety of other pagan, Jewish, and Christian fictions. Taught in English.

### 3245. The Ancient World in Cinema

Three credits.

Representations of the ancient Mediterranean world in contemporary cinema.

### 3246. Hellenistic World

Three credits. *Johnson*

The Eastern Mediterranean (the Greek east) from Alexander to Cleopatra (336-30 BCE), including historical, cultural, social, and religious developments.

### 3250. The Early Christian Church

(Also offered as HIST 3335.) Three credits. Recommended preparation: HIST 3325/CAMS 3255 or HIST 3330/CAMS 3256. *Caner*

The evolution of Christian institutions, leadership and doctrines in the Roman Empire ca. 50-451 C.E. Topics may include gnosticism, prophecy, martyrdom, asceticism, pilgrimage, heresy, orthodoxy. Taught in English.

### 3251. Greek Art

(Also offered as ARTH 3140.) Three credits. Prerequisite: Open to sophomores or higher.

Greek art and architecture from the ninth century B.C. to the first-century A.D.

### 3253. Ancient Near East

(Also offered as HIST 3301.) Three credits. *Miller*



The history of Near Eastern civilization from the Neolithic period to the Persian Empire. The birth of civilization in Mesopotamia and Egypt. The political, economic, social and cultural achievements of ancient Near-Eastern peoples. Taught in English.

### 3254. Ancient Greece

(Also offered as HIST 3320.) Three credits.

The history of Greece from Minoan and Mycenaean times into the Hellenistic period with special emphasis on the Fifth Century and the Golden Age of Athens. Taught in English.

### 3255. Ancient Rome

(Also offered as HIST 3325.) Three credits.

From the beginning of Rome to the reign of Justinian. The growth of the Roman Republic and Empire. Roman civilization and its influence upon later history. Taught in English.

### 3256. Palestine under the Greeks and Romans

(Also offered as HEJS 3218 and HIST 3330.) Three credits. Prerequisite: CAMS 1101 or 1102 or CAMS 3253/HIST 3301 or HIST 3320 or 3325 or INTD 3260 or HEJS 1103 or HEJS 3202 or instructor consent. *Miller*

The political, historical and religious currents in Greco-Roman Palestine. Includes the Jewish Revolts, sectarian developments, the rise of Christianity and the Talmudic academies. Taught in English.

### 3256W. Palestine Under the Greeks and Romans

(Also offered as HEJS 3218W and HIST 3330W). Three credits. Prerequisite: CAMS 1101 or 1102 or CAMS 3253/HIST 3301 or HIST 3320 or 3325 or INTD 3260 or HEJS 1103 or HEJS 3202 or instructor consent; ENGL 1010 or 1011 or 2011; open to juniors or higher. Taught in English. May not be used to meet the foreign language requirement. *Miller*

### 3257. Ancient Philosophy

(Also offered as PHIL 2221.) Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, 1107.

Greek philosophy from its origin in the Pre-Socratics through its influence on early Christianity. Readings from the works of Plato and Aristotle. Taught in English.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

### 3298. Variable Topics

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

## Cognitive Science (COGS)

*Director:* Professor Carl Coelho

*Office:* Room 201, D.C. Phillips Building

*Director of Undergraduate Studies:* Professor William Snyder

*Office:* Room 350, Oak Hall

For major requirements, see the Cognitive Science listing in the College of Liberal Arts and Sciences section of this Catalog.

### 2201. Foundations of Cognitive Science

Three credits.

Origins of and current developments within scientific study of the mind-brain. Topics include: computational theories of mind, artificial and natural intelligence, cognitive neuroscience and the mind/body problem, embodied and distributed cognition, neural networks, self-organizing cognitive systems, learning and innateness. CA 3.

### 3584. Seminar in Cognitive Science

One to three credits. Hours by arrangement. Prerequisite: COGS 2201; open only with consent of instructor. Recommended preparation: At least two of ANTH 3002, CSE 4705, PHIL 3250, PSYC 2501. With a change of content, may be repeated for credit.

Recent developments in cognitive science.

### 3589. Undergraduate Research

Credits not to exceed six per semester. Hours by arrangement. Prerequisite: Open only with consent of instructor and program director of undergraduate studies. Recommended preparation: At least two of ANTH 3002, CSE 4705, PHIL 3250, PSYC 2501. With a change of content, may be repeated for credit.

Participation in activities related to cognitive science research.

### 3599. Independent Study

Three credits. Hours by arrangement. Prerequisite: COGS 2201; open only with consent of instructor. Recommended preparation: At least two of ANTH 3002, CSE 4705, PHIL 3250, PSYC 2501. With a change of content, may be repeated for credit.

Knowledge and skills necessary to perform a research project.

### 4596W. Senior Thesis in Cognitive Science

Three credits. Hours by arrangement. Prerequisites: COGS 2201, 3599; ENGL 1010 or 1011 or 2011; open only with consent of instructor and director of undergraduate studies. Recommended preparation: At least two of ANTH 3002, CSE 4705, PHIL 3250, PSYC 2501.

Preparation of a research thesis.

## Communication (COMM)

*Head of Department:* Professor Leslie Snyder

*Department Office:* Room 230, Arjona

For major requirements, see the Communication Department listing in the College of Liberal Arts and Sciences section of this Catalog.

### 1000. The Process of Communication

Three credits.

A study of modern communication theories and principles useful in understanding how people affect and are affected by others through communication. CA 2.

### 1100. Principles of Public Speaking

Three credits.

Theory and performance in public speaking: overcoming apprehension; audience analysis; development of concepts; maximizing message impact; professional presentation skills; group projects; evidence; listening and speech evaluation.

### 1300. Mass Communication Systems

Three credits.

The history, organizational structure, economics and functioning of technologically-based communication systems and the relationship of these factors to mass communication issues and effects.

### 2100. Professional Communication

Three credits. Prerequisite: COMM 1000. Recommended preparation: COMM 1100.

The principles of communication in business and professional environments. Focus on the refinement of communication skills necessary to succeed in professional contexts.

### 2310. Media Literacy and Criticism

Three credits. Prerequisite: COMM 1000; open to sophomores or higher. Recommended preparation: COMM 1300 or 3400 or 3600.

History, analysis and evaluation of technique, content and aesthetic effect of media messages. Cultural, political, economic, and institutional factors that help define the grammar of popular mass media content; social scientific perspectives addressing how audiences learn to comprehend media content including efforts to promote media literacy.

### 2310W. Media Literacy and Criticism

Three credits. Prerequisite: COMM 1000; ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: COMM 1300 or 3400 or 3600.

### 2940. Fundamentals of Digital Production

Three credits. Prerequisite: COMM 1000.

Fundamentals associated with the production of digital video, audio, and images to communicate with various audiences. Students rotate through various roles of pre-production, production, and post-production processes in the creation of multimedia projects.

### 3000Q. Research Methods in Communication

Three credits. Prerequisite: COMM 1000. Recommended preparation: A mathematics course.

The scientific approach as it specifically applies to communication.

**3100. Persuasion**

Three credits. Three class periods or two class periods with one discussion period. Prerequisite: COMM 1000.

Introduction to theories of attitude formation, change and reinforcement. Research is used to evaluate past and present models of persuasion.

**3103. Motivation and Emotion**

(Also offered as PSYC 3103.) Three credits. Prerequisite: PSYC 1100, and 1101 or 1103; open to juniors or higher.

Cognition, brain mechanisms, biofeedback, aggression, sex, competence, social influence, and conformity.

**3200. Interpersonal Communication**

Three credits. Prerequisite: COMM 1000.

An introduction, analysis and critique of recent theories of interpersonal communication. Topics include person perception, theories of communication management, and the structural analysis of face to face communication behavior.

**3300. Effects of Mass Media**

Three credits. Prerequisite: COMM 1000.

An analysis of the roles of the mass media and of the effects they exert on individuals and society.

**3321. Latinas and Media**

(Also offered as LLAS 3264 and WGSS 3260.) Three credits. Prerequisite: Open to juniors or higher.

The role of ethnicity and race in women's lives. Special attention to communication research on ethnic and racial minority women. CA 4.

**3400. Mass Media and Political Process**

Three credits. Prerequisite: COMM 1300, 3100 and 3300; open to juniors or higher.

An introduction to the role of the mass media in the American political process. Topics include the relationships among the media, major political institutions, and citizenry; the interplay of the media, interest groups, and policymaking process; and the role of the media in elections and international crises.

**3440W. Communication Law and Policy**

Three credits. Prerequisite: COMM 1000; ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: COMM 1300, 3400, 3600.

The development of American communication laws and policies, from their constitutional base through federal law, regulatory agencies and the judicial system. Exploration of rights and responsibilities of communication organizations and the public.

**3450. Gender and Communication**

(Also offered as WGSS 3268.) Three credits. Prerequisite: COMM 1000; open to juniors or higher.

Differences in male/female communication, and an examination of cultural assumptions regarding gender in the communication process. Critically analyze the theory, politics and practice of communication and gender.

**3600. New Communication Technologies**

Three credits. Prerequisite: COMM 1300; open to juniors or higher. Recommended preparation: COMM 3300.

An overview of new communication technologies. Topics include the uses, evolution, diffusion, operation, and effects of new communication technologies.

**4035. Advanced Media Effects**

Three credits. Prerequisite: COMM 1000 and 1300; open to juniors or higher.

Contentious topics in current media effects research, and their theoretical implications. Topics may include sexual content on television, pornography, alcohol on television, video games, and media impact on body image.

**4035W. Advanced Media Effects**

Three credits. Prerequisite: COMM 1000 and 1300; ENGL 1010 or 1011 or 2011; open to juniors or higher.

**4089. Introduction to Research Literature in Communication**

Three credits. Prerequisite: COMM 3000Q, 3100, 3200, and 3300; open to juniors or higher.

A survey of research in major sub-areas of communication.

**4100. Advanced Persuasion and Communication**

Three credits. Prerequisite: COMM 3100; open to juniors or higher. Recommended preparation: COMM 3000Q and 3300.

Advanced consideration and criticism of selected modern persuasion theories and research in communications.

**4120. Communication Campaigns and Applied Research**

Three credits. Prerequisite: COMM 3000Q or STAT 1000Q or 1100Q; open to juniors or higher. Recommended preparation: COMM 1300, 3100, and 3300. *Snyder*

Application of media, persuasion, and social change theories to the design of communication campaigns, including focus groups, interviews and other background research. Students will work with community organizations.

**4130. Marketing Communication**

Three credits. Prerequisite: COMM 3000Q, COMM 3100. Recommended preparation: COMM 1300.

Principles, strategies, and theories of communication in product and brand marketing contexts.

**4200. Advanced Interpersonal Communication**

Three credits. Prerequisite: COMM 1000 and 3200.

An advanced approach to interpersonal communication focusing on theories and their applications. Topics may include affection exchange theory, theories of uncertainty, attachment theory, communication privacy management theory, interpersonal deception theory, and relational dialectics theory.

**4220W. Small Group Communication**

Three credits. Prerequisite: COMM 3100 or 3200; ENGL 1010 or 1011 or 2011; open to

juniors or higher. Recommended preparation: COMM 3100.

Approaches, methods, and findings of research in small group communication and development of an ability to engage effectively in small group situations.

**4230. Organizational Communication**

Three credits. Prerequisite: COMM 3000Q and either COMM 3100 or 3200; open to juniors or higher.

Communication in formal organizations; horizontal and vertical communication; effectiveness of different organizational structures and channels; feedback; networks; norms and roles.

**4240. Marital and Family Communication**

Three credits. Prerequisite: COMM 3200. Open to juniors or higher.

The role of communication in family life, including marital, parent/child, and sibling relationships; the interdependence of families and the unique demands these interrelationships place on communication.

**4250. Communication in Conflict Management**

Three credits. Prerequisite: COMM 1000 and 3200. Recommended preparation: COMM 3100

The principles of communication underlying conflict and its management, including negotiation and intervention strategies, in interpersonal, group/organizational, and inter-group conflict.

**4320. Media and Special Audiences**

(Also offered as LLAS 4320.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 1000, 1300.

Media content and audience responses. Ethnic, racial, and gender issues in mainstream and ethnic media. Special audiences include Latina/os, African Americans, Asian Americans, Women, Gays, and Lesbians.

**4330. Children and Mass Media**

Three credits. Prerequisite: COMM 1000 and 1300; open to juniors or higher.

Child development and the effects of mass media on young children. Educational television, frightening media, violent television, computer games, the Internet and media policy.

**4340. Visual Communications**

Three credits. Prerequisite: COMM 1000; open to juniors or higher. Recommended preparation: Completion of at least one Q course.

Theory of design and creation of graphics for professional and technical purposes, to complement or supplement written and spoken communications.

**4410W. Government Communication**

Three credits. Prerequisite: COMM 1000; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Communication in government processes. Communication theory and practical applications. Issue management, lobbying, interest-group strategies, government relations, grassroots action, and coalition building. Students may not pass this course without passing the written work.

**4422. Protest and Communication**

Three credits. Prerequisite or corequisite: COMM 3300; open to juniors or higher. With a change in content, this course may be repeated once for credit.

Protest movement – past and current – in light of principles, models, and theories of communication.

**4450W. Global Communication**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: COMM 1300.

International communication patterns; globalization of media industries; new technologies; communication in war and peace; political, economic, social and cultural effects.

**4451W. Media, State, and Society**

Three credits. Prerequisite: COMM 1300 and 3300, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Forms of, rationales for, and effects of state involvement in mass media. The development of alternative media. Cultural implications of transnational media influences.

**4460. Cross-Cultural Communication**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 3200.

Communication behavior within and across cultures and subcultures.

**4470. Soap Opera/Telenovela**

(Also offered as LLAS 4470.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 1000, 3300. *Rios*

Socio-cultural functions of soap operas/telenovelas as mediated serials constructed by commercial organizations and consumed by United States and global audiences.

**4500. Nonverbal Communication**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 3000Q.

Facial expression, body movement, spatial behavior and para-language, with a consideration of applications for information theory.

**4630. Communication Technology and Social Change**

Three credits. Prerequisite: COMM 1000; open to juniors or higher.

Examination of new communication technologies and their influence on social change. Provides a foundation for students with professional as well as academic interests in communication technology.

**4650. Human-Computer Interaction**

Three credits. Prerequisite: COMM 1300; open to juniors or higher. Recommended preparation: COMM 3600.

Human interaction with computer technology and methods of evaluating communication systems for different populations and usage goals.

**4660. Computer Mediated Communication**

Three credits. Prerequisite: COMM 1000 and 1300; open to juniors or higher.

How computer media increasingly influence communication processes and how computer media are changing society. Students will examine

critically both exposure to and use of computer media with particular attention to how people use computer media and the effects of this use.

**4660W. Computer Mediated Communication**

Three credits. Prerequisite: COMM 1000, 1300; ENGL 1010 or 1011 or 2011; open to juniors or higher. With a change in content this course may be repeated for credit.

**4700. Health Communication**

Three credits. Prerequisite: COMM 1000, 1300; COMM 3000Q or PSYC 2100Q; open to juniors or higher. Recommended preparation: COMM 3100, 3200, 3300. *Snyder*

Overview of health communication, including health behavior change interventions, emergency communication, risk assessment, media influences, provider-patient communication, socialization and identity, stereotyping, social support, diverse populations, and new communication technologies.

**4800. Communication Processes in Advertising**

Three credits. Prerequisite: COMM 1300, 3100 and 3300; open to juniors or higher.

Covers communications theory relevant to advertising, with specific application to the creative elements of art and copy. Students create actual print advertisements and radio commercials.

**4802. Cultural and Global Diversity in Advertising**

Three credits. Prerequisite: COMM 4800; open to juniors or higher. *Lin*

Advertising and marketing strategies that incorporate cultural diversity and global marketing considerations.

**4820. Public Relations**

Three credits. Prerequisite: COMM 1300, 3000Q, and 3300; open to juniors or higher.

Practical applications of major theories of communication and mass media to public relations practiced by organizations. Based on readings, student research, and case histories.

**4930W. Public Relations Writing**

Three credits. Prerequisite: COMM 4820; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Philosophy and practice of good, ethical and effective public relations for advanced students. Writing projects such as press releases, media advisories, briefing packets, speech introductions, brochures, newsletters, and op-eds.

**4940. Digital Video Production**

Three credits. Prerequisite: COMM 1000, 1300, and 2940 or consent of instructor; open to juniors or higher.

Hands-on work in digital video production. Students rotate through all production positions for a digital production and complete field shoots and editing for a narrative production project. Preproduction skills such as proposal and script writing, storyboarding and budgeting included in each class project.

**4991. Internship in Communication**

Credits and hours by arrangement, with a maximum of three credits per semester. Prerequisite: At least 12 credits of 2000-level or above Communication courses and consent of instructor; open to juniors or higher. Should be taken during the senior year. May be repeated once for credit. Students taking

this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for supervised field work in a professional communication organization. Student's performance will be evaluated both by the field supervisor and course instructor.

**4992. Research Practicum in Communication**

Credits and hours by arrangement, with a maximum of three credits per semester. Prerequisite: At least 12 credits of 2000-level or above Communication courses which must include COMM 3000Q and consent of instructor; open to juniors or higher. Should be taken during the senior year. May be repeated once for credit.

Provides students with an opportunity to participate in a variety of supervised research activities in communication.

**4993. Foreign Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in foreign study program.

**4995. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

**4996W. Senior Thesis**

Credits and hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.

Preparation of a thesis and its presentation to the department.

**4998. Variable Topics**

Three credits. Prerequisite: Prerequisites and recommended preparation vary, open to juniors or higher. With a change in topic, may be repeated for credit.

**4999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change of content, may be repeated for credit.

The course, for superior students, includes independent reading, periodic conferences, and such other work as desired by the instructor.

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## Comparative Literary and Cultural Studies (CLCS)

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*Program Chair:* Associate Professor Gustavo Nanclares

*Office:* Room 207, Oak Hall

**1002. Reading Between the Arts**

Three credits.

Introduction to interrelations between literature, music, and the visual arts, including multi-media. CA 1.

**1101. Classics of World Literature I**

Three credits.

Introduction to classics of world literature. Comparative approach to canonical works

of Asia, Africa, the Middle East, and Latin America, as well as Europe, from antiquity to the early modern period (1600). CA 1. CA 4-INT.

### 1102. Classics of World Literature II

Three credits.

An introduction to classics of world literature. A comparative approach to representative works of culture of Europe, the Americas, Africa, the Middle-East, and Asia, from the Renaissance (1600) to the present. CA 1. CA 4-INT.

### 1103W. Languages and Cultures

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Urios-Aparisi, Wagner

Develops an interdisciplinary understanding and critical awareness of basic issues concerning socio-cultural factors of languages, language use and language learning, linguistic diversity, language research methodology, and the differences among diverse modes of communication. CA 1. CA 4-INT.

### 1110. Introduction to Film Studies

Three credits.

Introduction to film and film studies. Tools for analyzing and reading film. Techniques and language of film. Film theories. CA 1.

### 2201. Intercultural Competency towards Global Perspectives

Three credits.

Introduction to the interdisciplinary and international field of intercultural communication in cultural studies, including culturally determined communicative behaviors, identity, semiotics, multi-disciplinary theories of culture, and stereotypes. CA 1. CA 4-INT.

### 3201. Comparative Literary and Cultural Studies

Three credits. This course may be repeated for credit with a change of topic.

Literary and cultural questions that go beyond national boundaries: the relationship of literature to other disciplines and to the other arts; cinema as a cultural phenomenon. (No foreign language required.)

### 3203. Comparative Studies in Cultural History

Three credits. This course may be repeated for credit with a change of topic.

The comparative study of cultural movements in literature and the arts throughout history. The course will explore different areas of cultural practice - e.g., social, literary, political, aesthetic, anthropological, - with an eye as to how they are shaped, and in turn shape, dominant institutions and values. Sample topics include: World War I and the emergence of Modernism; European Fascisms; Christian, Jewish, and Muslim culture in Medieval Spain; photography and the Colonial Encounter, etc. May be repeated with change of topic.

### 3207. Film Genres

Three credits.

Conventions, history, and development of selected film genres.

### 3208. Studies in Film History

Three credits.

The history of cinema from its origins to the present in relation to relevant historical and cultural developments.

### 3211. Indigenous Film World Wide

Three credits. Lecture and discussion. Discussion includes weekly three-hour periods and film screening.

A survey of films by and about Indigenous, American Indian, First Nations, Native, and Aboriginal people. Course will focus on contemporary films and artists. CA 1. CA 4-INT.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with instructor consent. With a change of topic, may be repeated for credit.

### 3888. Variable Topics

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

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## Computer Science and Engineering (CSE)

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*Head of Department:* Professor Alexander A. Shvartsman

*Department Office:* Room 250, Information Technologies Engineering Building

For major requirements, see the School of Engineering section of this Catalog.

### 1000. Computers in Modern Society

Three credits. Two class periods and two 1-hour program design periods. Not open for credit to students who have passed CSE 110C or 1010 or 1100. Students who anticipate extensive study or use of computers in their future work should take CSE 1100-1102 rather than this course.

Introduction to computer applications in the humanities, social sciences, business, and other fields. Influence of the computer on modern society and technology. Elements of computer usage in the solution of numeric and non-numeric problems including introduction to programming methods.

### 1010. Introduction to Computing for Engineers

Three credits. Two 1-hour lectures and one 2-hour laboratory. Not open for credit to students who have passed CSE 110 or 1100.

Introduction to computing logic, algorithmic thinking, computing processes, a programming language and computing environment. Knowledge obtained in this course enables use of the computer as an instrument to solve computing problems. Representative problems from science, mathematics, and engineering will be solved.

### 1100. Introduction to Computing

Two credits. Two class periods of lecture and one 1-hour of laboratory period per week. No previous programming experience required. Not open for credit to students who have passed CSE 110C.

Problem solving with the computer, basics of data representation and computer organization, procedural and object-oriented programming in a modern language including control structures, functions and parameter passing, one and two dimensional arrays, numerical error and basic numerical methods. Examples taken from

various disciplines. Programming projects required. Intellectual property issues discussed.

### 1102. Object Oriented Design and Programming

Three credits. Three class periods of lecture and one 75-minute laboratory period per week. Prerequisite: CSE 1100 or 1010. Not open to students who have passed CSE 124C.

Principles of object oriented programming including classes, polymorphism, encapsulation and information hiding, and inheritance. Principles of object oriented design. Program debugging and documentation techniques. Implementation and simple analysis of algorithms for sorting and searching. Event-driven programming and the use of libraries for user interfaces. Introduction to computer history. Programming assignments.

### 1401. Honors Core: Computational Molecular Biology

(Also offered as BME 1401, MCB 1401, and PNB 1401.) Three credits.

Introduction to research in computational biology through lectures, computer lab exercises, and mentored research projects. Topics include gene and genome structure, gene regulation, mechanisms of inheritance, biological databases, sequence alignment, motif finding, human genetics, forensic genetics, stem cell development, comparative genomics, early evolution, and modeling complex systems. CA 3.

### 1729. Introduction to Principles of Programming

Three credits. Two 1-hour lectures and one 2-hour laboratory. Not open for credit to students who have passed CSE 110, 123, 1100, or 1010. CSE 1729 may be used in place of CSE 1010 to fulfill any requirement fulfilled by CSE 1010.

An introduction to computer programming in a structured programming language including fundamental elements of program design and analysis. Data and functional abstraction as tools for constructing correct, efficient, and intelligible programs for a variety of common computing problems. While this course covers the material in CSE 1010, its focus on abstraction makes it appropriate for students seeking a deeper understanding of computing fundamentals as well as those planning on continued study in computing.

### 2100. Data Structures and Introduction to Algorithms

Three credits. Three class periods of lecture. Prerequisite: CSE 1102. Students who have passed CSE 124C will receive only 2 credits for this course.

Fundamental concepts of data structures and the algorithms that proceed from them. Implementation and use of linked lists, stacks, queues, trees, priority queues, heaps and graphs. Emphasis on recursion, abstract data types, object oriented design, and associated algorithms and complexity issues. Design using specifications and requirements. Basic computer organizations, including memory organizations and allocations issues. Programming assignments.

### 2102. Introduction to Software Engineering

Three credits. Three class periods and one problem session. Prerequisite: CSE 2100 and 2500; CSE 2500 may be taken concurrently.

Software engineering concepts including the software life cycle and other software-development process models. Specification techniques, design methodologies, performance analysis, and verification techniques. Team-oriented software design and development, and project management techniques. Use of appropriate design and debugging tools for a modern programming language. Homework and laboratory projects that emphasize design and the use/features of a modern programming language.

### **2300W. Digital Logic Design**

Four credits. Three class periods and one 2-hour laboratory period. Prerequisite: CSE 1010 or 1100 or 1102 and secondary school physics or PHYS 1010 or 1501; ENGL 1010 or 1011 or 2011. Not open for credit to students who have passed CSE 207.

Representation of digital information. Analysis, design, and evaluation of combinational and sequential logic circuits. Debugging techniques. Use of computer facilities for circuit simulation, CAD, and report preparation and presentation. Introduction to structure and operation of digital computers. Design projects. Written reports with revisions are required for each project.

### **2304. Computer Architecture**

Three credits. Prerequisite: CSE 2100 and 2500. Not open for credit to students who have passed CSE 207 or CSE 241 or CSE 2300W.

Structure and operation of digital systems and computers. Fundamentals of digital logic. Machine organization, control and data paths, instruction sets, and addressing modes. Hardwired and microprogrammed control. Memory systems organization. Discussion of alternative architectures such as RISC, CISC, and various parallel architectures.

### **2500. Introduction to Discrete Systems**

Three credits. Prerequisite: CSE 1102.

Mathematical methods for characterizing and analyzing discrete systems. Modern algebraic concepts, logic theory, set theory, grammars and formal languages, and graph theory. Application to the analysis of computer systems and computational structures.

### **3000. Contemporary Issues in Computer Science and Engineering**

One credit. Prerequisite: CSE 2102 and either CSE 2304 or 3666; open only to Computer Science and Engineering and Computer Science majors.

The global and societal impact of computer science and engineering decisions, professional and ethical responsibility.

### **3002. Social, Ethical and Professional Issues in Computer Science and Engineering**

Three credits. Prerequisite: CSE 2102; open only to Computer Science and Engineering and Computer Science majors.

Study of areas in which computer science interacts with ethical issues, and issues of public policy. Topics of professional growth, development, and responsibility. Practice in the analysis of complex issues brought about by modern technology.

### **3100. Systems Programming**

Three credits. Two 1-hour lectures and one 2-hour laboratory per week. Prerequisite: CSE 2100.

Introduction to system-level programming with an emphasis on C programming, process management, and small scale concurrency with multi-threaded programming. Special attention will be devoted to proficiency with memory management and debugging facilities both in a sequential and parallel setting.

### **3300. Computer Networks and Data Communication**

Three credits. Prerequisite: CSE 2304 or 3666.

Introduction to computer networks and data communications. Network types, components and topology, protocol architecture, routing algorithms, and performance. Case studies including LAN and other architectures.

### **3302. Digital Systems Design**

(Also offered as ECE 3401.) Three credits. Prerequisite: CSE 2300W; open only to students in the School of Engineering.

Design and evaluation of control and data structures for digital systems. Hardware design languages are used to describe and design alternative register transfer level architectures and control units with a micro-programming emphasis. Consideration of computer architecture, memories, digital interfacing timing and synchronization, and microprocessor systems.

### **3350. Digital Design Laboratory**

(Also offered as ECE 4401.) Three credits. Four hours of laboratory. Prerequisite: Open only to students in the School of Engineering. Prerequisite or corequisite: CSE 3302/ECE 3401.

Digital designing with PLA and FPGA, A/D and D/A conversion, floating point processing, ALU design, synchronous and asynchronous controllers, control path; bus master; bus slave; memory interface; I/O interface; logic circuits analysis, testing, and troubleshooting; PCB; design and manufacturing.

### **3500. Algorithms and Complexity**

Three credits. Three class periods. Prerequisite: CSE 2100 and 2500.

Design and analysis of efficient computer algorithms. Algorithm design techniques, including divide-and-conquer, depth-first search, and greedy approaches. Worst-case and average-case analysis. Models of computation. NP-complete problems.

### **3502. Theory of Computation**

Three credits. Prerequisite: CSE 2100 and 2500.

Formal models of computation, such as finite state automata, pushdown automata, and Turing machines, and their corresponding elements in formal languages (regular, context-free, recursively enumerable). The complexity hierarchy. Church's thesis and undecidability. NP completeness. Theoretical basis of design and compiler construction.

### **3504. Probabilistic Performance Analysis of Computer Systems**

Three credits. Prerequisite: CSE 2100 and 2500; and one of STAT 3025Q or 3345Q or 3375Q or MATH 3160.

Introduction to the probabilistic techniques which can be used to represent random processes in computer systems. Markov processes, generating functions and their application to performance analysis. Models which can be used to describe the probabilistic performance of digital systems.

### **3666. Introduction to Computer Architecture**

Three credits. Three 1-hour lectures and one 1-hour laboratory period. Prerequisite: CSE 2100. Cannot be taken after CSE 4302 or 4901. This course and CSE 2304 may not both be taken for credit. This course and CSE 243 may not both be taken for credit.

Structure and operation of digital systems and computers. Machine organization, control and data paths, instruction sets, and addressing modes. Integer and floating-point arithmetic, the memory hierarchy, the I/O subsystem. Assembly language and basic program organization, interrupts, I/O, and memory allocation.

### **3800. Bioinformatics**

(Also offered as BME 4800.) Three credits. Prerequisite: BIOL 1107, CSE 1010 or 1100 or 1729 and either STAT 3025Q or STAT 3345Q.

Fundamental mathematical models and computational techniques in bioinformatics. Exact and approximate string matching, suffix trees, pairwise and multiple sequence alignment, Markov chains and hidden Markov models. Applications to sequence analysis, gene finding, database search, phylogenetic tree reconstruction.

### **3802. Numerical Methods in Scientific Computation**

(Also offered as ECE 3431.) Three credits. Prerequisite: CSE 1010 or 1100 or 1729 and MATH 2110Q and 2410Q; open only to students in the School of Engineering. Prerequisite or corequisite: MATH 2210Q.

Introduction to the numerical algorithms fundamental to scientific computation. Equation solving, function approximation, integration, difference and differential equations, special computer techniques. Emphasis is placed on efficient use of computers to optimize speed and accuracy in numerical computations. Extensive digital computer usage for algorithm verification.

### **3810. Computational Genomics**

(Also offered as BME 3810.) Three credits. Prerequisite: BIOL 1107, CSE 1010 or 1100 or 1729, and either STAT 3025Q or 3345Q.

Computational methods for genomic data analysis. Topics covered include statistical modeling of biological sequences, probabilistic models of DNA and protein evolution, expectation maximization and Gibbs sampling algorithms, genomic sequence variation, and applications in genomics and genetic epidemiology.

### **4095. Special Topics in Computer Science and Engineering**

Credits by arrangement. Prerequisites and recommended preparation vary. Open only to students in the School of Engineering. With a change in content, this course may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

**4099. Independent Study in Computer Science and Engineering**

Credits by arrangement, not to exceed 4 in any semester. Prerequisite: Consent of instructor and department head; open only to students in the School of Engineering.

Exposes the student to management principles and practices and the knowledge and skills necessary to develop an education project and to perform a research project.

**4100. Programming Language Translation**

Three credits. Prerequisite: CSE 3502 and either CSE 2304 or 3666; open only to students in the School of Engineering.

Introduction to the formal definition of programming language syntax and semantics. Design and realization of programming language processing systems such as assemblers, compilers, and interpreters.

**4102. Programming Languages**

Three credits. Prerequisite: CSE 3502; open only to students in the School of Engineering.

The study of programming language features and programming paradigms. Data types, control, run-time environments, and semantics. Examples of procedural, functional, logical, and object-oriented programming. Features used for parallel and distributed processing. Classic and current programming languages and environments.

**4300. Operating Systems**

Three credits. Prerequisite: CSE 2102 or 3100; CSE 2304 or 3666; open only to students in the School of Engineering.

Introduction to the theory, design, and implementation of software systems to support the management of computing resources. Topics include the synchronization of concurrent processes, memory management, processor management, scheduling, device management, file systems, and protection.

**4302. Computer Organization and Architecture**

Three credits. Three 1-hour lectures. Prerequisite: CSE 2300W; CSE 2304 or 3666; open only to students in the School of Engineering. This course and CSE 243 may not both be taken for credit. Cannot be taken after CSE 4901.

Organization and architecture of modern computer systems. Emphasis is on alternatives and advances to the basic Von Neumann architecture: topics such as pipelining, memory hierarchy and management, multiprocessor and alternative architectures, reconfigurable hardware, and other techniques for performance enhancement.

**4500. Parallel Systems**

Three credits. Prerequisite: CSE 2304 or 3666, and CSE 3500; open only to students in the School of Engineering.

Introduction to parallel systems. Fundamentals of the theory of parallel systems. Models of parallel machines. Limitations of parallel systems. Paradigmatic algorithms. Vectorization. Arithmetic structures. Classical parallel architectures.

**4701. Principles of Data Bases**

Three credits. Prerequisite: CSE 3500; open only to students in the School of Engineering.

Fundamentals of data base design and data indexing techniques. Hierarchical, network, and relational data models. Data base design theory. Query languages, their implementation and optimization. Data base security and concurrent data base operations.

**4702. Introduction to Modern Cryptography**

Three credits. Prerequisites: CSE 3500 and CSE 3502; open only to students in the School of Engineering.

An introduction to the fundamentals of modern cryptography focusing on development of secure cryptographic tools based on hard computational problems. Topics include one-way functions, pseudorandom generators, encryption, digital signatures, and protocols.

**4703. Principles of Computer Graphics**

Three credits. Prerequisite: CSE 3500 and MATH 2110Q and either MATH 2210Q or 3210Q; open only to students in the School of Engineering.

Representation of two- and three-dimensional data, internal representation of data structures, transformations, mapping of data to graphics screen, graphics hardware. Programming projects are assigned.

**4704. Computational Geometry**

Three credits. Prerequisite: CSE 3500; open only to students in the School of Engineering.

An extension of sorting, searching, selection, and graph algorithms to geometric problems. This includes algorithms and data structures for constructing geometric objects, computing geometric properties, and answering geometric queries as well as techniques for the analysis of their correctness and complexity.

**4705. Artificial Intelligence**

Three credits. Prerequisite: CSE 3500; open only to students in the School of Engineering.

Design and implementation of intelligent systems, in areas such as natural language processing, expert reasoning, planning, robotics, problem solving and learning. Students will design their own versions of "classic" AI problems, and complete one substantial design project.

**4707. Computer Security**

Three credits. Prerequisite: CSE 2102 and either 2304 or 3666; open only to students in the School of Engineering.

Introduction to computer security and the design of secure systems. Cryptographic tools. Operating system security and access control. Network, software and database security. Randomness generation. Malicious software. Digital rights management, anonymity and privacy. Various attacks and countermeasures. Ethical, legal and business aspects.

**4709. Networked Embedded Systems**

Three credits. Prerequisite: CSE 2304 or 3666; and 3300 or equivalent with permission of the instructor; open only to students in the School of Engineering.

Introduction to the basic concepts, challenges, and methods for designing networked embedded systems. Examines related hardware, software, and system-level design. Hardware topics include various design alternatives (such as

microcontrollers, digital signal processors (DSP), and field-programmable gate array (FPGA)) in resource-constrained environments. Software issues include operating systems, programming languages, program verification and analysis. System-level topics include autonomous wireless sensor network design, power and resource management, security and privacy.

**4900. Independent Design Laboratory**

Three credits. Prerequisite: CSE 2102; instructor and department head consent; open only to students in the School of Engineering. May be taken twice for credit.

Experimental design project undertaken by the student by special arrangement with a faculty member of the Department of Computer Science and Engineering.

**4904. Computer Science Design Laboratory**

Three credits. One 4-hour laboratory period. Prerequisites and recommended preparation vary; open only to students in the School of Engineering. With a change in content this course may be repeated for credit.

Design and implementation of complex software and/or hardware systems to solve problems posed by either student groups or the instructor.

**4905. Networking and Distributed Systems Laboratory**

Three credits. Four hour laboratory. Prerequisite: CSE 3300; CSE 2304 or 3666; open only to students in the School of Engineering.

Software laboratory that explores selected issues in networking and distributed systems. Topics include: Berkeley sockets; TCP and IP; atm apis; latency and bandwidth; performance models; performance evaluation of different network fabrics; MPI; simple CORBA; performance characteristics of MPI, Java, RMI, and CORBA; implementation and evaluation of a client-server system.

**4939W. Computer Science and Engineering Design Project I**

Three credits. Prerequisite: One of CSE 4100, 4102, or 4300, which may be taken concurrently; ENGL 1010 or 1011 or 2011.

The first semester of the required two-semester major design experience. Working on a team, students will propose, design, produce, and evaluate a software and/or hardware system. Will culminate in the delivery of the design, analysis, and initial working system, to be used as a basis for CSE 4940, formal public presentation, and written documentation. Oral and written progress reports are required.

**4940. Computer Science and Engineering Design Project II**

Three credits. Prerequisite: CSE 4939W; open only to Computer Science and Engineering and Computer Science majors.

The second semester of the required year-long major design experience. The semester will be spent developing, testing, and evaluating the software and/or hardware system begun in CSE 4939W. The project will culminate in the delivery of a working system and will include a formal, public presentation, and written documentation. Oral and written progress reports are required.

**4950. Electrical and Computer Engineering Design I**

(Also offered as ECE 4901.) Two credits. Prerequisite: ECE 3201 and a grade of C+ or better in both ECE 2001 and ECE/ENGR 3101; senior standing: open only to students in the School of Engineering.

Discussion of the design process; project statement, specification, project planning scheduling and division of responsibility, ethics in engineering design, safety, environmental considerations, economic constraints, liability, manufacturing, and marketing. Projects are carried out using a team-based approach. Selection and analysis of a design project to be undertaken in CSE 4951/ECE 4902 is carried out. Written progress reports, a proposal, an interim report, a final report, and oral presentations are required.

**4951. Electrical and Computer Engineering Design II**

(Also offered as ECE 4902.) Three credits. Hours by arrangement. Prerequisite: ECE 4901: open only to students in the School of Engineering.

Design of a device, circuit, system, process, or algorithm. Team solution to an engineering design problem as formulated in CSE 4950/ECE 4901, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentations are required.

**4997. Senior Thesis in Computer Science and Engineering**

Three credits. Hours by arrangement. Prerequisite: Senior standing in Computer Science, Computer Science and Engineering, or Computer Engineering. Requires consent of instructor and Department Head. Not limited to honors students.

Students are expected to choose an advisor and seek approval of a thesis topic by the time of registration. Students will author a formal thesis based on independent research conducted under the advisor supervision. Thesis proposal and final thesis must follow the guidelines developed by the department.

**Critical Languages Program (CRLP)**

*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

The Critical Language Program is designed to offer basic language instruction (four semesters) in languages not currently offered as major fields of study in the Department of Literatures, Cultures and Languages. The most common languages taught in the CRLP program at the University of Connecticut are listed at the end of this section. Other languages may be offered based upon student interest and the Program's ability to find the necessary personnel. Critical languages may be used to fulfill the foreign language requirement.

Note: Some critical languages, because of area study requirements or other specific circumstances, may be offered under the regular instructional method and the following course descriptions with four credits apply. These subject areas listed alphabetically throughout this course directory are:

American Sign Language (ASLN), Hindi (HIND), Japanese (JAPN), Korean (KORE), Modern Greek (MGRK), and Polish (PLSH).

**1101. Elementary Level I**

Four credits. Prerequisite: Not open to students with prior contact with the language.

**1102. Elementary Level II**

Four credits. Prerequisite: 1101 or the equivalent.

**1103. Intermediate Level I**

Four credits. Prerequisite: 1102 or the equivalent.

**1104. Intermediate Level II**

Four credits. Prerequisite: 1103 or the equivalent.

Note: The method of instruction for most critical language courses follows the self-study format established by the National Association of Self-Instructional Language Programs (NASILP). This method relies on four hours of student self-instruction per week, using the approved book/tape program; two or three hours per week of drill sessions led by the Conversation Partner; four or five quizzes per semester; and an oral final examination conducted by the Outside Examiner, a member of the faculty of an Institution of Higher Education which offers the language. In order to be eligible to register for a course offered through the NASILP method, students must have sophomore standing, a B (3.0) cumulative Grade Point Average, and the support of their academic advisor. Students seeking to register should bring an unofficial transcript and a letter from their advisor to Room 207, Oak Hall during pre-registration for the following semester. When taught in this manner, the following course descriptions with three credits apply. These subject areas listed alphabetically throughout this course directory are: Arabic (ARAB), Chinese (CHIN), Critical Languages Program (CRLP), and Vietnamese (VIET).

**1101. Elementary Level I**

Three credits. Prerequisite: Not open to students with prior contact with the language.

**1102. Elementary Level II**

Three credits. Prerequisite: 1101 or the equivalent.

**1103. Intermediate Level I**

Three credits. Prerequisite: 1102 or the equivalent.

**1104. Intermediate Level II**

Three credits. Prerequisite: 1103 or the equivalent.

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit. If there is sufficient student interest, additional languages may be offered.

**Diagnostic Genetic Sciences (DGS)**

*Program Director:* Judy Brown

*Program Office:* Room 220, Koons Hall

For major requirements, see the College of Agriculture, Health and Natural Resources, Department of Allied Health Sciences section of this Catalog.

**3222. Medical Cytogenetics**

Four credits. Two 2-hour lectures. Prerequisite: MCB 2400 or 2410 or 2413, which may be concurrent; open to students in the Diagnostic Genetic Sciences Program; others who have met the prerequisites.

Study of human chromosomes for prenatal and post-natal detection of chromosome abnormalities, chromosome polymorphisms, cell culture and harvest, human chromosome nomenclature, staining and banding techniques, mechanisms of numerical and structural chromosome abnormality, numerical syndromes, duplication and deletion syndromes, the sex chromosomes, sex chromosome abnormalities, mosaicism, genetic imprinting, indications for chromosomal analysis, molecular cytogenetic testing.

**3223. Laboratory in Cytogenetics**

Three credits. One 3-hour laboratory period and two 1½ hour discussions. Four additional laboratory sessions are required during the first half of the semester. Prerequisite: DGS 3222 which may be taken concurrently; open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of instructor.

Human chromosome morphology and identification, aseptic technique, lymphocyte culture and harvest, chromosome banding, karyotyping and microscopic analysis of normal and abnormal cases. A fee of \$50 is charged for this course.

**3225. Microscopy and Chromosome Imaging**

One credit. Prerequisite: DGS 3223, which may be taken concurrently; open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of instructor.

Theory and techniques of brightfield and fluorescence microscopy, and computerized chromosome imaging.

**3226. Current Genetic Research**

Variable credits. Prerequisite: DGS 3222 or MCB 2410 or MCB 2413; instructor consent. May be repeated one time for credit.

Retrieval, review and discussion of current primary genetics literature in addition to attending and reviewing University research seminars/guest speakers.

#### **3999. Independent Study for Undergraduates**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

This course is designed primarily for students who wish to extend their knowledge in some specialized area in the field of diagnostic genetic sciences.

#### **4095. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Application of the scientific method of inquiry to planning, implementation, evaluating and reporting a study of a problem in cytogenetics.

#### **4224. Cancer Cytogenetics**

Four credits. Prerequisite: DGS 3222; open to juniors or higher.

Genetic basis of cancer, chromosome instability syndromes, processing of tumor samples, chromosomal changes of solid tumors and hematologic malignancies, and nomenclature of acquired changes.

#### **4234. Diagnostic Molecular Technologies**

Three credits. Prerequisite: MCB 2400 or 2410 (DGS majors must take MCB 2410) and AH 3121 or MCB 4211 which may be taken concurrently; open only to students enrolled in the Diagnostic Genetic Sciences and Medical Laboratory Sciences Programs; others with instructor consent.

DNA and RNA diagnostic technologies used in clinical settings; clinical applications in prenatal diagnosis; cancer management, transplantation, paternity testing, forensic medicine and microbiology.

#### **4234W. Diagnostic Molecular Technologies**

Prerequisite: MCB 2400 or 2410 (DGS majors must take MCB 2410) and AH 3121 or MCB 4211 which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only to students enrolled in the Diagnostic Genetic Sciences and Medical Laboratory Sciences Programs; others with instructor consent.

#### **4235. Laboratory in Molecular Diagnostics**

Two credits. Prerequisite: DGS 4234 and 4236 which may be taken concurrently; open only to students enrolled in the Diagnostic Genetic Sciences and Medical Laboratory Sciences Program, others with instructor consent.

DNA isolation, blotting techniques, fluorescent in situ hybridization, polymerase chain reaction and Genprobe assay. A fee of \$50 is charged for this course.

#### **4236. Case Studies in Molecular Pathology**

One credit. One 1-hour discussion. Prerequisite: Open to DGS students. Corequisite: DGS 4235.

Clinical cases in molecular pathology are presented and discussed.

#### **4246. Contemporary Issues in Human Genetics**

Three credits. Prerequisite: Open to juniors or higher.

Historical and contemporary issues relevant to human genetics, including the layperson's understanding of genetic testing and diagnosis; and the ethical, legal, and social issues associated with them.

#### **4248. Advanced Karyotyping and Report Writing**

Two credits. Two hours discussion; 6-8 hours laboratory by arrangement. Prerequisites: DGS 3222, 3223 and DGS 4224; open only to students enrolled in the Diagnostic Genetic Sciences Program.

Karyotyping constitutional and cancer cytogenetic cases, diagnosing cytogenetic syndrome/conditions and cytogenetic changes associated with neoplasms. Writing complete, precise, and accurate cytogenetic reports.

#### **4501. Specimen Processing**

Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open to DGS molecular students only.

Theory and methods for processing and evaluating specimens for nucleic acid isolation.

#### **4502. Nucleic Acid Isolation**

Four credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open to DGS molecular students only.

Isolation, manipulation and evaluation of nucleic acids.

#### **4503. Amplification Methods**

Six credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235, and 4236; open to DGS molecular students only.

Practicum experience in DNA and/or RNA amplification stressing polymerase chain reaction.

#### **4510. In Situ Hybridization Methods**

Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open to DGS molecular students only.

Practicum in fluorescence in situ hybridization or other in situ hybridization techniques.

#### **4512. Cloning Techniques**

Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open to DGS molecular students only.

Theory and techniques of cloning.

#### **4513. Blotting Applications**

Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open to DGS molecular students only.

Theory and techniques of nucleic acid and/or protein blotting (e.g. Southern blot, reverse dot blot).

#### **4514. DNA Sequencing**

Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open to DGS molecular students only.

Practicum experience in DNA sequencing.

#### **4515. Microbiological Applications of Molecular Diagnostics**

Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 4234 and 4235; open only to students enrolled in the Molecular Diagnostic Sciences Program; others with consent of the instructor.

Practicum experience in the application of molecular technologies to microbiology.

#### **4810. Suspension Cell Culture, Harvest, and Analysis**

Six credits. Practicum course. Prerequisites: A grade of C or better in DGS 3222, 3223, 4224, and 4248; open only to DGS majors.

Techniques for processing suspension cell cultures and for isolating and identifying human chromosomes from suspension cell samples (bloods, bone marrows, and/or solid tumors). Culture, harvest, staining, microscopic analysis, and karyotyping of suspension cell samples.

#### **4820. Attached Cell Culture, Harvest, and Analysis**

Six credits. Practicum course. Prerequisites: A grade of C or better in DGS 3222, 3223, 4224, and 4248; open only to DGS majors.

Techniques for processing attached cell cultures and for isolating and identifying human chromosomes from attached cell samples (amniotic fluids, chorionic villus samples, products of conception, skin biopsies, and/or tumors, etc.). Culture, harvest, staining, microscopic analysis, and karyotyping of attached cell samples.

#### **4830. Molecular Cytogenetic Technologies**

Three credits. Practicum course. Prerequisites: A grade of C or better in DGS 3222, 3223, 4224, 4234/W, 4235, and 4248; open only to DGS majors.

Hands-on experience in fluorescence in situ hybridization (FISH) and other molecular cytogenetic technologies as applicable (e.g.: microarrays).

#### **4850. Investigative Topics in Laboratory Genetics**

One credit. Practicum course. Prerequisites: A grade of C or better in DGS 3222, 3223, 4224, 4234/W, 4235, 4236, and 4248; and AH 4241; open only to DGS majors.

Exploration of an area of individual interest in laboratory or clinical genetics.

#### **4997. Honors Research**

Three credits. Prerequisite: Open only to Diagnostic Genetic Sciences Honors students.

Design and implementation of an honors research project.

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### **Dietetics (DIET)**

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*Program Director:* Ellen Shanley

*Dietetics Program Office:* Room 314, Koons Hall

For major requirements, see the College of Agriculture, Health and Natural Resources, Department of Allied Health Sciences section of this Catalog.



The following courses are open only to students enrolled in the Dietetics Program. Others must obtain the permission of the Director of the Dietetics Program.

### 3099. Independent Study for Undergraduates

Credits and hours by arrangement. Prerequisite: Open only to Dietetics majors; others by consent of the Director of Dietetics; open only with consent of instructor. May be repeated for credit.

Designed primarily for students who wish to extend their knowledge in some specialized area in the field of dietetics.

### 3150. Medical Nutrition Therapy I

(Also offered as NUSC 3150.) Three credits. Prerequisite: MCB 2000; PNB 2264, 2265; NUSC 1165; open only to Dietetics majors and NUSC Didactic Program students; open to juniors or higher. *Thompson*

Introduction to the nutrition care process, nutrition assessment, planning of special diets, and applications of medical nutrition therapy to selected disease states and conditions.

### 3155. Clinical Dietetics Practicum I

One credit. Prerequisite: MCB 2000; PNB 2264, 2265; NUSC 1165; open only to Dietetics majors; others by consent of Dietetics Program Director. *Shanley*

Supervised practice experience in the health care setting.

### 3215. Food Service Management Practicum I

One credit. Prerequisite: Student must earn a "C" or better in DIET 3150, 3155; open only to Dietetics majors; others by consent of Dietetics Program Director. *Shanley*

Supervised practice experiences in food service settings. A fee of \$50 is charged for this course.

### 3230. Community Nutrition

(Also offered as NUSC 3230.) Three credits. Prerequisite: NUSC 2200; open only to Dietetics, Nutritional Science, and Allied Health Sciences majors; open to juniors or higher. Not open to students who have passed NUSC 3267. *Duffy, A. Mobley*

Role of community structure, agencies, and resources in the community health relating to nutrition.

### 3231W. Writing for Community Nutrition Research

Two credits. Prerequisite: Student must earn a "C" or better in DIET 3150, 3155; ENGL 1010 or 1011 or 2011; concurrent enrollment in DIET 3230; open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Develops critical thinking skills through research and writing in community nutrition.

### 3235. Community Nutrition Practicum I

One credit. Prerequisite: Student must earn a "C" or better in DIET 3150, 3155; open only to Dietetics majors; others by consent of Dietetics Program Director. *Dugdale*

Supervised practice experiences in community agencies.

### 3250. Medical Nutrition Therapy II

(Also offered as NUSC 3250.) Three credits. Prerequisite: DIET 3150 or NUSC 3150; open

only to Dietetics majors and NUSC Didactic Program students; juniors or higher. *Rodriguez*

Continuation of Medical Nutrition Therapy I. Further investigation of the interrelationships of physiology and biochemistry of disease and dietary intervention.

### 3255. Clinical Dietetics Practicum II

One credit. Prerequisite: Student must earn a "C" or better in DIET 3150, 3155; open only to Dietetics majors; others by consent of Dietetics Program Director. *Kerstetter*

Supervised practice experience in the health care setting.

### 3272. Food Service Systems Management I

(Also offered as NUSC 3272.) Two credits. Two class periods. Recommended preparation: NUSC 3233, 3234. Not open to students who have passed NUSC 3270. *Brownbill, Shanley*

Quantity food procurement, preparation and distribution; recipe standardization and menu development; sanitation and safety; portion and quality control; systems approach and delivery systems.

### 4095. Special Topics

Credits and hours by arrangement. Prerequisite: Open only to Dietetics majors; others by consent of the Director of Dietetics. May be repeated for credit with a change in topic.

Application of the scientific method of inquiry to planning, implementing, evaluating, and reporting a study of a problem related to dietetics.

### 4272. Food Service Systems Management II

(Also offered as NUSC 4272.) Two credits. Two class periods. Prerequisite: DIET/NUSC 3272. Not open to students who have passed NUSC 4270. *Shanley*

Institutional menu development; cost and budgeting; equipment layout and design; personnel management; marketing and merchandising; purchasing and inventory control.

### 4350. Applied Medical Nutrition Therapy III

Three credits. Prerequisite: Student must earn a "C" or better in DIET 3215, 3230, 3231W, 3235, 3250, 3255, 3272; open only to Dietetics majors; others by consent of Dietetics Program Director. *Kerstetter*

Medical nutrition therapy for complex medical problems. Continuation of DIET 3250.

### 4360. Contemporary Nutrition Practice

Three credits. Prerequisite: Student must earn a "C" or better in DIET 3215, 3230, 3231W, 3235, 3250, 3255, 3272; open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Application of knowledge, skills, and competencies affecting contemporary nutrition practice in the clinical dietetics, food service management, and community nutrition settings.

### 4365. Applied Dietetics Practicum

Four credits. Prerequisite: Student must earn a "C" or better in DIET 3215, 3230, 3231W, 3235, 3250, 3255, 3272; open only to Dietetics majors; others by consent of Dietetics Program Director. *Shanley*

Supervised practice experiences in the clinical dietetics, food service management, and community nutrition settings. A fee of \$75 is charged for this course.

### 4370. Advanced Nutrition for the Dietetics Practitioner

Three credits. Hours by arrangement. Prerequisite: Student must earn a "C" or better in DIET 4272, 4350, 4360, 4365; open only to Dietetics majors; others by consent of Director of Dietetics. *Kerstetter*

Relationship of nutrients to each other and to body function.

### 4415. Food Service Management Practicum II

Three credits. Prerequisite: Student must earn a "C" or better in DIET 4272, 4350, 4360, 4365; open only to Dietetics majors; others by consent of Dietetics Program Director.

Application and synthesis of performance requirements in food service systems.

### 4435. Community Nutrition Practicum II

Three credits. Prerequisite: Student must earn a "C" or better in DIET 4272, 4350, 4360, 4365; open only to Dietetics majors; others by consent of Dietetics Program Director.

Application and synthesis of performance requirements in community nutrition.

### 4455. Clinical Dietetics Practicum III

Four credits. Prerequisite: Student must earn a "C" or better in DIET 4272, 4350, 4360, 4365; open only to Dietetics majors; others by consent of Dietetics Program Director.

Application and synthesis of performance requirements in clinical dietetics.

### 4470. Seminar in Dietetics

Two credits. Prerequisite: Student must earn a "C" or better in DIET 4272, 4350, 4360, 4365; open only to Dietetics majors; others by consent of the Director of Dietetics.

Special problems and issues in dietetics. The management role in patient care, nutrition education, and the integration of nutrition and food service units.

### 4475. Dietetics Research Practicum

Three credits. Prerequisite: Student must earn a "C" or better in DIET 4272, 4350, 4360, 4365; open only to Dietetics majors; others by consent of the Director of Dietetics.

Student defines objectives to extend knowledge in a specialized area of dietetics. Research project.

### 4591. Dietetics Internship Practicum I

Zero credits. Prerequisite: Open only to students in the Dietetic Internship Program.

Meets the performance requirements of the American Dietetic Association. Supervised practice experience in this course primarily in food service, long-term care, and community nutrition. Some lecture hours and discussion groups required.

### 4691. Dietetics Internship Practicum II

Zero credits. Prerequisite: Open only to students in the Dietetic Internship Program.

Meets the performance requirements of the American Dietetic Association. Supervised practice experience in this course primarily in research in dietetics, clinical dietetics, and

ambulatory nutrition care. Some lecture hours and discussion groups required.

#### **4991. Dietetics Externship**

Six credits. Prerequisite: Student must earn a "C" or better in DIET 4370 and 4470; open only to Dietetics majors.

Culminating supervised practice experiences in application and synthesis of performance in clinical, community, food service or research; and practice experience in a specialty area of individual professional interest.

### **Digital Media and Design (DMD)**

*Head of Department:* Professor Timothy Hunter

*Department Office:* Room 249, Bishop Center

#### **1000. Digital Foundation**

Three credits. Two 3-hour studio periods. Prerequisite: Interview and/or portfolio review and instructor consent required.

Introductory studio experience in designing for the digital arts; concepts, media and strategies for making creative digital work.

#### **1030. Animation Lab**

Three credits. Two 3-hour studio periods. Prerequisite: Interview and/or portfolio review and instructor consent required.

Fundamental skills required for 2D, 3D, digital and traditional animation techniques.

#### **1070. Web Design I**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000.

Introduction to concepts, technologies and strategies for building contemporary websites.

#### **2010. History of Digital Culture**

Three credits.

Key episodes in the history of digital technology and digital media; values and norms that adhere to digital culture. CA 1. CA. 3.

#### **2020. Design Thinking**

Three credits. Lecture and in-class work sessions led by instructor. Prerequisites: DMD 1000 and 1030; open only to Digital Media and Design majors, others by instructor consent.

Design thinking as a process that employs immersion, empathy, ideation, definition, prototyping and testing leading to innovative discovery. The ways in which diversity of culture, experience and thought lead to innovation while examining the value of a human-based design process on the growth and direction of culture and society at large and how designers can participate in driving that process.

#### **2095. Special Topics in Digital Media**

Variable credits (1-6). Prerequisite: Open to Digital Media and Design majors and minors; others by instructor consent. May be repeated for credit with change in course topic for a maximum of 18 credits.

Seminar focusing on a special, limited topic in the digital media space.

#### **2200. Motion Graphics I**

Three credits. Two 3-hour studio sessions per week. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Introduction to creating visual effects and animated graphics.

#### **2210. Moving Image and Sequence**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Introduction to digital editing, project management, working with sound and time-based storytelling.

#### **2300. 3D Animation I**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Introduction to 3D Animation techniques including key framing, curve editing, timing, squash and stretch, walk cycles, and the 12 principles of animation.

#### **2310. 3D Modeling I**

Three credits. Two 3-hour studio sessions. Prerequisites: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Illuminating the connection between the audience and the image on screen. Creating polygonal 3D models using industry-standard modeling tools.

#### **2320. 3D Lighting and Rendering I**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Introduction to dramatic lighting, 3-point lighting, texturing, bump maps, displacement maps, ambient occlusion, final gathering, ray tracing, shadows.

#### **2500. Introduction to Digital Game Design**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Introduction to the principles of game design and development. History of the industry, story and game mechanics.

#### **2530. 3D Virtual World and Simulations**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Fundamentals of game mechanics. Current virtual worlds, basic scripting and modeling techniques, and the principles of role-playing video games.

#### **2542. Introduction to Game Scripting**

Three credits. Prerequisites: Open only to Digital Media and Design majors; others by instructor consent.

Fundamentals of gameplay scripting utilizing a current game engine. Numbers, strings, assignment, loops, functions, arrays, and available engine commands.

#### **2550. Game Production**

Three credits. Prerequisites: DMD 2500; open only to Digital Media and Design majors; others by instructor consent.

Practical investigation into the successful management of video game projects. Budgets, asset management plans, and risk evaluation of game development options. Relationship and team management, business aspects of the video game industry, and development of a video game project.

#### **2700. Digital Media Strategies for Business - I**

Three credits. Prerequisite: Open only to Digital Media and Design majors and minors, others by instructor consent. This course does not fulfill requirements for any major in the School of Business.

Introduction to digital media concepts and platforms that are being used in companies' marketing strategies and plans.

#### **2710. Social Media Business Applications**

Three credits. Prerequisite: Open only to Digital Media and Design majors and minors, others by instructor consent. This course does not fulfill requirements for any major in the School of Business.

Introduction to social media marketing, focusing on the platforms and strategies being employed by brands.

#### **3010W. Critical Perspectives on Digital Media**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Open only to Digital Media and Design majors, others by instructor consent.

Critical thinking and writing about digital media objects, contexts, and "texts," and how these participate in the social construction of human identities and belonging.

#### **3020. Design Lab**

Three credits. Two 1:20 classes per week composed of lecture and in-class work sessions led by instructor. Prerequisites: DMD 1000 and 1030; open only to Digital Media and Design majors. Instructor consent required.

The theory, principles and practices of digital screen-based visual communication. Through a multi-disciplinary perspective involving art, design, art history, and media studies, students will address how culture visualizes screen-based communication through both image and type.

#### **3030. Narrative Workshop**

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

An open forum where students will "workshop" their own narratives and works-in-progress, using each other as collaborators, editors, and ideators to investigate emerging forms of storytelling.

#### **3035. Interaction Design**

Three credits. Prerequisites: DMD 1000 and 1030; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

A critical overview of interaction design (including usability, evaluation, and cultural aspects) and a practical program of website and computer software interface creation.

#### **3040. Student Agency**

Three credits. Two 3-hour studio/lab/lecture sessions. Prerequisite: Open only by instructor

consent; open to Digital Media and Design majors and Digital Arts minors and others by instructor consent. May be repeated for a total of 9 credits.

An immersive study of the role, structure, procedures, techniques and processes employed by a Brand Agency within the digital and social media spaces.

### 3095. Special Topics

Variable credits, 1-6 credits each semester. Prerequisite: Open only to Digital Media and Design majors and minors; others by instructor consent. May be repeated for a total of 18 credits with a change in content.

Seminar focusing in digital media. Content will vary each semester based upon instructor expertise.

### 3099. Independent Study

Variable credits, 1-6 credits each semester. Hours by arrangement. Prerequisite: Open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent. May be repeated for a total of 15 credits with a change in content.

Independent study in a Digital Media area of concentration.

### 3200. Motion Graphics II

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000, 1030 and 2200; open only to Digital Media and Design majors and minors; others by instructor consent.

Designed for digital animators and filmmaker to develop advanced skills using a combination of techniques and effects; including green screen, 2D particle systems, mattes, rotoscoping, sound sync and 2D character animation.

### 3205. History of Animation

Three credits. Two 1½-hour sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and minors; others by instructor consent.

A history of animation from the late 19th – century through contemporary and emerging digital technologies.

### 3210. Experimental and Alternative Techniques

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000, 1030, 2200 and 2210; open only to Digital Media and Design majors and minors; others by instructor consent.

An exploration of non-traditional techniques and mediums for creating motion graphics and animation.

### 3220. Broadcast Graphics and Title Sequence

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000, 1030, 2200 and 2210; open only to Digital Media and Design majors and minors; others by instructor consent.

A survey of broadcast design and title sequences made for film, games and television.

### 3230. Cinematic Storytelling

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000 and 1030; open only to Digital Media and Design majors and minors; others by instructor consent.

Close analysis of graphic storytelling techniques in television, animation, shorts, and movies.

### 3300. 3D Animation II

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and minors; others by instructor consent.

Using industry standard 3D software, students learn to bring animated characters to life applying principles of timing, arcs, silhouette, weight, force, self-impulse and emotion.

### 3305. History of Computer Graphics

Three credits. Two 1½-hour sessions. Prerequisite: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and minors, others by instructor consent.

The history of computer-generated imagery (CG) from its beginnings to the present.

### 3310. Modeling, Lighting and Rendering II

Three credits. Two 3-hour sessions. Prerequisite: DMD 1000, 1030, 2300, 2310 and 2320; open to Digital Media and Design majors and minors; others by instructor consent.

Exploration of lighting technique and design for both live action and computer graphic applications.

### 3350. Simulations

Three credits. Two 3-hour sessions. Prerequisite: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and Digital Arts minors; others by instructor consent.

Create physical simulations using particle systems, collision detection and rendering and compositing setups within the bounds of any animation or VFX sequence.

### 3440. Introduction to Mobile Application Development

Three credits. Two 1½-hour classes per week. Prerequisite: DMD 1070; open only to Digital Media and Design majors, others by instructor consent.

Through lecture and hands-on exercises, students will be introduced to the processes, technologies, and environment of mobile applications.

### 3470. Advanced Web Design and Development

Three credits. Two 1½-hour classes per week. Prerequisites: DMD 1070; open only to Digital Media and Design majors, others by instructor consent.

Intermediate and advanced web design and development techniques, covering Cascading Style Sheets, XML, dynamic HTML with JavaScript, common frameworks, and the principles of site management. Advanced design concepts in website creation, such as efficient navigation design, designing for portability and accessibility, separating content from presentation for easy site updating and maintenance, planning interactivity, and search engine optimization.

### 3522. Stories in Video Games

One credit. Two hours lecture/lab each week. Prerequisite: DMD 2500; open to Digital Media and Design majors and Digital Arts minors, others by instructor consent.

Introduction to the principles of story development for video games.

### 3530. Game Systems Design

Three credits. Prerequisites: DMD 2500; open to Digital Media and Design majors and Digital Arts and Digital Media minors; others with consent of the instructor.

Creation of unique or refined interfaces within the context of websites or computer software. Examination of various usability aspects of interaction to give a broad overview of critical topics within cultural requirements of interfaces, interface design, and evaluation.

### 3540. Multiplayer Gameplay Development

Three credits. Prerequisites: DMD 2530; open to Digital Media and Design majors and Digital Arts and Digital Media minors; others with consent of the instructor.

Examination an array of gameplay interactions and how different types of interactions create a different experience for players. Students create a multiplayer map based in a relevant game engine that adheres or modifies the core mechanics to create a new game experience.

### 3560. Advanced Digital Game Design and Development

Three credits. Two 3-hour studio sessions. Prerequisite: DMD 2500 and instructor consent; open to Digital Media and Design majors and Digital Arts minors, others by instructor consent.

Advanced study and application of digital game design and development, programming, 3D game environments, game testing, human computer interaction, quality assurance, publishing.

### 3720. Digital Media Analytics

Three credits. Two 1½ hour class periods. Prerequisite: DMD 2700; open to Digital Media and Design majors and minors; others by instructor consent. Recommended preparation: 1000-level statistics course.

Provides a working knowledge of the array of metrics and analytics needed to understand the digital consumer and measure the effectiveness of digital media marketing.

### 3730. Digital Consumer Behavior

Three credits. One 3-hour class per week. Prerequisites: DMD 2700, 2710; Open only to Digital Media and Design majors; open to non-majors by instructor consent. Recommended preparation: STAT 1000Q or higher.

Explores and analyzes the changes in consumer decision-making and behavior in today's digital world.

### 3993. Foreign Study

Variable credit (1-12). Prerequisite: Open only in consultation with Education Abroad program and with consent of departmental study abroad coordinator. Departmental consent required, normally before the student's departure to study abroad. May be repeated for credit with a change in course content.

Special topics taken in a foreign study program.

### 3998. Variable Topics

Variable credit (1-6). Prerequisite: Instructor consent required. May be repeated for credit with a change in course content. Prerequisites and recommended preparation vary.

**4015. Degree Exhibition**

One credit. Prerequisite: Open to junior or higher Digital Media and Design majors with instructor consent. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). May be repeated once for a maximum of two credits.

Preparation of a project or portfolio for presentation in the Digital Media and Design Department's Degree Exhibition. May be taken in conjunction with the B.F.A. internship or senior project or B.A. senior thesis.

**4025. Portfolio and Professional Development: Putting it All Together**

Two credits. Two 1½-hour long classes per week composed of lecture and in-class work sessions led by instructor. Prerequisites: Open to seniors or graduate students in good academic standing with the DMD department; others by instructor consent.

Seeks to prepare advanced students for the transition to work by developing a professional-grade portfolio, website, social media presence and communications collateral and skills.

**4075. Senior Project**

Three credits. Prerequisite: Open to Digital Media and Design majors with the consent of the instructor.

Development of a project in the student's area of concentration that demonstrates vigorous and consistent thematic engagement and articulates both technical and conceptual sophistication. To be taken twice in two consecutive semesters in the student's senior year. To fulfill the graduation requirement for B.F.A., students must pass with a grade of C or better.

**4081. Digital Media Internship**

Variable credits (3 -12). Prerequisite: Open to Digital Media and Design majors and Digital Arts minors, others by instructor consent. Instructor and Department Head consent required. May be repeated for a maximum of 12 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised professional experience in the student's field of study. A minimum GPA of 2.0 is required.

**4086. Senior Thesis in Digital Humanities**

Three credits. Prerequisite: Open only to Digital Media and Design majors with the consent of the instructor.

Preparation and presentation of a thesis that demonstrates vigorous and consistent intellectual engagement and articulates technical, conceptual, and scholarly sophistication. To be taken twice in two consecutive semesters in the student's senior year.

**4310. Character Rigging**

Three credits. Two 3-hour sessions. Prerequisite: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and Digital Arts minors, others by instructor consent.

Concepts of rigging, with emphasis on animated props and characters. Techniques for using and creating bones, constraints, skeletons, skinning and weight painting.

**4340. Compositing for Visual Effects**

Three credits. Two 3-hour sessions. Prerequisite: DMD 1000, 1030 and 2300; open only to Digital Media and Design majors and Digital Arts minors, others by instructor consent.

Takes the students further into the art of visual effects.

**4536. Disruptive Technologies**

Three credits. Two 3-hour studio sessions. Prerequisites: DMD 2500 and 2542; open only with instructor consent.

Exploration of emerging interactive technologies, creating rapid fire prototypes utilizing experimental hardware and software. These skills enable students to develop interactive installations and unique gameplay scenarios.

**4545. Advanced Game Scripting**

Three credits. Two 1½ hour lectures per week. Prerequisites: DMD 2500 and 2542; open to Digital Media and Design majors, others by instructor consent.

Foundational knowledge on how to develop artificial intelligence models for games and gameplay scripting within a commercial game engine.

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**Dramatic Arts (DRAM)**

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*Head of Department:* Professor Vincent Cardinal

*Department Office:* Room 242, Drama-Music Building

For major requirements, see the School of Fine Arts section of this Catalog.

**1101. Introduction to the Theatre**

Three credits.

Analysis of the functions of the theatre artists and their contributions to the modern theatre. CA 1.

**1110. Introduction to Film**

Three credits. Two class periods and one 2-hour laboratory period.

A basic study of film as both a means of communication and as an art form. A fee of \$20 is charged for this course. CA 1.

**1201. Drafting for the Theatre**

Three credits. Two 3-hour studio periods. Prerequisite: Open only with consent of instructor.

The basics of hand drafting techniques and the drafting conventions for scenic designers, lighting designers and technical directors.

**1202. Computer Drafting for the Theatre**

Three credits. Two 3-hour studio periods. Prerequisite: Open only with consent of instructor.

Computer Aided Drafting techniques for theatrical applications. Use of design software for creating various 2-D plans, including light plots, set designs and technical shop drawings. Assumes a good working knowledge of theatrical drafting conventions and techniques.

**1206. Theatre Production I**

Three credits. Two class periods and one 2-hour lab period. Prerequisite: Open only with consent of instructor.

Information and skills in costuming, stage make-up, and basic lighting with application through crew work on departmental or CRT (Connecticut Repertory Theatre) productions.

**1208. Theatre Production II**

Three credits. Two class periods and one 2-hour studio period. Prerequisite: DRAM 1206; open only with consent of instructor.

An introduction to costume, lighting, management and stagecraft with application to departmental productions.

**1209. Drawing and Painting Techniques for the Theatre**

Three credits. Two class periods and one 2-hour studio period. Prerequisite: Open only with consent of instructor.

An introduction to theatrical sketching and rendering emphasizing color composition in various media.

**1210. Computer Rendering for the Theatre**

Three credits. Two class periods and one 2-hour studio period. Prerequisite: Open only with consent of instructor.

Computer rendering for theatre design in 2-D and 3-D format.

**1215. Theatre Production: Makeup and Wardrobe for the Actor**

Three credits. Two 2-hour lectures per week and running crew (lab) assignment. Prerequisite: Instructor consent required.

Introduction to the technology, tools, and materials used in makeup and wardrobe for actors.

**1216. Theatre Production: Lighting and Sound**

Three credits. Two 2-hour lectures per week and running crew (lab) assignment. Prerequisite: Instructor consent required.

Introduction to the technology, tools, and materials used in lighting and sound for the theatre.

**1217. Theatre Production: Costumes and Makeup**

Three credits. Two 2-hour lectures per week and running crew (lab) assignment. Prerequisite: Instructor consent required.

Introduction to the technology, tools, and materials used in costumes and makeup for the theatre.

**1218. Theatre Production: Stagecraft**

Three credits. Two 2-hour lectures per week and running crew (lab) assignment. Prerequisite: Instructor consent required.

Introduction to the technology, tools, and materials used in constructing and rigging theatrical scenery.

**1282. Practicum in Dramatic Arts**

Credits and hours by arrangement. Prerequisite: Department consent required; open only to Dramatic Arts majors. May be repeated for credit with a change in course content to a maximum of 6 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practical work in all areas of dramatic arts, with emphasis on running crew assignments.

**1701. Acting I**

Three credits. Six studio hours per week. Prerequisite: Open only with consent of instructor.

Basic acting techniques, including improvisation and the use of the stage environment.

**1702. Acting II**

Three credits. Six studio hours per week. Prerequisite: DRAM 1701; open only with consent of instructor.

Additional basic acting techniques with emphasis on the presentation of scenes from contemporary plays.

**1710. Exploration of Acting**

Three credits. Four hours per week. Prerequisite: Open only with consent of instructor. Not open for credit to Acting majors or those who have passed DRAM 1701. May be repeated for credit to a total of six credits with change of instructor, or with instructor consent.

The basic elements of the acting process and related skills for those not intending to pursue professional acting careers.

**1801. Stage Movement I**

Three credits. Six studio hours per week. Prerequisite: Open only with consent of instructor.

Conditioning the body to increase strength, flexibility, and sensitivity. Exploration of movement concepts in space, time and energy values, and mind body and environment relationships.

**1802. Stage Movement II**

Three credits. Six studio hours per week. Prerequisite: DRAM 1801; open only with consent of instructor.

Developing physical awareness and continuing body conditioning for the stage. Analyzing the natural world and how it moves. Work may include beginning mask, mime and tumbling skills.

**1811. Dance Appreciation**

Three credits.

Overview of dance history, technique, and choreography based on lecture, discussion, films and practicum. No previous dance experience required. CA 1.

**1901. Voice and Speech I**

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: Open only with consent of instructor.

Study of the skills required to develop an expressive, injury-free voice and improved diction on and off the stage.

**1902. Voice and Speech II**

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: DRAM 1901; open only with consent of instructor.

Additional vocal and articulation/phonetics skills applied to the performance of both realistic and elevated language in dramatic literature.

**2130. History of Drama I**

Three credits. Prerequisite: Open only with consent of instructor. Not open for credit to students who have passed DRAM 2132.

Dramatic literature and theatre history from Classical Greece through the Spanish Golden Age, including an examination of non-western theatre traditions, especially Japanese.

**2131. History of Drama II**

Three credits. Prerequisite: Open only with consent of instructor. Recommended preparation: DRAM 2130. Not open for credit to students who have passed DRAM 2133.

Dramatic literature and theatre history from the French Renaissance to Contemporary Theatre, including an examination of non-western theatre traditions, especially Chinese.

**2134. Honors Core: Sports as Performance**

Three credits. Instructor consent required.

Rigorous critical investigation of parallels between sports and performance. Includes writing, critical readings, experiential activities, viewing sporting events/performance, multimodal research. Critical and theoretical perspectives on athletics, spectacle, performance, national identity, community, race, gender, sexuality, and more. CA 1.

**2141. Script Analysis**

Three credits. Three class hours per week. Prerequisite: Open only with consent of instructor.

Introducing the basic script-analysis skills necessary for theatre practitioners; exploring texts from a production, rather than a literary, viewpoint. Through reading, discussion, exercises, and group projects students examine the ways that playwrights convey information.

**2701. Acting III**

Three credits. Six studio hours per week. Prerequisite: DRAM 1702; open only with consent of instructor.

The study and practice of techniques for realism and naturalism typically used in performing works by the modern realists.

**2702. Acting IV**

Three credits. Three 2-hour studio periods. Prerequisite: DRAM 2701; open only with consent of instructor.

A continuation of the study and practice of techniques utilized in the performance of modern realists.

**2711. Introduction to Directing**

Three credits. Prerequisite: DRAM 1701; open only with consent of instructor.

Emphasis on theory and play analysis from the director's point of view.

**2800. Exploration of Movement**

(Formerly offered as DRAM 1810.) Three credits. Two 2-hour periods per week.

Use of the human body as a tool for creativity, problem solving, communication, collaboration, and storytelling.

**2810. Stage Movement III**

Three credits. Six studio hours per week. Prerequisite: DRAM 1802; open only with consent of the instructor.

Beginning the process of applying the actor's movement skills to the unique requirements of different theatrical forms and structures. Applied skills may include tumbling, gymnastics, clowning, mask work, ethnic arts, hand-to-hand combat, armed combat and many theatrical forms and styles of dance.

**2812. Stage Movement IV**

Three credits. Six studio hours. Prerequisite: DRAM 2810; open only with consent of instructor.

Developing and applying additional movement skills to different types and styles of dramatic expression.

**2901. Voice and Speech III**

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: DRAM 1902; open only with consent of instructor.

In-depth study of applied voice and speech skills, particularly flexibility of the voice and application of vocal variety to understanding and expressing the structure and meaning of language and text.

**2902. Vocal Performance Techniques**

Three credits. One and one-half lecture hours and three studio hours. Prerequisite: Open only with consent of instructor. Not open for credit to Acting majors.

Basic skills in voice production, vocal variety, articulation, and voice characterization for those in the dramatic arts pursuing careers other than stage acting.

**3103. Stage Management for the Theatre**

Three credits. Prerequisite: Open only with consent of instructor.

Studies of the vocation and profession of stage management as defined by modern theatre practice. Also examines inter-relationships between the stage manager and the other members of the theatrical production staff.

**3121. Advertising, Publicity, and Promotion in the Dramatic Arts**

Three credits. Prerequisite: Open only with consent of instructor.

An introduction to the basic techniques of advertising copy, news releases, and feature stories.

**3130. Women in Theatre**

Three credits.

A study of theatre examining the changing depiction of women in drama and the increasing participation of women in all areas of theatrical activity. Women's advancement in western and oriental theatre will be surveyed as a background for focusing on plays written in the 20th century. CA 4.

**3131. African-American Theatre**

(Also offered as AFRA 3131.) Three credits.

The significant developments in African American theatre and its antecedents and an examination of selected play scripts that exemplify those developments. CA 4.

**3131W. African-American Theatre**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 4.

**3132. African American Women Playwrights, 1900 to Present**

(Also offered as AFRA 3132.) Three credits. Two 75-minute periods. Recommended preparation: AFRA/DRAM 3131.

African American women's playwriting in relationship to social, historical, and political contexts. CA 1. CA 4.

**3133. Latina/o Theatre**

Three credits. Two 75-minute periods.

A study of Latina/o theatre and performance in the U.S. CA 4.

**3137. Documentary Theatre**

Three credits. Two 75-minute periods.

Provides a critical overview of the history and techniques of documentary theatre. Students will read and analyze documentary plays as well as compose their own works of documentary drama.

**3138. Trends in Contemporary Theatre**

Three credits. Prerequisite: Open to Dramatic Arts Majors only.

A study of the major trends in drama and theatrical production of the western world today.

**3139. Theatre and Human Rights**

(Also offered as HRTS 3139.) Three credits each semester. Two class periods.

Provides a critical study of theatre production as political discourse in global areas of conflict and how that discourse defines, or is defined by, human rights issues.

**3141. Playwriting**

Three credits. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit with a change in course content to a maximum of 9 credits.

The analysis of the basic techniques in playwriting, and the reading and criticism of the students' works in progress. Scripts of outstanding merit may be produced in the Studio or Mobius Theatres.

**3142. Dramaturgy I**

Three credits. Three class hours per week. Recommended preparation: DRAM 2130, 2131 and 2141. Prerequisite: Instructor consent required.

Offers students a broad overview of the historical, critical and theoretical background of dramaturgy and introduces them to dramatic criticism, literary office dramaturgy, and the fundamentals of production dramaturgy.

**3145. Film Writing**

(Also offered as ENGL 3707.) Three credits. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Theoretical and practical work in the content and form of the fiction scenario.

**3182. Practicum in Dramatic Arts**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practical work in all areas of dramatic arts.

**3199. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.

A reading or project course under the direction of an appropriate staff member.

**3201. Scene Construction**

Three credits. Prerequisite: Open to juniors or higher; open to Dramatic Arts Majors only. Recommended preparation: DRAM 1206 and 1208.

Basic techniques of constructing two dimensional and three dimensional scenery.

**3202. Rigging**

Three credits. Prerequisite: Open to juniors or higher; open to Dramatic Arts Majors only. Recommended preparation: DRAM 1206 and 1208.

Rigging systems and the basic techniques for flying scenery, with an emphasis on rigging safety.

**3220. Sound for the Theatre**

Three credits. Prerequisite: Open to juniors or higher; open to Dramatic Arts Majors only.

Art of sound design for the theatre. Organizing and creating sound for production.

**3301-3302. Scene Design**

Three credits each semester. Two class periods and one 2-hour laboratory period. Prerequisite: Open to juniors or higher; open to Dramatic Arts Majors only.

**3401. Costume History**

Three credits. Two class periods and one 2-hour studio period. Prerequisite: Open to juniors or higher; open to Dramatic Arts Majors only.

A slide survey class covering the origins and development of dress to the present day. Specifically African, Middle Eastern, and Euro-Centric dress, along with the societies and manners which created fashion.

**3402. Costume Design**

Three credits. Two class periods and one 2-hour studio period. Prerequisite: Open to juniors or higher; open to Dramatic Arts Majors only. Recommended preparation: DRAM 1206.

An introductory class centering on the designer's approach to the text, the creation of the designed look for the characters in the play, and the process of how to realize the costumes.

**3501-3502. Lighting for the Theatre**

Three credits each semester. Two class periods and one 2-hour laboratory period. Prerequisite: DRAM 1206 and 1208; open to dramatic arts majors only.

**3601. Puppetry**

Three credits. Prerequisite: Open only with consent of instructor. May be repeated for credit with change in course content to a maximum of 12 credits.

Rod puppetry or shadow theatre. Topics to alternate on a two-year rotation.

**3602. Advanced Puppetry Techniques I**

Three credits. Two 3-hour laboratory periods. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit with change in course content to a maximum of six credits.

Laboratory practice in advanced production techniques or paper sculpture for the puppet theatre.

**3603. Puppetry**

Three credits. Prerequisite: Open only with consent of instructor. May be repeated for credit with change in course content to a maximum of 12 credits.

Hand puppetry or mask theatre. Topics to alternate on a two-year rotation.

**3604. Advanced Puppetry Techniques II**

Three credits. Two 3-hour laboratory periods. Prerequisite: Open to juniors or higher; open

only with consent of instructor. May be repeated for credit with change in course content to a maximum of six credits.

Advanced puppetry production techniques for television or laboratory practice in materials techniques.

**3610. Movement-Based Performance for the Puppet Theatre I**

Three credits. Six studio hours per week. Prerequisite: Open only with instructor consent.

This course is designed to awaken and develop imaginative and skilled theatrical performers through devising work and exploration of movement-based theatre techniques.

**3611. Trends in the Contemporary Puppet Theatre**

Three credits. Prerequisite: Open to juniors or higher; open only with consent of instructor. Additional project required for graduate credit.

A study of the major trends in drama, design styles and production of the puppet theatre in the western world today.

**3721. Performance Techniques**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit with a change in course content.

Performance study and practice in selected areas of dramatic arts.

**3995. Special Topics in Dramatic Arts**

Three credits. Three class hours per week. Prerequisite: Open to Dramatic Arts majors and minors, others with instructor consent. Course content may vary each semester based on instructor expertise. May be repeated for a maximum of 9 credits with a change in topic.

**3998. Variable Topics in Dramatic Arts**

Three credits. Three class hours per week. Prerequisite: Open to Dramatic Arts majors and minors; others with instructor consent. May be repeated for a maximum of 9 credits with a change in topic.

**4122. Theatre Administration and Organization**

Three credits. Prerequisite: Open to juniors or higher; open only with consent of instructor.

A survey of the organizational structure of the theatre in the United States, including community, university and regional theatres, and "on," "off," and "off-off" Broadway. Personnel, budgeting, unions and audience development will be covered.

**4135. Period Studies in Theatre**

Three credits. Prerequisite: Open to juniors or higher. May be repeated for credit with a change in course content.

An in-depth examination of a major period or periods of theatre history and dramatic literature. Topics will vary.

**4135W. Period Studies in Theatre**

Three credits. Prerequisite: DRAM 2130, 2131; ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with a change in course content.

**4151. The American Film**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: DRAM 1110; open to juniors or higher. May be repeated

for credit with a change in course content to a maximum of 6 credits.

A critical analysis of the American fiction film. A fee of \$20 is charged for this course.

#### 4152. World Film

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: DRAM 1110; open to juniors or higher. May be repeated for credit with a change in course content to a maximum of 6 credits.

A critical analysis of representative world films. A fee of \$20 is charged for this course.

#### 4193. Foreign Study

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of Department head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit

Coursework undertaken within approved Education Abroad programs, with a focus on the theatre history, dramatic literature and production in a particular country or region.

#### 4194. Seminar

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.

Studies in selected areas of dramatic arts. Topics to be alternated.

#### 4701. Acting V

Three credits. Six studio hours per week. Prerequisite: DRAM 2702; open only to Dramatic Arts/Acting majors.

The study and practice of techniques associated with acting classical/poetic theatrical works, including, but not limited to Greek and Elizabethan comedies and dramas.

#### 4702. Acting VI

Three credits. Six studio hours per week. Prerequisite: DRAM 4701; open only to Dramatic Arts/Acting majors.

Additional study and practice of acting techniques required for classical and/or poetic theatre.

#### 4703. Acting VII

Three credits. Six studio hours per week. Prerequisite: DRAM 4702; open only to Dramatic Arts/Acting majors.

The study and practice of acting techniques used in a range of styles including, but not limited to, comic, absurdist and epic theatre.

#### 4704. Acting VIII

Three credits. Six studio hours per week. Prerequisite: DRAM 4703; open only to Dramatic Arts/Acting majors.

Continued work in acting techniques required for realistic, classical, comic, absurdist and/or epic theatre.

#### 4705. Acting for the Camera

Credits and hours by arrangement. Prerequisite: DRAM 4702; open only to Dramatic Arts/Acting majors.

Study and practice in the principles and techniques required for acting in television and/or film productions.

#### 4711W. The Director in the Theatre

Three credits. Prerequisite: DRAM 2130, 2131; ENGL 1010 or 1011 or 2011; open to juniors or higher.

An analysis of the role and function of the director in the theatre from historical, aesthetic, and practical points of view.

#### 4811. Stage Movement V

Three credits. Six studio hours per week. Prerequisite: DRAM 2812; open only to Dramatic Arts/Acting majors.

Special applications of applied movement and/or dance skills.

#### 4812. Stage Movement VI

Three credits. Six studio hours per week. Prerequisite: DRAM 4811; open only to Dramatic Arts/Acting majors.

Advanced application of special movement skills to additional forms of dramatic expression.

#### 4911. Voice and Speech IV

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: DRAM 2901; open only to Dramatic Arts/Acting majors.

Study and practice to continue development of breathing, phonation and resonance skills, with added attention being paid to the analysis, expression and pronunciation of elevated and/or poetic drama.

#### 4912. Voice and Speech V

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: DRAM 4911; open only to Dramatic Arts/Acting majors.

Continued exploration of voice production and elevated diction skills required for comic, absurdist and/or epic theatre productions.

#### 4913. Voice and Speech VI

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: DRAM 4912; open only to Dramatic Arts/Acting majors.

Exploration and application of advanced voice and diction skills, including but not limited to accents and dialects, to various dramatic forms.

#### 4931. Stage Dialects

Three credits. One and one-half lecture hours and three studio hours per week. Prerequisite: DRAM 4911; open only to Dramatic Arts/Acting majors.

The study and practice of those dialects and accents most frequently required by American actors. Contents include, but are not limited to, Standard British, and a range of New York City and American Southern patterns.

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### Ecology and Evolutionary Biology (EEB)

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*Head of Department:* Professor Carl Schlichting

*Department Office:* Room 314, Torrey Life Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### 1893. Foreign Study

Credits and hours by arrangement, up to a maximum of 6 credits. Prerequisite: Consent

of Department Head, program coordinator, or advisor may be required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

#### 2202. Evolution and Human Diversity

Three credits.

The biological bases of human diversity from genetic and evolutionary perspectives. Topics include the genetic basis for human variation and race; adaptations of human populations; the role of genes and environments in producing human variability; cultural evolution; origin and spread of "modern" humans. CA 3. CA 4-INT.

#### 2208. Introduction to Conservation Biology

Three credits.

Patterns of biodiversity and extinction; causes of extinction and population declines; ecological restoration; conservation planning; protection of ecosystem services; implementing conservation actions; conservation economics; conservation law; effects of global change.

#### 2214. Biology of the Vertebrates

Three credits. Two 1-hour lecture periods, with demonstrations. Prerequisite: Three credits of introductory Biology.

Evolutionary history and diversity of vertebrates with emphasis on classification, fossil history, feeding, locomotion, physiological ecology, reproduction, defense, and social behavior.

#### 2244. General Ecology

Four credits. Three lectures and one 2-hour discussion section. Prerequisite: Six credits of college biology.

Fundamental ecological dynamics of communities, populations and ecosystems, with emphasis in discussion sections on reading primary literature, problem-solving, and exposure to ecological research techniques.

#### 2244W. General Ecology

Four credits. Prerequisite: Six credits of college biology; ENGL 1010 or 1011 or 2011.

Content as in EEB 2244; requires major writing assignment.

#### 2245. Evolutionary Biology

Three credits. Prerequisite: Six credits of college biology.

Introduction to evolutionary mechanisms, biogeography, and the history of major groups of plants and animals.

#### 2245W. Evolutionary Biology

Four credits. Four class periods. Prerequisite: Six credits of college biology; ENGL 1010 or 1011 or 2011.

Content as in EEB 2245; requires major writing assignment.

#### 2893. Foreign Study

Credits and hours by arrangement, up to a maximum of 6 credits. Prerequisite: Consent of Department Head, program coordinator, or advisor may be required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3201. Animal Behavior**

(Also offered as PSYC 3201.) Three credits. Prerequisite: BIOL 1102 or 1107, and PSYC 1100.

Principles of animal behavior derived from a review of descriptive and analytic studies in laboratory and field. Sometimes offered in multimedia format.

**3203. Developmental Plant Morphology**

(Also offered as EEB 5203.) Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 1108 or instructor consent; open to juniors or higher

Analysis of diversity in plant form; principles of plant construction and development.

**3204. Aquatic Plant Biology**

(Also offered as EEB 5204.) Four credits. Two lectures and two 3-hour field trip/laboratory periods. Prerequisite: BIOL 1108 or 1110 or instructor consent.

Field and laboratory-oriented study of the anatomy, morphology, ecology, physiology, systematics and evolution of vascular aquatic and wetland plants.

**3205. Current Issues in Environmental Science**

Three credits. Prerequisite: Open to honors students; open to non-honors students only with consent of instructor. Recommended preparation: 8 credits of college level science.

Readings and discussions of current issues in environmental science, emphasizing linkages between earth, oceans, atmosphere, and biosphere. Topics include: climate change; watershed changes; alternative energy; population growth; endangered biodiversity; genetically-engineered organisms; deforestation/restoration; risk assessment; tradeoffs; problem-solving; alternative futures.

**3220. Evolution of Green Plants**

Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 1108 or 1110.

Evolution of morphological and genomic traits marking the conquest of land, the diversification of land plants, and the significance of plants in the evolution of life on earth, global climates and human civilizations. Laboratory session includes study of morphological and anatomical characters of extant and fossil plants, phylogenetic inference from morphological and molecular characters, and discussion of primary literature.

**3220W. Evolution of Green Plants**

Four credits. Three class periods and one discussion period. Prerequisite: BIOL 1108 or 1110; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Content as in EEB 3220. Major writing assignment required.

**3230. Marine Biology**

(Also offered as MARN 3014.) Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of laboratory biology.

The study of the kinds and distributions of marine organisms. Particular attention is paid to biotic features of the oceans, organism-habitat and relationships and general ecological

concepts influencing marine populations and communities. Field trips are required.

**3240. Biology of Bryophytes and Lichens**

(Also offered as EEB 5240.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisites: Six credits of 2000-level or above biology or instructor consent.

Diversity, evolution, ecology, development and taxonomy of the bryophytes (mosses, liverworts and hornworts) and lichen-forming fungi.

**3247. Freshwater Ecology**

Four credits. Three class periods and one 4-hour laboratory. Prerequisite: MATH 1120 or 1131; CHEM 1122 or 1124 or 1127 or 1137 or 1147; BIOL 1108; or instructor consent.

Linkages among physical, chemical, and biological processes in freshwater habitats.

**3250. Biology of the Algae**

(Also offered as EEB 5250.) Four credits. Three lectures and one 4-hour laboratory. Prerequisite: BIOL 1108 or 1110 or instructor consent; open to juniors or higher.

Laboratory and field-oriented study of major groups of algae, emphasizing structure, function, evolution, systematics, and ecology.

**3254. Mammalogy**

(Also offered as EEB 5254.) Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of 2000-level or above biology courses and consent of instructor. EEB 2214 is recommended.

Diversity, behavior, reproduction, ecology, and evolution of mammals. Laboratories cover anatomy, systematics, and distribution of major groups of mammals. Field trips required.

**3256. Plants and Civilization**

Three credits. Prerequisite: Three credits of introductory biology.

Plants and animals used by people; origin, history, biology, distribution, and role in development of civilizations.

**3260. Medical Botany**

Three credits. Prerequisite: BIOL 1108; CHEM 1122 or 1124 or 1127 or instructor consent.

Plants used for medicine: their origin, history, biology, distribution, chemistry, pharmacology, toxicology, and role in the development of civilizations.

**3265. Herpetology**

(Also offered as EEB 5265.) Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of 2000-level or above biology and consent of instructor. EEB 2214 is recommended.

Physiological ecology, reproductive biology, behavior, and community ecology of amphibians and reptiles. Laboratories cover evolution, systematics, and distribution of amphibians and reptiles of the world. Field trips required.

**3266. Field Herpetology**

Three credits. Prerequisite: BIOL 1108, or consent of instructor.

Field-intensive study of diversity, ecology, physiology, behavior, adaptation and identification of the amphibians and reptiles

of the region; herpetofaunal research methods. Field trips required.

**3269. Social Insects**

(Also offered as EEB 5269.) Three credits. Prerequisite: Six credits of introductory biology.

Behavior, ecology, evolution of social insects: ants, wasps, bees, and termites.

**3271. Systematic Botany**

Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 1108 or 1110.

Classification, identification, economic importance, evolution and nomenclature of flowering plants. Laboratory compares vegetative and reproductive characters of major families.

**3273. Comparative Vertebrate Anatomy**

Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 1108.

Anatomy, development, functional morphology, and evolution of living vertebrate animals.

**3891. Internship in Ecology, Conservation, or Evolutionary Biology**

One to nine credits per semester. Hours by arrangement. Prerequisite: Instructor consent. May be repeated for a total of up to 15 credits using either EEB 3891 and/or EEB 5891. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Internship with a non-profit organization, a governmental agency, or a business under the supervision of Ecology and Evolutionary Biology faculty. Activities relevant to the practice of ecology, biodiversity, evolutionary biology, or conservation biology will be planned and agreed upon in advance by the job site supervisor, the faculty coordinator, and the intern. One credit may be earned for each 42 hours of pre-approved activities up to a maximum of nine credits.

**3893. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head, program coordinator or advisor may be required prior to the student's departure. May be repeated for credit up to a maximum of 6 credits.

Special topics taken in a foreign study program.

**3894. Undergraduate Seminar**

Credits and hours by arrangement. May be repeated for credit with a change in topic. Content varies with instructor.

**3895. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3898. Variable Topics**

Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**3899. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and the



department honors committee. May be repeated for credit with a change in topic.

Independent investigation of special problems in ecology and evolutionary biology.

#### 4120. Paleobiology

(Also offered as GSCI 4120.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 1108 or GSCI 1050; or GSCI 1051-1052.

Ancient life, including the preservation of organisms as fossils, evolution, ecology, geobiology, biostratigraphy, and major events in the history of life. Includes microorganisms, animals, and plants.

#### 4200. Biology of Fishes

(Also offered as EEB 5200.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 1108.

An introduction to the biology of fishes, with an emphasis on adaptation and evolutionary diversification. Topics include the evolution of major groups, morphology, physiology, behavior, and population and community ecology. Lectures, critical discussions of current journal articles, student presentations, and exercises in the field and laboratory. Field trips required.

#### 4215. Physiological Ecology of Animals

(Also offered as EEB 5215.) Three credits. Prerequisites: BIOL 1107 and BIOL 1108.

Physiology of animals in an evolutionary context: how individuals cope and how species adapt to natural environments. Lectures, student-led presentations, and critical discussions of current journal articles.

#### 4230W. Methods of Ecology

Four credits. Two class periods and two 3-hour laboratories. Prerequisite: EEB 2244 or instructor consent; ENGL 1010 or 1011 or 2011. Recommended preparation: One course in statistics and one course in calculus.

An intensive introduction to field and laboratory methods in ecology. Emphasis will be placed on the use of quantitative and analytical techniques in physiological, population, community and ecosystem ecology. An introduction to sampling procedures, data collection and statistical analysis. Computers will be used to model population and community dynamics and to analyze ecological data sets. Laboratory periods will consist of field and laboratory problems; field trips required, including occasional weekend trips.

#### 4250. General Entomology

Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 1108.

The biology of insects: anatomy, physiology, ecology, behavior, development, evolution, and diversity.

#### 4252. Field Entomology

Credits and hours by arrangement, to permit offering special sessions of the course to interested students during the spring recess or between fall and spring semester break. Prerequisite: Consent of instructor required.

Collection, identification, and ecology of insects.

#### 4260. Ornithology

Two credits. Two class periods.

Adaptations, habits, and importance of birds.

#### 4261. Ornithology Laboratory

Two credits. One 4-hour laboratory period; required field trips. Prerequisite: Consent of the instructor; open only to students who are currently taking, or have completed, EEB 4260.

Methods of field study and identification of birds; functional morphology, preparation of study skins and specimens. Field trips, including at least one required day-long weekend trip.

#### 4262. Field Methods in Ornithology

Three credits. Prerequisites: Six credits of college biology, including BIOL 1108, or consent of instructor.

Design of bird population surveys, census methods, behavioral studies of wild birds, data collection and reporting, bird identification skills. Field trips required.

#### 4272. The Summer Flora

Three credits. Prerequisite: Three credits of college botany.

Identification of Connecticut's native and exotic plants; lecture, laboratory and field study.

#### 4274. Introduction to Animal Parasitology

Four credits. Two class periods, and two 2-hour laboratory periods. Prerequisite: BIOL 1108.

Protozoan and metazoan parasites of humans and other animals.

#### 4275. Invertebrate Zoology

Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of introductory biology.

Body organization, functional morphology and evolution compared among major invertebrate phyla. Field trips required.

#### 4276. Plant Anatomy

Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 1108 or 1110 or instructor consent.

Internal structure of seed plants: development and environmental responses.

#### 4276W. Plant Anatomy

Four credits. Prerequisite: BIOL 1108 or 1110 or instructor consent; ENGL 1010 or 1011 or 2011.

#### 4896W. Senior Research Thesis in Ecology and Evolutionary Biology

Three credits. Hours by arrangement. Prerequisite: Three credits of EEB 3899, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor and department honors committee. Not limited to honors students.

A "W" course for students writing a senior thesis on their independent research.

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## Economics (ECON)

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*Head of Department:* Professor Stephen Ross

*Department Office:* Room 309, Oak Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### 1000. Essentials of Economics

Three credits. Not open for credit to students who are currently enrolled in or who have passed ECON 1107, 1179, 1200, 1201, or 1202.

A one-semester general introduction to micro- and macroeconomics. Economic concepts include: opportunity costs, demand and supply, incentives, comparative advantage, inflation and employment policies, balance of international payments, and economic growth. CA 2.

#### 1107. Honors Core: Economics, Nature, and the Environment

Three credits.

Impact of nature on societies; effects of geography and climate on economic development and income inequality. Impact of humans on their environment; environmental problems; collapse of societies; sustainable development. CA 2.

#### 1108. Game Theory in the Natural and Social Sciences

Three credits. Not open for credit to students who have passed ECON 2201 or 2202.

Introduction to game theory. Applications in the natural and social sciences and technology may include electric power auctions, evolutionary biology, and elections. CA 2.

#### 1179. Economic Growth and the Environment

Three credits. Not open for credit to students who are currently enrolled in or who have passed ECON 1000, 1107, 1200, 1201, or 1202.

Simple economic concepts and tools and their application to the interactions between growing economies and the environment. Concepts include: supply and demand; models of economic growth; theory of externalities; valuation of natural capital and environmental services; trade theory. CA 2.

#### 1200. Principles of Economics (Intensive)

(Formerly offered as ECON 113.) Four credits. Four class periods. Recommended preparation: ECON 1000. Not open for credit to students who are currently enrolled in or have passed ECON 1201 or 1202.

Same core principles as ECON 1201 and 1202. One half macroeconomics and one half microeconomics. More demanding than ECON 1201 and 1202. Substitutes for ECON 1201 or 1202 as a prerequisite for all junior-senior level courses. May or may not substitute for ECON 1201 and 1202 outside economics; check Catalog. CA 2.

#### 1201. Principles of Microeconomics

Three credits. May be taken before or after ECON 1202. Not open for credit to students who are currently enrolled in or have passed ECON 1200.

How the invisible hand of the market functions through the economic decisions of firms and individuals. How prices, wages and profits are determined, resources are allocated and income is distributed. Topical subjects (e.g., energy policy and health care). CA 2.

#### 1202. Principles of Macroeconomics

Three credits. May be taken before or after ECON 1201. Not open for credit to students who are currently enrolled in or have passed ECON 1200.

The organization and function of the economic system as a total unit. Economic decisions, institutions, and policies that determine levels and rates of growth of

production, employment, and prices. Topical subjects (e.g., government budget deficits and current interest-rate policy). CA 2.

#### 1493. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

#### 2101. Economic History of Europe

Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202 (1201 may be taken concurrently).

Economic evolution of Europe from feudal times to the present, emphasizing the modern period: the rise of commerce, industry, and banking; the growth of population and the labor force; the changing position of agriculture; business fluctuations; and forms of economic organization. CA 1.

#### 2101W. Economic History of Europe

Prerequisite: ECON 1200 or both ECON 1201 and 1202 (1201 may be taken concurrently); ENGL 1010 or 1011 or 2011. CA 1.

#### 2102. Economic History of the United States

Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202; ECON 1201 may be taken concurrently.

Issues in American economic development, including the political economy of the Constitution, the economics of slavery, the rise of modern corporations and the causes of the Great Depression. CA 1.

#### 2102W. Economic History of the United States

Prerequisite: ECON 1200 or both ECON 1201 and 1202 (1201 may be taken concurrently); ENGL 1010 or 1011 or 2011. CA 1.

#### 2104. Economic History of the Middle East

Three credits. Prerequisites: ECON 1200 or both ECON 1201 and 1202 (1201 may be taken concurrently).

Economic history of the Middle East, including the organization of rural and urban activity, relationship with Western Europe, and the roles of international trade, foreign capital, petroleum, and institutional structure in economic development. CA 4-INT.

#### 2104W. Economic History of the Middle East

Prerequisites: ECON 1200 or both ECON 1201 and 1202 (1201 may be taken concurrently); ENGL 1010 or 1011 or 2011. CA 4-INT.

#### 2110. History of Economic Thought

Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202.

The evolution of economic ideas significant to their own times and to the state of current theory. Mainly nineteenth and twentieth century thinkers.

#### 2110W. History of Economic Thought

Prerequisite: ECON 1200 or both ECON 1201 and 1202; ENGL 1010 or 1011 or 2011.

#### 2126. Philosophy and Economics

Three credits. Prerequisite: ECON 1200 or ECON 1201.

An examination of the normative assumptions and implications of modern economics (for example, the connections between Classical Utilitarianism and Welfare Economics). Attention to methodological controversies in contemporary economic theory.

#### 2127. Beyond Self-Interest

Three credits. Prerequisite: ECON 1200 or 1201.

A contrast to the assumptions, values, methodology, and philosophical underpinnings of mainstream economic analysis. Altruism, role of social norms and culture, importance of work, moral assessment of economic systems, feminist and ecological economics.

#### 2127W. Beyond Self-Interest

Prerequisite: ECON 1200 or 1201; ENGL 1010 or 1011 or 2011.

#### 2198. Topics in Economic History and Thought

Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202 or instructor consent. May be repeated for credit, with change in topic.

Special topics in economic history, the history of economic thought, the philosophy and methodology of economics, or alternative economic theories.

#### 2198W. Topics in Economic History and Thought

Prerequisite: ECON 1200 or both ECON 1201 and 1202 or instructor consent; ENGL 1010 or 1011 or 2011.

#### 2201. Intermediate Microeconomic Theory

Three credits. Prerequisite: ECON 1200 or 1201; MATH 1071Q or 1110Q or 1125Q or 1131Q or 1151Q, or 2141Q. Recommended preparation: ECON 1202.

Intermediate microeconomic theory, covering demand and supply, exchange and production, pricing, and welfare economics.

#### 2202. Intermediate Macroeconomic Theory

Three credits. Prerequisite: ECON 1200 or 1202. Recommended preparation: ECON 1201 and one of MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Intermediate macroeconomic theory, covering national income accounting; the determination of aggregate output, employment and price levels; elements of business cycles and economic growth.

#### 2301. Mathematical Economics

Three credits. Prerequisite: ECON 1200 or both 1201 and 1202; MATH 1071Q or 1110Q or 1131Q.

Application of mathematical techniques to economic problems. Methods studied: set theory, linear algebra, equilibrium analysis, unconstrained and constrained optimization, comparative statics, and linear programming.

#### 2311. Empirical Methods in Economics I

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ECON 1200 or both ECON 1201 and 1202; and MATH 1071Q or 1110Q or 1131Q; and STAT 1000Q or 1100Q. A course recommended for all students majoring in economics.

Introduction to the empirical testing of economic theories. Student projects testing simple economic models.

#### 2312. Empirical Methods in Economics II

Three credits. Prerequisite: ECON 2311.

Analysis of economic time series, estimation of single- and simultaneous-equation economic models, and statistical decision theory.

#### 2312W. Empirical Methods in Economics II

Three credits. Prerequisite: ECON 2311; ENGL 1010 or 1011 or 2011.

#### 2326. Operations Research

Three credits. Two 75-minute classes per week. Seven of the classes will be held at the computer lab. Recommended preparation: ECON 1200 or both ECON 1201 and 1202.

Extensive use of computer spreadsheets to find efficient solutions to problems faced by managers in both the public and private sectors. Optimization of input and output mixes, of delivery routes, and communication networks.

#### 2327. Information Technology for Economics

Three credits. Prerequisites: ECON 1200 or both ECON 1201 and 1202; and STAT 1000Q or 1100Q.

The presentation of economic data and testing of economic theory through the use of appropriate computer based tools. Analysis of macroeconomic concepts such as the consumption function, influence of the money supply, budget deficits, and interest rates on macroeconomic equilibrium, and the tradeoff between unemployment and inflation. Analysis of microeconomic concepts such as demand, supply, elasticity, the achievement of equilibrium price and quantity, and analysis of several industries and the stock market. Analysis of historical data such as aggregate and specific price levels, sectoral shifts in the economy, and changes in income distribution.

#### 2328. Applied Regional Analysis: The Connecticut Economy

Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202; STAT 1000Q or 1100Q. Recommended preparation: MATH 1070Q.

Methods of regional economic analysis applied to Connecticut. Descriptive statistics, input-output models, economic indexes, linear regression, forecasting and related tools are used to explore labor markets, housing, public policy and other topics.

#### 2328W. Applied Regional Analysis: The Connecticut Economy

Prerequisite: ECON 1200 or both ECON 1201 and 1202; STAT 1000Q or 1100Q; ENGL 1010 or 1011 or 2011. Recommended preparation: MATH 1070Q.

#### 2411. Money and Banking

Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202 (1201 may be taken concurrently).

The nature of money, the origins of monetary standards and systems, the development and operation of commercial banking, the Federal Reserve System, and international monetary agencies.

#### 2431. Economics of Taxation and Government Spending

Three credits. Prerequisite: ECON 1200 or 1201. Recommended preparation for students who have completed ECON 1201: ECON 1202.

Critical issues in taxation and government expenditures. Emphasis on institutions and public policy. Topics include: rationale for and effects of progressive taxation, reform of the tax system, Social Security and Medicare, welfare reform, defense, and fiscal federalism.

#### **2439. Urban Development and Policy**

Three credits. Prerequisite: ECON 1200 or 1201.

Education, housing, anti-poverty, economic development, and transportation policies for American cities and metropolitan areas. Emphasis on different roles of policies that act upon people versus places. Analysis tools for regional economic development such as input-output matrices and cost-benefit analysis.

#### **2440. Economics of the Global Economy**

Three credits. Prerequisites: ECON 1200 or both ECON 1201 and 1202.

Analysis of economic integration in the global economy with emphasis on the position of the USA. Several specialist areas of economic thought brought to bear - economic history, economics of the multinational enterprise, international trade, international finance, labor economics, environmental economics, and economics of the internet. Institutional historical, and political economy approaches are emphasized.

#### **2441. Labor Economics**

(Formerly offered as ECON 274.) Three credits. Prerequisite: ECON 1201 or 1200. Recommended preparation: ECON 2201.

Economics of labor: human capital theory, discrimination, unemployment, manpower policy, and trade unions.

#### **2441W. Labor Economics**

(Formerly offered as ECON 274W.) Prerequisite: ECON 1201 or 1200; ENGL 1010 or 1011 or 2011. Recommended preparation: ECON 2201.

#### **2444. Women and Minorities in the Labor Market**

(Formerly offered as ECON 279.) Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202.

Issues and problems confronting women and minorities in the workplace, using economic theory, institutional analysis, and empirical investigation. Historical background, allocation of time, discrimination, earnings determination, occupational structure, labor unions, and public policy.

#### **2447. Economics of Sports**

Three credits. Prerequisite: ECON 1200 or 1201.

Microeconomic principles applied to the business of sports. Player salaries; anti-trust issues and collective bargaining; discrimination; economics of franchising; ticket pricing, revenue sharing, and competitive balance; impact of franchises on local economies.

#### **2456. Economics of Poverty**

(Formerly offered as ECON 257.) Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202.

Analysis of poverty and income maintenance programs: theories of income distribution and comparison of public policies in the U.S. and other countries.

#### **2462. Government and Industry**

(Formerly offered as ECON 264.) Three credits. Prerequisite: ECON 1201 or 1200.

Relations between government and business. Public policies enforcing, supplementing, or replacing competition in particular markets, studies of selected industries and legal cases.

#### **2467. Economics of the Oceans**

(Also offered as MAST 2467.) Three credits. Prerequisite: ECON 1200 or 1201.

Economies of industries that use and manage ocean resources. Applications of industrial organization, law and economics, natural resource theory, and environmental economics.

#### **2474. Economic Development in Latin America and the Caribbean**

(Also offered as LLAS 2474.) Three credits. Prerequisites: ECON 1200 or both ECON 1201 and 1202.

Survey of the economic history of Latin America and the Caribbean. Analysis of present-day development issues in the region, including economic growth, poverty, education, and health.

#### **2477. Transitional Economies of Russia and Eastern Europe**

(Formerly offered as ECON 244.) Three credits. Prerequisite: ECON 1200 or both ECON 1201 and 1202.

Economic transition of these formerly socialist economies into capitalist, market economies. Comparison of centrally planned and market economies. Problems of macroeconomic imbalance, economic distortions, shortages and repressed inflation. Means and timing of price liberalization, privatization, restructuring, currency convertibility, and building legal and financial institutions.

#### **2481. Internship – Field Study**

(Formerly offered as ECON 3481.) Variable credit to a maximum of 6 credits. May be repeated for credit to a maximum of 15 credits. Hours by arrangement. Prerequisite: Instructor consent required; students must have: nine credits of 2000-level or above economics courses (six of which may be concurrent); students must be at least 6th-semester and have a minimum GPA of 2.25 or a minimum of 2.5 in economics courses at the 2000-level or above; students must secure a satisfactory intern position before the end of the second week of the semester of enrollment in this course; they should begin consultation with the instructor several months in advance. Does not count toward the economics major. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised field work, relevant to some area of economics, with a business firm, government agency or non-profit organization. Evaluation by the field supervisor and by the instructor (based on a detailed written report submitted by the student).

#### **2491. Internship – Research Paper**

(Formerly offered as ECON 3491.) One credit. Hours by arrangement. Prerequisite: Instructor consent required; students must have: nine credits of 2000-level or above economics courses (six of which may be concurrent); students must be at least 6th-semester; have a

minimum GPA of 2.25 or a minimum of 2.5 in economics courses at the 2000-level or above.

Research paper of 3,000-4,000 words on approved topic related to the internship field study.

#### **2491W. Internship – Research Paper**

(Formerly offered as ECON 3491W.) One credit. Prerequisite: ENGL 1010 or 1011 or 2011.

#### **2493. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

#### **2495. Special Topics**

Credits and hours by arrangement. With a change in topic, this course may be repeated for credit. Prerequisites and recommended preparation vary.

#### **2498. Variable Topics**

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

#### **2499. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change of topic, may be repeated for credit. No more than 6 credits in ECON 2499/3499 may be counted toward major requirements.

Tutorial course to enable qualified students to round out their training in economics. Independent reading conferences and short research papers.

#### **2500W. Writing in Economics**

One credit. Prerequisite: ECON 1200 or both ECON 1201 and 1202; ENGL 1010 or 1011 or 2011.

Techniques for, and practice in, research, writing, citation, and data presentation in economics.

#### **3128. Economic and Social Human Rights**

Three credits. Prerequisite: ECON 2201 or 2202.

Conceptual bases, types, measurement, and policy applications of economic and social human rights.

#### **3208. Game Theory**

Three credits. Prerequisite: ECON 2201; open to juniors or higher.

Analysis of economic situations as games. Nash equilibrium, backward induction, auctions, commitment, credibility, and asymmetric information.

#### **3313. Elementary Economic Forecasting**

Three credits. Prerequisites: ECON 2202 and STAT 1000Q or STAT 1100Q; open to juniors or higher. Recommended preparation: ECON 2311.

Economic forecasting for macroeconomics and financial economics. Econometric analysis of time-series data.

#### **3416. Special Problems in Money and Banking**

Three credits. Prerequisites: ECON 2202 and 2411.

Emphasis on public policy: commercial bank regulations; the relation of liquidity to economic fluctuations; government lending agencies; and central bank policies and credit control.

#### **3421. International Trade**

Three credits. Prerequisite: ECON 2201. Recommended preparation: ECON 1200 or 1202 and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Economic basis of international trade, trade policies, and international economic organizations.

#### **3421W. International Trade**

Prerequisite: ECON 2201; ENGL 1010 or 1011 or 2011. Recommended preparation: ECON 1200 or 1202 and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

#### **3422. International Finance**

Three credits. Prerequisite: ECON 2202. Recommended preparation: ECON 1200 or 1201.

Payments and financing of international trade: foreign exchange markets, the balance of payments, capital flows, and international monetary arrangements.

#### **3431. Public Finance**

Three credits. Prerequisite: ECON 2201. Recommended preparation: ECON 1200 or 1202 and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Government expenditures and tax policies: theories of public choice, size and mix of government budgets, alternative tax systems, and tax reform.

#### **3431W. Public Finance**

Prerequisite: ECON 2201; ENGL 1010 or 1011 or 2011. Recommended preparation: ECON 1200 or 1202 and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

#### **3438. Contemporary Problems in Economics**

Three credits. Prerequisite: ECON 2201 and 2202 (one of which may be taken concurrently). Recommended preparation: One of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Current issues of government economic policy, primarily microeconomic: energy, income maintenance, labor markets for minorities and women, government regulation, health care, and others.

#### **3438W. Contemporary Problems in Economics**

Three credits. Prerequisite: ECON 2201 and 2202 (one of which may be taken concurrently); ENGL 1010 or 1011 or 2011. Recommended preparation: One of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

#### **3439. Urban and Regional Economics**

(Also offered as URBN 3439.) Three credits. Prerequisite: ECON 2201. Recommended preparation: ECON 1200 or 1202 and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Economic problems of cities and regions: urban markets for land, labor, and housing; location decisions of businesses and households; metropolitan transportation problems; urban/suburban fiscal relations; urban and regional

environmental quality; and the economics of crime.

#### **3439W. Urban and Regional Economics**

Prerequisite: ECON 2201; ENGL 1010 or 1011 or 2011. Recommended preparation: ECON 1200 or 1202 and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

#### **3441. Theory of Labor Markets**

Three credits. Prerequisite: ECON 2201.

Theoretical analysis of labor markets: labor supply and demand; wage differentials; human capital; and the inflation-unemployment tradeoff.

#### **3451. Health Economics**

Three credits. Prerequisite: ECON 2201.

Economic analysis of the health sector: organization and performance of health care delivery systems; economic behavior of patients and providers; markets for health services; health-care finance and insurance; health-care policy; and cost-benefit analysis of health-care programs.

#### **3461. Organization of Industry**

Three credits. Prerequisite: ECON 2201.

The nature of competition and economic organization. Competitive effects of business practices, and their influence on price, production, and technological change.

#### **3466. Environmental Economics**

Three credits. Prerequisite: ECON 2201.

Application of economic reasoning to environmental issues. Topics include air and water pollution and the management of natural resources; market failure and environmental regulation; market-based mechanisms; cost-benefit analysis, environmental valuation, and program evaluation; environmental justice from an economic perspective.

#### **3468. Economics of the Law**

Three credits. Prerequisite: ECON 2201.

The law as an economic institution. Primary focus on the Common Law, property, tort, and contract. Applications to pollution control, land-use, hazardous wastes, product liability, and worker safety. Ethical as well as economic approaches to the law.

#### **3473. Economic Development**

Three credits. Prerequisite: ECON 1200 or 1202; 2201. Recommended preparation: One of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Economics of problems facing developing nations: theories of development, and strategies and policies to promote economic development.

#### **3473W. Economic Development**

Prerequisite: ECON 1200 or 1202; 2201; ENGL 1010 or 1011 or 2011. Recommended preparation: One of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

#### **3479. Economic Growth**

Three credits. Prerequisite: ECON 2202.

Causes and consequences of economic growth examined through theory, data, and economic history. Interactions between economic growth and population growth, technology, education, health and life expectancy, and social institutions. Public policies to promote growth.

#### **3479W. Economic Growth**

Three credits. Prerequisite: ECON 2202; ENGL 1010 or 1011 or 2011.

#### **3493. Foreign Study**

Credits and hours by arrangement. Prerequisite: ECON 2201 and 2202 or equivalent; consent of Department Head required, prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

#### **3495. Special Topics**

Credits and hours by arrangement. Prerequisite: ECON 2201 and 2202. Recommended preparation varies. With a change in topic, this course may be repeated for credit.

#### **3498. Variable Topics**

Three credits. Prerequisite: ECON 2201 and 2202. Recommended preparation varies. With a change in topic, may be repeated for credit.

#### **3499. Independent Study**

Credits and hours by arrangement. Prerequisite: ECON 2201 and 2202; open only with consent of instructor. No more than 6 credits in ECON 2499/3499 may be counted toward major requirements. With a change of topic, may be repeated for credit.

Tutorial course to enable qualified students to round out their training in economics. Independent reading conferences and short research papers.

#### **4206. Mechanism Design**

Three credits. Prerequisite: ECON 2201.

Designing incentives to encourage an intended result. Applications may include public goods provision; two-sided matching, as in labor and marriage markets; and peer evaluation of performance.

#### **4494W. Seminar in Economics**

Three credits. Prerequisite: ECON 2201 and 2202 (one of which may be concurrent); ENGL 1010 or 1011 or 2011. Recommended preparation: One of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Special topics in micro- and macroeconomic theory, applications, and testing. Recommended for capable students who are motivated to develop and extend their knowledge of economics in creative ways. Required for Honors Scholars in Economics and Economics Scholars.

#### **4497W. Senior Thesis in Economics**

Three credits. Hours by arrangement. Prerequisite: ECON 4494W or consent of the Department Honors Advisor; ENGL 1010 or 1011 or 2011; open only with consent of instructor.

The student should define a general subject area for the thesis before choosing a thesis advisor and seeking consent at the time of registration. The student should then submit a written proposal for the senior thesis to the advisor by the end of the semester preceding enrollment for thesis credit.

## Education (EGEN)

### 3092. Peer Facilitation Practicum

Three credits. Prerequisite: EGEN 3200; open to Honors students and other qualified students with consent of instructor. Not open for credit to students who have passed INTD 3995 if taught as topic "Honors Facilitator's Seminar."

Integration of the topics of mentoring, leadership and pedagogy with classroom experiences for students serving as facilitators for the Honors First Year Experience course.

### 3100. Seminar/Clinic: Teaching and Learning

Three credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Integration of the concepts of learning, special needs, and technology with clinical experiences.

### 3110. Seminar/Clinic: The Student in the School Context

Three credits. Prerequisite: EGEN 3100; open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Integration of concepts of social and community issues, and exceptionalism with clinical experiences.

### 3110W. Seminar/Clinic: The Student in the School Context

Prerequisite: EGEN 3100; ENGL 1010 or 1011 or 2011.

### 3200. Peer Mentoring and Leadership

Three credits. Prerequisite: Open to Honors students and other qualified students with consent of instructor.

Review of literature on college student development, gifted student development, leadership, mentoring, and pedagogy with the goal of preparing students to become Honors First Year Experience Seminar Facilitators.

### 4100. Seminar/Clinic: Methods of Teaching

Three credits. Prerequisite: EGEN 3110; open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Integration of concepts of learning assessment and exceptionalism with area specific methods.

### 4110. Seminar/Clinic: Analysis of Teaching

Three credits. Prerequisite: EGEN 4100; open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Analysis of instructional concepts and implementation in the clinical setting. Relationship of instruction to theory and implications for instructional evaluation are stressed.

### 4194. Honors Seminar

Three credits. Prerequisite: Students must be accepted by the School of Education Honors Committee as candidates for Honors Scholars or University Scholars. Can be repeated for credit.

### 4197. Independent Study: Honors Thesis Preparation

Three credits. Prerequisite: Students must be accepted by the School of Education Honors Committee as candidates for Honors Scholars or University Scholars. Can be repeated for credit.

## Education Curriculum and Instruction (EDCI)

*Head of Department:* Professor Mary Anne Doyle

*Department Office:* Room 406, Gentry Building

For major requirements, see the Neag School of Education section of this Catalog.

### 2100. Power, Privilege and Public Education

Three credits. Recommended for students considering applying to the Neag School of Education their sophomore year.

Service learning course. Interdisciplinary analysis of the development and structure of schooling, teaching, and learning in American society; impact of public education on its many and diverse stakeholders. Includes topics such as: equity and excellence, historical, socio-cultural, philosophical, political, and legal frameworks of education, and current educational reform efforts. CA 2. CA 4.

### 3000. Introduction to Teaching

One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Introduction to the University of Connecticut's Integrated Bachelor's/Master's Teacher Preparation Program. Includes the philosophical and theoretical foundations of the program, its structure and components, the nature and purposes of schooling, the relationship of the school and society, and recent educational reform movements, including the work of the Holmes Group and John Goodlad's National Network for Educational Renewal, and the nature and purposes of "reflective practice" for the educational professional.

### 3010. Elementary Curriculum Standards and Integration

One credit.

The role of national curriculum standards and analysis of curriculum resources and the implementation of curriculum in the elementary setting. Focus on media arts-related standards found across language arts, mathematics, science, and social studies curriculum standards.

### 3020. Choral Music Methods

Two credits. Prerequisite: Open only to music education students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Neelly*

Pedagogical techniques in choral settings, evaluation of vocal and choral literature and texts, and guidelines for choral performance at elementary and secondary levels.

### 3100. Multicultural Education, Equity and Social Justice

Three credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation program.

Introduction to multicultural education. Includes the nature and purposes of schooling, the relationship between diversity, schooling and society, and the concepts and practices of multicultural education and equity pedagogy.

### 3100W. Multicultural Education, Equity and Social Justice

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only to juniors in the Integrated Bachelor's/Master's Teacher Preparation program.

### 3305. Methods in Elementary School Music

Three credits. Prerequisite: Satisfactory progress in applied music, and consent of instructor.

### 4010. Teaching Reading and Writing in the Content Areas

Two credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Gabriel*

A study of the role of reading and writing in the learning of the content areas taught in secondary schools.

### 4088. Variable Topics

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

### 4099. Independent Study for Undergraduates

Credits and hours by arrangement. Prerequisite: Open only to juniors and seniors with appropriate background for the study of education. Students must present the instructor with a problem well laid out for investigation. May be repeated for credit with a change in content.

Designed primarily for qualified students who wish to extend their knowledge in some specialized area.

### 4110W. Teaching Reading and Writing in the Elementary School

Three credits. Prerequisite: Open only to Elementary Education and Special Education majors; ENGL 1010 or 1011 or 2011. Dostal, Doyle, Kaufman, Leu

An introduction to the teaching of reading and writing in the elementary school. Field experiences may be included.

### 4115. Teaching Mathematics in the Elementary School

Three credits. Prerequisite: Open only to Elementary Education and Special Education majors. Casa, DeFranco, Truxaw

An introduction to current approaches and methods for teaching mathematics in the elementary school. Opportunities will be provided for participants to develop awareness of the Common Core State Standards for Mathematics to inform instruction and enhance student learning.

### 4120. Teaching Science in the Elementary School

Two credits. Prerequisite: Open only to Elementary Education and Special Education majors. *Moss*

A study of curriculum materials, laboratory experiences and teaching techniques in science.

### 4125. Teaching Social Studies in the Elementary School

Two credits. Prerequisite: Open only to Elementary Education and Special Education majors. *Levine*

A study of the organization of learning experiences and teaching methods emphasizing the social sciences as the foundation of the social studies.

**4130. Teaching the Language Arts in the Elementary School**

Three credits. Prerequisite: Open only to Elementary Education and Special Education majors. Dostal, Doyle, Kaufman

A study of current theory and approaches to teaching the language arts effectively by connecting the teaching of speaking, listening, reading, and writing and by integrating this instruction with children's literature and content learning. Field experiences may be included.

**4150. Directed Student Teaching**

Credits and hours by arrangement. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. Application, signed by the advisor, must be made to the Coordinator of Student Teaching for the fall semester prior to March 1; for the spring semester prior to October 1.

Student teaching in selected elementary schools. Provides opportunity for students to observe teaching, to develop teaching skills through practice, and to engage in other school activities for which elementary teachers are responsible.

**4205W. Methods of Foreign Language Instruction, Pre K-12**

Three credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program; ENGL 1010 or 1011 or 2011.

Selection and organization of learning experiences, instructional activities and materials, and methods of teaching foreign language in pre K-12 settings. Course activities include a combination of lecture, seminar and clinical experiences in local schools.

**4210W. Instruction and Curriculum in the Secondary School**

Hours by arrangement. Variable credit not to exceed six. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program; ENGL 1010 or 1011 or 2011.

A study of the selection and organization of learning experiences, instructional materials and teaching methods. Course activities will include a combination of lecture, seminar, and clinical experiences in local schools.

**4215. The Teaching of Reading in Middle and High Schools**

Hours by arrangement. Variable credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Gabriel*

Methods of teaching reading to middle and high school students.

**4250. Directed Student Teaching**

Credits and hours by arrangement. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. Application, signed by the advisor, must be made to the Coordinator of Student Teaching for the fall semester prior to March 1; for the spring semester prior to October 1.

Class meetings providing orientation to student teaching followed by teaching in schools supervised by a member of the staff of the Curriculum and Instruction Department. It is the

policy of the department to extend its practice-teaching opportunity to a point sufficient to indicate adequately a student's teaching ability and aptitude.

**Educational Leadership (EDLR)**

*Head of Department:* Professor Jennifer E. McGary

*Department Office:* Room 231, Gentry Building

For major requirements, see the Neag School of Education section of this Catalog.

**1161. Husky Reads: Introducing Food and Nutrition to Children through Reading**

(Also offered as NUSC 1161.) One credit. This course may be repeated with change of activity and/or skill level; not to exceed 3 credits towards the major for students in Nutritional Sciences.

Supervised field work and experiential learning in nutritional literacy for preschoolers and young children, geared to individual, dual, and team activities. Readings and reflections.

**1162. Health and Education in Urban Communities**

One credit.

Historical and social forces that shape health and education in Connecticut's urban communities. Poverty, culture, and identity; their impacts on children's health, nutrition, schooling, and opportunities for success. Analysis of social policies, norms, and beliefs; their impact on issues of justice. Includes service learning.

**2001. Contemporary Social Issues in Sport**

Three credits.

Socio-cultural, economic, political, and other related issues in sport. Sport as a social institution, the impact of sport in American culture, and the impact of American culture on sport. Sport at the youth, intercollegiate, professional, and international levels; how sport at these levels is experienced differently by individuals, communities, organizations, and society. Issues in sport relative to gender, race (ethnicity), differing physical and intellectual ability, sexual identity, and gender identity.

**3090. Directed Observation and Participation in Sport Organizations**

Variable credits. Prerequisite: Open only to students in Educational Leadership programs or select students in the Individualized Majors program. Prior to registration, students must apply for Directed Observation, complete a learning agreement, and plan to provide their own transportation.

Mentors include educators and sport professionals.

**3091. Internship in Sport Organizations**

Variable credits. Prerequisite: Open only to students in Educational Leadership programs or select students in the Individualized Majors program. In accordance with departmental policy, students must complete at least four Sport Management required courses (including EDLR 3310) and obtain advisor's consent prior to enrolling in the course. May be repeated for credit.

Field service or experiences in cooperating agencies.

**3250. Experiential Learning and Education**

Three credits.

Experiential learning, individual values, personality characteristics. Learning as a life-long process, adult transition research.

**3252. Introduction to Management and Human Resources Education**

Three credits.

Issues and tasks of human resources management (HRM) in educational settings. Theory and practice.

**3262. College Freshmen: Their Characteristics and Their Adjustment to College Life**

Three credits. Prerequisite: Consent of instructor.

Personal and social characteristics of college freshmen; adjustment to college life. Techniques for successful transitions.

**3263. Student Leadership**

Three credits. Prerequisite: Consent of instructor.

Examination of leadership issues and development of skills in leading organizations and peers. Experiential application to student's current co-curricular involvement at UConn.

**3298. Variable Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in content.

**3299. Independent Study for Undergraduates**

Credits and hours by arrangement. Prerequisite: Open only to juniors and seniors with appropriate background for the study of education. Students must present the instructor with a problem for investigation. May be repeated for credit with a change in content.

Designed primarily for qualified students who wish to extend their knowledge in some specialized area.

**3300. Sport in Society**

(Formerly offered as EKIN 3300.) Three credits. Prerequisite: SOCI 1001 or 1001W, or SOCI 1251 or 1251W; open only to Sports Management majors. *Bruening*

Sport as an institution. Sociological issues involving gender, race and intercollegiate, professional, and children's sports.

**3300W. Sport in Society**

(Formerly offered as EKIN 3300W.) Prerequisite: SOCI 1001 or 1001W, or SOCI 1251 or 1251W; ENGL 1010 or 1011 or 2011; open only to Sports Management majors.

**3310. Introduction to Sport Management**

(Formerly offered as EKIN 3310.) Three credits. Prerequisite: Open only to students in Educational Leadership programs. *Burton*

Management practices, legal issues, budgeting, and supervision.

**3315. Issues in Sport**

(Formerly offered as EKIN 3315.) Three credits. Prerequisite: Open only to Sports Management majors.

The study of socio-cultural, economic, political, and other related issues in sport.

**3325. Sport Facility and Event Management**

(Formerly offered as EKIN 3325.) Three credits. Prerequisite: EDLR 3310; open only to second

semester seniors in the Sports Management program.

Examines all aspects of the management of sport facilities and events, including development, planning, staffing, operations, and evaluation. Students will be provided experiences in different aspects of sport event management. In addition, students will examine management principles as applied to a variety of sport and event facilities.

### 3335. Sport Law

(Formerly offered as EKIN 3335.) Three credits. *Fink*

An introductory course in the law as it pertains to sport and recreational experiences. Students are exposed to fundamentals concerning the derivation of legal concepts and their application to sport and related activities.

### 3340. Introduction to Sport Marketing

(Formerly offered as EKIN 3340.) Three credits. Prerequisite: ECON 1201, 1202; open only to students in Educational Leadership programs.

Introduces the basic concepts, principles, and tools for sport marketing.

### 3345. Financial Management in the Sport Industry

(Formerly offered as EKIN 3345.) Three credits. Prerequisite: Open to Sport Management majors only.

Provides an understanding of the financial principles relevant to the sport industry. Examines basic financial concepts and issues related to the sport industry, and will provide an overview of ownership, taxation, financial analysis, feasibility studies, and economic impact studies within the sport industry.

### 3350. Introduction to Sport Communication

(Formerly offered as EKIN 2250 and 3350.) Three credits. Prerequisite: EDLR 3310; open to Sport Management majors only.

Provides an exploration of the role of communication within the domain of sport. Topics will include organizational communication in sport, sport media, and publishing, sport public relations, and the sociocultural importance of sport communication.

### 3547. Introduction to Sport-Based Youth Development

(Formerly offered as EKIN 3547.) Four credits. Prerequisite: Open only by instructor consent; open to Sport Management majors only. Not open for credit for students who have passed EDLR 4300 or EKIN 4300. *Bruening*

Requires reading, written journals, class discussion, and significant time out of class for community involvement in Hartford. Transportation is available.

### 3547W. Introduction to Sport-Based Youth Development

(Formerly offered as EKIN 3547W.) Four credits. Prerequisites: ENGL 1010 or 1011 or 2011; open only by instructor consent; open to Sport Management majors only. Not open for credit for students who have passed EDLR 4300 or EKIN 4300.

### 3550. Sport Management Senior Seminar

Three credits.

Career preparation, the transition from student to professional, and the development and maintenance of networks in the sport industry.

### 3600. Educational Policy and Reform

Three credits.

Survey of educational policy and reform movements from the last century with applications in contemporary policy. Emphasis on critically evaluating existing policies and proposals.

### 4001. Legal Issues for Educators

Three credits.

Introductory course provides an overview of the legal issues pertaining to teachers, psychologists, and counselors. Topics include student and teacher due process, student records, special education, sexual harassment, search and seizure, tenure and social media.

### 4300. Advanced Sport-Based Youth Development

(Formerly offered as EKIN 4300.) Three credits. Prerequisite: EDLR 3547.

Involves all class members in direct-action service and organizing activities in Hartford's North End providing sport-based youth development programming to youth ages 5-18. Transportation is provided and it is suggested that students have at least one four hour block free per week to facilitate travel to Hartford and back.

## Educational Psychology (EPSY)

*Head of Department:* Professor Del Siegle

*Department Office:* Room 119B, Gentry Building

For major requirements, see the Neag School of Education section of this Catalog.

### 2810. Creativity: Debunking Myths and Enhancing Innovation

Three credits.

Introduction to the science of creativity and to strategies for enhancing creativity in self and others. CA 2.

### 3010. Educational Psychology

Three credits. Prerequisite: PSYC 1100. *Beghetto, Brown*

The psychology of learning and teaching, and the study of the nature and development of children and adolescents.

### 3020. Peer Counseling

Three credits. Prerequisite: Consent of instructor.

Focuses on the development of those communication skills which are necessary for effective peer and paraprofessional counseling. Several theories of interpersonal communication, experiential learning and self-psychology will also be covered.

### 3090. Field Study in Education

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor.

Active study through visitation and participation in educational and/or rehabilitation environments. Participation in appropriate lectures and seminars is required. Students must be prepared to provide own transportation.

### 3098. Variable Topics

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

### 3099. Independent Study for Undergraduates

Credits and hours by arrangement. Prerequisite: Open only to juniors and seniors with appropriate background for the study of education. Students must present the instructor with a problem well laid out for investigation. May be repeated for credit with a change in content.

Designed primarily for qualified students who wish to extend their knowledge in some specialized area.

### 3100. Introduction to Exceptionality

Three credits. Prerequisite: PSYC 1100; open to sophomores or higher. *Madaus*

Considers the nature of exceptionalities as well as current policy and programs in the schools and community.

### 3110. Exceptionality

Two credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Madaus*

Overview of characteristics of students with exceptionalities and of educational programming for exceptional learners.

### 3115. Collaborative Program Planning in Special Education

Three credits. Prerequisite: Open only to Special Education and Elementary Education majors. *Freeman*

Covers basic knowledge and skills related to collaboration with families, paraprofessionals, other teachers, and professionals from other disciplines, including specialized services for children with disabilities (EG, Health, Assistive Technology, Related Services). Introduction to library and computer resources for school leaders.

### 3125. Classroom and Behavior Management

Variable (2 or 3) credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Simonsen*

Overview of preferred practices for providing positive behavior supports for students with disabilities across a variety of classroom and other educational environments.

### 3130. Methods for Teaching Students with Disabilities

(Formerly offered as EPSY 4100.) Four credits. Prerequisite: Must be enrolled in Special Education Teacher Preparation Program. *Coyne*

Informs students of research-based methods and instructional formats for teaching students with disabilities. Integration of methods with clinical experiences.

### 3190. Directed Observation and Participation

Credits by arrangement, not to exceed three. Prerequisite: Open only with consent of instructor; prior to registration, students must apply for Directed Observation. This course may be taken more than one semester. *Coyne*

Gives prospective professionals the opportunity to observe Special Education Teachers and/or Rehabilitation Specialists working with the handicapped. Students must be prepared to provide own transportation.

### 3230. Technology in Education

One credit. Prerequisite: Open to first year students in the teacher preparation program; open

only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Young*

The use of educational technology in the education profession. Emphasis is placed on computer technology, software evaluation and instructional devices.

### 3235. The Resident Assistant

Three credits. Prerequisite: Instructor consent; open only to Resident Assistants.

Focuses on the development of college students as it relates to college residence hall life and the Resident Assistant position. Topics include leadership, community development, select (human) student development theories, and issues of social justice. Students will develop a working knowledge of human development theory for college students and associated practical applications.

### 3333. Introduction to Counseling and Psychoeducation

Three credits. *O'Neil*

Principles of professional counseling including therapeutic processes, roles and skills. How counselors help people solve problems is explored and students' psychological growth and development is facilitated through psychological education.

### 3830. Individual Differences in Creativity

Three credits. Prerequisite: EPSY 2810.

Overview of how individual differences in a variety of psychological, educational, and demographic factors impact creativity. How these factors are measured and how they may interrelate.

### 3850. Creativity in K-12 Schools and Classrooms

Three credits. Prerequisite: EPSY 2810.

Overview of creativity as applied to educational settings. Historical overview of efforts aimed at promoting creativity in K-12 settings, contemporary insights from the creativity studies literature, and factors related to supporting creativity in educational contexts.

### 3870. Creativity Assessment and Research

Three credits. Prerequisite: EPSY 2810.

An overview of how creativity is measured, from divergent thinking to problem solving to ratings of creative work to self-assessments. Assessments will be used to conduct research or further the student's understanding of the field of creativity.

### 4010. Assessment of Learning

Two credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Theory and practices of the assessment of learning.

### 4110. Advanced Foundations of Disability

Three credits. Prerequisite: EPSY 3125 and 4120W; senior enrolled in Special Education Teacher Preparation Program. *Madaus*

Provides students with knowledge and understanding of both the unique and common cognitive, academic, physical, cultural, social, and emotional needs and characteristics of individuals with various disabilities.

### 4115. Directed Student Teaching: Special Education

Credits and hours by arrangement. Prerequisite: Open only to Elementary Education and Special Education majors. Application must be made to the Coordinator of Student Teaching for the fall semester prior to March 1; for the spring semester prior to October 1. *Bartlett*

Practicum experience with students with disabilities.

### 4120W. Fundamentals of Assessment in Special Education

(Formerly offered as 3120W.) Prerequisite: ENGL 1010 or 1011 or 2011; open only to students enrolled in the Integrated Bachelors/Master's program in Comprehensive Special Education. *Lombardi*

Introduction to assessment in special education focusing on current purposes, policies, and practices in schools.

### 4300. The Psychology of Men and Boys

Three credits. Prerequisite: Open to sophomores or higher. *O'Neil*

A survey of men's gender role socialization over the life span focused on male developmental issues, gender role conflicts, gender role transitions, and interpersonal dynamics with women and other men. Theory, research, and personal exploration are integrated through lectures, discussions, and psychoeducation.

### 4870. Capstone in Creativity and Innovation Sciences

Three credits. Prerequisite: EPSY 2810.

Advanced topics in creativity and innovation. Application of topics discussed in earlier courses to students' primary academic and professional interests.

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## Electrical and Computer Engineering (ECE)

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*Head of Department:* Professor Rajeev Bansal

*Department Office:* Room 452, Information Technologies Engineering Building

For major requirements, see the School of Engineering section of this Catalog.

### 1101. Electrical and Computer Engineering Tools

One credit. Not open for credit to students who have passed ECE 3101.

An introduction to the modern computer tools used for circuit analysis, signal and system analysis, control, and data acquisition.

### 2000. Electrical and Computer Engineering Principles

(Formerly offered as ECE 3002.) Three credits. Prerequisite: PHYS 1230 or 1502Q or 1530, which may be taken concurrently. Recommended preparation: MATH 2410Q. This course and ECE 2001/W may not both be taken for credit. Intended for non-ECE majors.

Basic concepts of circuit analysis as applied to electronic circuits and electromechanical devices, including measuring instruments.

### 2001. Electrical Circuits

Four credits. Three 1-hour lectures and one 2-hour laboratory. Prerequisite: MATH 2410Q and either PHYS 1502Q or 1230 or 1530, both

of which may be taken concurrently. This course and ECE 2000 may not both be taken for credit.

Analysis of electrical networks incorporating passive and active elements. Basic laws and techniques of analysis. Transient and forced response of linear circuits. AC steady state power and three-phase circuits. Periodic excitation and frequency response. Computer analysis tools. Design projects are implemented and tested in the laboratory. Laboratory reports are required for each project.

### 2001W. Electrical Circuits

Prerequisite: MATH 2410Q and either PHYS 1502Q or PHYS 1230 or PHYS 1530, both of which may be taken concurrently; ENGL 1010 or 1011 or 2011. This course and ECE 2000 may not both be taken for credit.

### 3001. Electromagnetic Fields and Waves

Three credits. Prerequisite: MATH 2110 and 2410 and either PHYS 1502 or 1230 or 1530; open only to students in the School of Engineering.

Application of electric and magnetic field theory to engineering problems involving conductors, dielectrics, semiconductors, magnetic materials, the motion of charged particles, and wave propagation. Relationship between fields and circuit parameters in the context of transmission lines and radiation.

### 3101. Signals and Systems

(Also offered as ENGR 3101.) Three credits. Three class periods and one discussion period. Prerequisite: ECE 2000 or 2001W; open only to students in the School of Engineering.

Representation of signals in the time and frequency domains. Fourier series. Fourier and Laplace transform methods for analysis of linear systems. Introduction to state space models. Introduction to sampling and discrete systems analysis via z transforms.

### 3111. Systems Analysis and Design

Four credits. Two 75-minute lectures and one discussion period. Prerequisite: ECE 3101 and prerequisite or corequisite: MATH 2210Q; open only to students in the School of Engineering.

Modeling, analysis and design of control systems using frequency and time-domain methods. Differential equation, Transfer function, signal flow graph and state variable representations of continuous and discrete-time systems. Linearization of nonlinear systems. Transient and frequency response of second order systems. Stability of linear systems with feedback; Routh Hurwitz, Root locus, Bode and Nyquist methods. Controllability and observability. Computational methods for analysis of linear systems. Team-based design projects involving modeling, classical compensator design and state variable feedback design.

### 3201. Electronic Circuit Design and Analysis

Four credits. Three 1-hour lectures and one 2-hour laboratory. Prerequisite: ECE 2001W; open only to students in the School of Engineering. This course and either ECE 3608 or 3609 may not both be taken for credit.

Physical electronics underlying the operation of electronic devices. Diodes, diode models, and diode circuits. Transistors, transistor models, and transistor circuits. DC, small signal, and frequency analysis of transistor amplifiers. Compound transistor configurations. Computer



analysis tools. Design projects are implemented and tested in the laboratory. Laboratory reports with revisions are required for each project.

### 3211. Power Electronics

Four credits. Two 75-minute lectures and one 2-hour laboratory. Prerequisite: ECE 3201; open only to students in the School of Engineering. This course and ECE 3610W may not both be taken for credit.

Power converters for power processing, regulation, and control as applied to computer and telecommunication systems, transportation systems, industrial drives, and renewable power conversion systems. Power semiconductor device characteristics, transformers, and dc/dc converters including design projects.

### 3212. Electric Machines and Drives

Four credits. Prerequisite: ECE 3201. Two 75-minute lectures and one 2-hour laboratory.

Fundamental operation, equivalent circuit models, physical structure, and control of electric machinery; basic power electronic drives, three-phase systems, magnetic circuit equivalents, basic electro-mechanics, transformers, basic rotating machines; different electric machines including switched reluctance machines, stepper motors, three-phase synchronous machines, induction or asynchronous machines, and DC machines; Basic electronic drives for each machine type along with open-loop control strategies. Weekly laboratory experiments accompany the lectures to demonstrate most of these concepts.

### 3221. Digital Integrated Circuits

Three credits. Prerequisite: ECE 3201 and CSE 2300W; open only to students in the School of Engineering. This course and ECE 3222 may not both be taken for credit.

Switching, timing, wave shaping, and logic circuits to generate waveforms and functions used in pulse systems, instrumentation and computers. Emphasis is on integrated circuits.

### 3222. Digital Integrated Circuit Design and Analysis

Four credits. Prerequisite: ECE 3201; open only to students in the School of Engineering. Three 1-hour lectures and one 2-hour laboratory. This course and ECE 3221 may not both be taken for credit.

Fabrication, testing, and yield of digital integrated circuits. Design and analysis of bipolar and MOS digital integrated circuits. Bistable circuits and digital memories. System implementation with digital integrated circuits. Layout of digital integrated circuits. Integrated circuit packages. Computer analysis tools. Design and laboratory evaluation of digital electronic circuits.

### 3223. Optical Engineering

Three credits. Prerequisite: ECE 3001 or PHYS 3201; open only to students in the School of Engineering. Not open to students who have passed ECE 4231.

Principles and techniques of optical engineering, including geometrical optics, optical fibers and systems, sources and detectors, measurements, imaging, lenses, wave optics, polarization, interference, diffraction, optical Fourier transforms, holography, interferometry, integrated optics, frequency conversion, interaction of light and matter.

### 3225. Optical Engineering Laboratory

Three credits. One 3-hour laboratory period. Corequisite: ECE 3223; open only to students in the School of Engineering. Not open to students who have passed ECE 4232.

Hands-on design and measurement of optical systems and components. Lens systems and imaging, fiber-optic communications and fiber-optic sensors, diffraction and Fourier Optics, interferometry, etc. Structured experiments and design projects centered on available equipment.

### 3231. Introduction to Modern Power Systems

Three credits. Lecture. Prerequisite: ECE 2001W; open only to students in the School of Engineering.

Fundamentals of power system planning, operation, and management. Power generation, transmission and distribution. Sustainable energy sources such as photovoltaics, solar-thermal power, wind farms, and their grid integration. Modern power system monitoring/control, fault analysis, and transient stability analysis using computer tools. Use of power system simulation tool e.g. PSS/E for power system planning.

### 3243. Introduction to Nanotechnology

Three credits. Lecture. Prerequisite: open only to students in the School of Engineering

Basic concepts of nanoscience; new physical properties at these scales (~1-100 nm); different approaches to fabricate, image, characterize and manipulate nanostructures and nanodevices; current and potential applications in areas as diverse as electronics, health and energy; societal impacts of nanotechnology.

### 3401. Digital Systems Design

(Also offered as CSE 3302.) Three credits. Prerequisite: CSE 2300W; open only to students in the School of Engineering.

Design and evaluation of control and data structures for digital systems. Hardware design languages are used to describe and design alternative register transfer level architectures and control units with a micro-programming emphasis. Consideration of computer architecture, memories, digital interfacing timing and synchronization, and microprocessor systems.

### 3411. Microprocessor Applications Laboratory

Three credits. One class period and one 4-hour laboratory. Prerequisite: Open only to students in the School of Engineering

Design of software and interface hardware to use a microcomputer as an on-line, real-time element in data acquisition, filtering and control systems. Use of clocks, DAC's, ADC's, speech synthesis modules, and movement generators. Design project. Written and oral presentations of laboratory results.

### 3421. Very Large Scale Integrated Circuit (VLSI) Design and Simulation

Four credits. Two-hour lecture and three-hour laboratory period. Prerequisite: ECE 3221; open only to students in the School of Engineering.

Design of MOS transistors, including short channel effects in sub-micron devices; scaling laws; design rules. Layout of NMOS and CMOS logic gates; power-delay calculations. Design of static and/or dynamic memories. Laboratory emphasizes schematic capture, simulation,

timing analysis and testing; layout of custom IC's; and use of VHDL.

### 3431. Numerical Methods in Scientific Computation

(Also offered as CSE 3802.) Three credits. Prerequisite: CSE 1010 or 1100 or 1729 and MATH 2110Q and 2410Q and prerequisite or corequisite: MATH 2210Q; open only to students in the School of Engineering.

Introduction to the numerical algorithms fundamental to scientific computation. Equation solving, function approximation, integration, difference and differential equations, special computer techniques. Emphasis is placed on efficient use of computers to optimize speed and accuracy in numerical computations. Extensive digital computer usage for algorithm verification.

### 4079. Independent Design Laboratory

Three credits. Prerequisite: Instructor consent; open only to students in the School of Engineering. May be taken twice for credit.

Experimental design project undertaken by the student by special arrangement with a faculty member of the Department of Electrical and Computer Engineering.

### 4095. Special Topics in Electrical and Computer Engineering

Credits by arrangement. Prerequisite: Consent of instructor; open only to students in the School of Engineering. With a change in content, this course may be repeated for credit.

Classroom and/or laboratory course in special topics as announced in advance for each semester.

### 4099. Independent Study in Electrical and Computer Engineering

Credits by arrangement, not to exceed four in any semester. Prerequisite: Consent of instructor; open only to students in the School of Engineering. With a change in content, this course may be repeated for credit.

Individual exploration of special topics as arranged by the student with course instructor.

### 4099W. Independent Study in Electrical and Computer Engineering

Prerequisite: ENGL 1010 or 1011 or 2011; consent of instructor; open only to students in the School of Engineering.

### 4111. Communication Systems

Three credits. Prerequisite: ECE 3101 or BME 3400 and STAT 3345Q or MATH 3160; open only to students in the School of Engineering.

Communication of information over noisy channels. Fourier transform review, spectral analysis, and sampling. Amplitude, phase, and frequency modulation of a sinusoidal carrier. Time and frequency division multiplexing. Random processes and analysis of communication of systems in noise. Elements of digital communication systems.

### 4112. Digital Communications and Networks

Three credits. Prerequisite: ECE 3101 and STAT 3345Q or MATH 3160; open only to students in the School of Engineering.

Fundamentals of digital communication systems. Encoding of analog signals for digital transmission. Basic information theory.

Source encoding techniques. Baseband data transmission. Digital carrier modulation schemes. Multiplexing techniques. Basic error control coding. Random processes and analysis of communication of systems in noise.

#### 4121. Digital Control Systems

Three credits. Prerequisite: ECE 3111; open only to students in the School of Engineering.

Analysis and design of control systems incorporating a digital computer as the controlling element. Building blocks of digital control. Measures of control system performance. Frequency domain and state variable methods of control design. Optimal control methods. State variable estimation. Implementation issues. Use of computer-aided software tools for simulation and design.

#### 4122. Systems Laboratory

Three credits. One 4-hour laboratory period. Prerequisite: ECE 3111; open only to students in the School of Engineering.

Real-time digital control and signal processing of cyber-physical systems. Typical topics include control of inverted pendulum and magnetic levitation systems, velocity and position control of motors, robot path planning and control. Written and oral presentations of laboratory results.

#### 4131. Introduction to Digital Signal Processing

Three credits. Prerequisite: ECE 3101; open only to students in the School of Engineering.

Discrete-time signals and systems. The z-transform. Digital filters; stability, frequency response, canonic realizations and state equations. Fourier methods for discrete signal representation; Fourier transform of sequences, the discrete Fourier transform, and the FFT. Design of linear digital filters in time and frequency domains. Spectrum analysis and filtering via the FFT.

#### 4132. Information Processing Systems Laboratory

Three credits. Prerequisite or corequisite: ECE 4131, and either ECE 4111 or 4112 or instructor consent; open only to students in the School of Engineering.

Laboratory experiments in signal processing, real-time digital filters, image processing, imaging systems, data acquisition using detectors, pattern recognition, communication receivers, and system performance evaluation. Emphasis is on real-time information processing systems with interface between sensors and computer/processors. Applications of analog and digital techniques to design, implementation and testing of real-time information processing systems.

#### 4141. Introduction to RF/Microwave Wireless Systems

Three credits. Prerequisite: ECE 3001; open only to students in the School of Engineering.

An introduction to the general hardware components, system parameters, and architectures of radio-frequency (RF) and microwave wireless systems. Practical examples will be drawn from communication as well as radar/sensor systems.

#### 4201. Electronic Circuits and Applications

Three credits. Prerequisite: ECE 3201; and either ECE 4211 or ECE 4225, which may be taken concurrently; open only to students in the School of Engineering. Recommended preparation: ECE 3111.

Analysis and design of linear amplifiers. The effects of feedback in tuned, video, and operational amplifiers. Noise, stability, and frequency compensation. Applications encompass active filters, oscillators, phase lock loops and nonlinear operations such as multiplication, modulation, sampling, and analog-to-digital conversion.

#### 4211. Semiconductor Devices and Nanostructures

Three credits. Prerequisite: ECE 3201; open only to students in the School of Engineering.

Principles and applications of contemporary solid state devices such as light-emitting diodes, injection lasers, solar cells, p-n-p-n diodes, SCRs and TRIACs, transistors, MESFETs and MODFETs, and fundamentals of integrated circuits. Impact of nanostructures on devices.

#### 4223. Nanophotonics

Three credits. One 3-hour lecture. Prerequisite: ECE 3223; open only to students in the School of Engineering.

Principles and applications of nanophotonics with focus on optical metamaterials, plasmonics, and photonic bandgap crystals. Topics covered include electric plasma, magnetic plasma, optical magnetism, negative index metamaterials, localized and non-localized surface plasmon polaritons, photonic bandgap structures, superlens, optical cloaking.

#### 4225. Fundamentals of Electron Device Design and Characterization

Three credits. Prerequisite: ECE 3201; open only to students in the School of Engineering.

Design of micro/nano electronic devices using state-of-the-art computer simulation tools, experimental electrical characterization of semiconductor devices and introduction to modern electronic devices such as high-performance MOSFETs, TFTs, solar cells, non-volatile memories, CCDs, and thermoelectric power generators.

#### 4242. Micro/Opto-electronic Devices and Circuits Fabrication Laboratory

Three credits. One class period, and one 4-hour laboratory period. Prerequisite: 4211 or 4225; open only to students in the School of Engineering.

Semiconductor wafer preparation and characterization including: determination of carrier concentration, mobility, and lifetime; oxidation, diffusion, metallization, mask layouts, and photolithographic techniques as employed in the realization of discrete devices (e.g., bipolar and MOS transistors, solar cells) and integrated circuits; design of basic IC components such as transistors, resistors, and capacitors; monolithic fabrication of simple digital/analog circuits. Design project. Written and oral presentations of laboratory results. A fee of \$75 is charged for this course.

#### 4243. Nanoscience and Nanotechnology I

(Also offered as ENGR 4243.) Three credits. Prerequisite: ECE 4211 or PHYS 2300 or 3401 or MSE 4001, and CHEM 1127 or equivalent; open only to students in the School of Engineering.

Fundamentals of electron and hole confinement in quantum well, wire, and dot heterostructures, confinement of photons in photonic band gap structures, density of states in quantum wires; transport in quantum wires and dots, and single wells (SWNT) and multi-wall carbon nanotubes; operation of nano field-effect transistors; absorption and emission in quantum wires and dot structures; fabrication methodology to grow and assemble quantum wires and dots including self-assembly techniques for light-emitting diodes, transistors, lasers, and nanoelectromechanical (NEM) structures.

#### 4244. Nanotechnology II

(Also offered as ENGR 4244.) Three credits. One-hour lecture and four-hour laboratory. Prerequisites: Senior standing and ECE 4211 or ECE/ENGR 4243; open only to students in the School of Engineering.

Growth and characterization of carbon nanotubes using vapor phase nucleation; growth of CdSe quantum dots using liquid phase precipitation and vapor phase MOCVD reactor; characterization using AFM and TEM and dynamic scattering techniques; device processing highlighting nanolithography (E-Beam), and self-assembly techniques; project work involving fabrication of devices such as LEDs, carbon nanotube based FETs, and sensors using self-assembled quantum dots hosted in inorganic or organic/polymer layers. A fee of \$75 is charged for this course.

#### 4261. Introduction to Memory Device Technologies

Three credits. Prerequisite: ECE 3201 or 3421 or 4225. This course and ECE 5261 may not both be taken for credit.

Current and future digital solid-state memory device technologies including DRAM, SRAM, flash memory, ferroelectric memory, magnetoresistive memory, phase-change memory and resistive memories, with an emphasis on the underlying physical mechanisms.

#### 4401. Digital Design Laboratory

(Also offered as CSE 3350.) (Formerly offered as EE 280.) Three credits. Four hours of laboratory. Prerequisite: Open only to students in the School of Engineering. Prerequisite or corequisite: CSE 3302/ECE 3401.

Digital designing with PLA and FPGA, A/D and D/A conversion, floating point processing, ALU design, synchronous and asynchronous controllers, control path; bus master; bus slave; memory interface; I/O interface; logic circuits analysis, testing, and troubleshooting; PCB; design and manufacturing.

#### 4402. Digital Hardware Laboratory

Three credits. One 4-hour laboratory period. Prerequisite: CSE 4302; ECE 3401 or CSE 3302; open only to students in the School of Engineering.

Advanced combinational and sequential circuit design and implementation using random logic and microprocessor based system. Hardware and software interface to the basic system. Serial communication, user program loading and execution. Microcontrollers – familiarization and inclusion in design.

#### **4451. Introduction to Hardware Security and Trust**

Three credits. One 3-hour lecture. Prerequisite: ECE 3401; open only to students in the School of Engineering.

Fundamentals of hardware security and trust for integrated circuits. Cryptographic hardware, invasive and non-invasive attacks, side-channel attacks, physically unclonable functions, watermarking of Intellectual Property (IP) blocks, FPGA security, counterfeit detection, hardware Trojan detection and prevention in IP cores and integrated circuits.

#### **4901. Electrical and Computer Engineering Design I**

(Also offered as CSE 4950.) Two credits. Prerequisite: ECE 3201 and a grade of C+ or better in both ECE 2001 and ECE/ENGR 3101; senior standing; open only to students in the School of Engineering.

Discussion of the design process; project statement, specification, project planning, scheduling and division of responsibility, ethics in engineering design, safety, environmental considerations, economic constraints, liability, manufacturing, and marketing. Projects are carried out using a team-based approach. Selection and analysis of a design project to be undertaken in CSE 4951/ECE 4902 is carried out. Written progress reports, a proposal, an interim project report, a final report, and oral presentations are required.

#### **4902. Electrical and Computer Engineering Design II**

(Also offered as CSE 4951.) Three credits. Prerequisite: ECE 4901; open only to students in the School of Engineering. Hours to be arranged.

Design of a device, circuit, system, process, or algorithm. Team solution to an engineering design problem as formulated in CSE 4950/ECE 4901, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentations are required.

### **Engineering (ENGR)**

*Associate Dean, School of Engineering:* Daniel Burke, Ph.D.

*Office:* Room 304, EII Building

#### **1000. Orientation to Engineering**

One credit. Fifteen class periods of lecture, and eight seminar and discussion periods. Not open to Junior or Senior students in the School of Engineering.

A series of orientation lectures on the many fields of engineering, followed by a series of seminars and discussions in engineering discipline-specific sections on engineering topics.

#### **1166. Foundations of Engineering**

Three credits. Not open for credit to Junior or Senior students in the School of Engineering.

Not open for credit for students who have passed ENGR 150 or 151.

Introductory topics in a specific engineering major. Topics selected by Department or Program, or Regional Campus faculty. Students to select section based on their selected or intended major. In the context of the discipline, students would develop skills transferable to other engineering disciplines.

#### **2215. Principles of Manufacturing Engineering**

Three credits.

Introduction to engineering aspects of modern manufacturing processes and systems with a focus on commercial-scale conversion of materials into components, and components into products. Casting; forming and shaping; cutting and machining; joining; surface engineering; optical materials engineering; additive manufacturing; computer-integrated manufacturing; automation; and special manufacturing processes such as chemical and biological systems. Includes case studies.

#### **2243. Nanoscience and Society**

Three credits. Three 1-hour lectures.

Introductory, interdisciplinary honors core course on nanoscale science and society. Introduction to the fundamentals of nanoscience and to the broader societal implications of implementing nanotechnology locally and globally. Nanoscience fundamentals (basic concepts and results of quantum physics), fabrication (how to make nanoscale structures, imaging and analysis, applications (electronics, biomedical, environment, new products), society and ethics in nanoscience and technology. Relevant case studies.

#### **3101. Signals and Systems**

(Also offered as ECE 3101.) Three credits. Three class periods and one discussion period. Prerequisite: ECE 2001W or 2000; open only to students in the School of Engineering.

Representation of signals in the time and frequency domains. Fourier series. Fourier and Laplace transform methods for analysis of linear systems. Introduction to state space models. Introduction to sampling and discrete systems analysis via z transforms.

#### **3120. LabVIEW Basics for Engineers**

One credit. One hour lecture period. Prerequisite: CSE 1010 or 1100; open only to School of Engineering majors. Not open for credit to students who have passed BME 3120.

Introduces LabVIEW programming environment. The fundamentals of using graphical programming to collect, analyze, display and store data are covered. Learn techniques for designing standalone applications, creating interactive user interfaces and optimizing data flow.

#### **3181. EUROTECH Internship Abroad**

No credit. Prerequisite: Consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

A six-month internship in Germany, Austria, or Switzerland for the EUROTECH Program. The student must arrange with the instructor for this internship at least one year before the intended departure date and participate in the orientation program. To successfully complete this course the student must submit periodic

reports in German on the assigned work during the work period and a final report upon return.

#### **3193. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. With change of topic, may be repeated for credit. May count toward major with consent of advisor and approved plan of study.

Special engineering topics taken in a foreign study program.

#### **3195. Special Topics in Engineering**

Credits and hours by arrangement, or as announced. Prerequisite and/or consent: Announced separately for each course. With a change in content, this course may be repeated for credit.

Classroom and/or laboratory course in special topics as announced in advance for each semester.

#### **3209. Sustainable Energy in the 21st Century**

(Also offered as HRTS 3209 and POLS 3209.) Three credits. Prerequisite: Open to sophomores or higher.

Political, socioeconomic, environmental, science, and engineering challenges of energy sources. Comparison of feasibility and sustainability of energy policies around the world.

#### **3215. Statistical Quality Control and Reliability for Manufacturing**

Three credits. Prerequisites: MATH 2110Q; open to juniors or higher.

Foundation of quality control and reliability in manufacturing systems. Probability and statistics, principles and methods of modern quality control in manufacturing, Six Sigma, control charts for measurement and attribute data, development and utilization of control charts, manufacturing process capability studies, ANOVA and linear regression of measurement data, experimental design, response surface and Taguchi methodology, acceptance sampling, reliability prediction and modeling in manufacturing systems.

#### **3257. Assessment for Human Rights and Sustainability**

Three credits. Taught with HRTS 3257. Not open for credit to students who have passed or are taking HRTS 3257.

Foundational concepts of human rights and environmental impacts pertaining to global supply chains. Regulations and voluntary standards in engineering-intensive sectors, including infrastructure, biofuels, electronics. Case study analysis of corporate assessment practices for labor rights protection and environmental impacts.

#### **3281. Engineering Internship**

Zero credits. Hours by arrangement. Prerequisite: Consent of the program director. May be repeated. Students taking this course will be assigned a grade of S (satisfactory) or U (unsatisfactory).

Provides an opportunity for students to participate in a work environment to gain practical experience and to exercise problem solving skills.

#### **3315. Manufacturing 4P: People, Planet, Process and Profit**

Three credits.

The changes to manufacturing over time, due to increased concerns for the safety of their workers and designs to avoid overuse injuries;

environmental concerns to minimize pollution and reduce material use and increase recycling; new fabrication techniques that must be considered and their impact on quality, and the profitability resulting from the interaction of all of these variables. How the four Ps are impacted as the product progresses from design through production.

### 3320. Production and Manufacturing

Three credits. Prerequisite: ENGR 3315.

Material selection in terms of both the product being produced as well as the production equipment employed in the process; discussed as part of three case studies and in the description of general manufacturing methods for plastics, metals and fluids. Sustainability is emphasized in two of the case studies focusing on biofuels and the use of biomass waste for construction materials. Interactions between these two themes are brought out in discussions on material selection criteria for end-of-life product handling.

### 4243. Nanoscience and Nanotechnology I

(Also offered as ECE 4243.) Three credits. Prerequisite: ECE 4211 or PHYS 2300 or 3401 or MSE 4001, and CHEM 1127 or equivalent; open only to students in the School of Engineering.

Fundamentals of electron and hole confinement in quantum well, wire and dot heterostructures, confinement of photons in photonic band gap structures, density of states in quantum wires; transport in quantum wires and dots, and single wells (SWNT) and multi-wall carbon nanotubes; operation of nano field-effect transistors; absorption and emission in quantum wires and dot structures; fabrication methodology to grow and assemble quantum wires and dots including self-assembly techniques for light-emitting diodes, transistors, lasers, and nanoelectromechanical (NEM) structures.

### 4244. Nanotechnology II

(Also offered as ECE 4244.) Three credits. One hour lecture and four hour laboratory. Prerequisite: Senior standing and ECE 4211 or ECE/ENGR 4243; open only to students in the School of Engineering.

Growth and characterization of carbon nanotube using vapor phase nucleation; growth of CdSe quantum dots using liquid phase precipitation and vapor phase MOCVD reactor; characterization using AFM and TEM and dynamic scattering techniques; device processing highlighting nanolithography (E-Beam), and self-assembly techniques; project work involving fabrication of devices such as LEDs, carbon nanotube based FETs, and sensors using self-assembled quantum dots hosted in inorganic or organic/polymer layers. A fee of \$75 is charged for this course.

### 4299. Independent Study

Hours by arrangement. Credits by arrangement, not to exceed 4. Prerequisite: Open to seniors in the School of Engineering. With a change in topic, may be repeated for credit.

Designed for students who wish to pursue an interdisciplinary engineering project where the subject matter/content spans more than one field of interest. The program of study is to be approved by the Associate Dean of

Undergraduate Education and the instructor before registration is completed.

### 4590. Shop Safety Practicum

Zero credits. Prerequisite: To enroll in the course students must have instructor consent and be engaged in their capstone senior design project or in research.

Safety, operating procedures and normal practices of the equipment in the School of Engineering Machine Shop so that students can make and assemble their capstone senior design project and to fabricate equipment to support research.

## English (ENGL)

*Interim Head of Department:* Professor Robert Hasenfratz

*Department Office:* Room 208, Philip E. Austin Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1003. English for Non-Native Speakers

Three credits. Course may be repeated for credit. Graduate students may elect this course.

Instruction in English for non-native speakers of the language.

### 1004. Introduction to Academic Writing

Four credits. Students placed in ENGL 1004 must pass the course before electing ENGL 1010 or 1011. Not open to students who have passed ENGL 1010 or 1011.

Development of the reading and writing skills essential to university work.

### 1010. Seminar in Academic Writing

Four credits. Students placed in ENGL 1004 must pass that class before enrolling in ENGL 1010.

Instruction in academic writing through interdisciplinary reading. Assignments emphasize interpretation, argumentation, and reflection. Revision of formal assignments and instruction on grammar, mechanics and style.

### 1011. Seminar in Writing through Literature

Four credits. Students placed in ENGL 1004 must pass that class before enrolling in ENGL 1011.

Instruction in academic writing through literary reading. Assignments emphasize interpretation, argumentation, and reflection. Revision of formal assignments and instruction on grammar, mechanics and style.

### 1012W. Business Writing I

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Introduction to the rhetorical and generic conventions of business writing.

### 1013W. Technical Writing I

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Introduction to rhetorical and generic conventions of technical writing.

### 1101. Classical and Medieval Western Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

This and ENGL 1103 offer a study of European literature from ancient times to the

present. ENGL 1101 considers ancient and medieval literature through Dante. CA 1.

### 1101W. Classical and Medieval Western Literature

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

### 1103. Renaissance and Modern Western Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Literature in the European tradition from the Renaissance through the modern periods. CA 1.

### 1103W. Renaissance and Modern Western Literature

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

### 1201. Introduction to American Studies

(Also offered as AMST 1201 and HIST 1503.) Three credits.

What is an American? A multi-disciplinary inquiry into the diversity of American societies and cultures. CA 4.

### 1301. Major Works of Eastern Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Important works of poetry, drama, and literary prose from the Middle East, South Asia, China, Japan, and Southeast Asia. All works are read in translation. CA 4-INT.

### 1503. Introduction to Shakespeare

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Introductory survey of representative Shakespeare plays and poetry. CA 1.

### 1601W. Race, Gender, and the Culture Industry

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Cultural construction of race and gender in English-language literature, film, and music. CA 4.

### 1616. Major Works of English and American Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Includes important works from the major genres and historical periods since Beowulf. CA 1.

### 1616W. Major Works of English and American Literature

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

### 1693. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head or advisor may be required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 1701. Creative Writing I

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

First course in creative expression. Covers two or more genres (fiction, poetry, creative nonfiction, and drama). Genres vary by section.

### 2011. Honors I: Literary Study through Reading and Research

Four credits. Prerequisite: Open only with consent of instructor. Not open for credit for

students who have passed ENGL 3800. May be used to satisfy the ENGL 1010 or 1011 requirement. May not be used to satisfy the English major requirement.

Approaches to reading and researching literature through questions related to the assumptions, contexts, and uses of literary texts in culture. Extensive practice in academic writing.

#### **2049W. Writing through Research**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Instruction in academic writing and the procedures of library and internet research leading to a large-scale research paper.

#### **2100. British Literature I**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

British literature, medieval through 18th century. Intended to provide preparation for more advanced courses in British literature. This course is strongly recommended for English majors. CA 1.

#### **2101. British Literature II**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

British literature, 19th to 20th centuries. Intended to provide preparation for more advanced courses in British literature. This course is strongly recommended for English majors. CA 1.

#### **2201. American Literature to 1880**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

American literature from the beginnings: Poe, Emerson, Thoreau, Hawthorne, Melville, Whitman, Douglass, Stowe, Dickinson, Twain, and others.

#### **2201W. American Literature to 1880**

Prerequisite: ENGL 1010 or 1011 or 2011.

#### **2203. American Literature Since 1880**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Modern and contemporary American literature: James, Wharton, Dreiser, Cather, Frost, Hemingway, Fitzgerald, Faulkner, Morrison, and others.

#### **2203W. American Literature Since 1880**

Prerequisite: ENGL 1010 or 1011 or 2011.

#### **2274W. Disability in American Literature and Culture**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

An interdisciplinary examination of the symbolic roles of disability and the social implications of those roles. CA 1. CA 4.

#### **2301. World Literature in English**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

English language literature from Africa, India, Canada, Australia, the Caribbean, and other areas outside of the United States and the British Isles. Writers may include Soyinka, Gordimer, Walcott, Achebe, Markandaya, Atwood, White, Emecheta, Rushdie, Naipaul, Kincaid, and others. CA 4-INT.

#### **2301W. World Literature in English**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 4-INT.

#### **2401. Poetry**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

A study of the techniques and conventions of the chief forms and traditions of poetry in English. CA 1.

#### **2405. Drama**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

An introduction to the chief forms and traditions of dramatic literature through the study of a broad range of major works. CA 1.

#### **2407. The Short Story**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

The short story as a literary form with study of significant Continental, British, and American writers. CA 1.

#### **2408. Modern Drama**

(Formerly offered as ENGL 3406.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Modern British, American, and Continental drama, with the reading and discussion of some 15-20 representative plays. CA 1.

#### **2408W. Modern Drama**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

#### **2409. The Modern Novel**

(Formerly offered as ENGL 3409.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Major novels since 1900. CA 1.

#### **2411. Popular Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Examination of popular literature through the application of literary theory. CA 1.

#### **2411W. Popular Literature**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

#### **2600. Introduction to Literary Studies**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to English majors, others with instructor's consent.

Skills essential for the successful pursuit of a degree in English: textual analysis (close reading of poetry and prose), literary criticism and theory, research and citation methods, and critical writing about literature.

#### **2603. Literary Approaches to the Bible**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Critical approaches to, and literary and cultural influences of, the Bible in English translation.

#### **3003W. Advanced Expository Writing**

Three credits. Three class periods. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Writing on topics related, usually, to students' individual interests and needs.

#### **3010W. Advanced Composition for Prospective Teachers**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Designed primarily for English education majors.

Advanced training in composition, with consideration of the problem of teaching writing.

#### **3012. Books and Book Publishing**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Not open to students who have completed ENGL 3011.

Intensive focus on trade book and e-book publishing, geared to writers and students preparing for entry level publishing jobs.

#### **3013. Media Publishing**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Not open to students who have completed ENGL 3011.

Publishing and writing for publication in the Information Age. Topics include desktop publishing, web-page design, and the presentation of materials on the Internet. No previous experience with computers is required.

#### **3013W. Media Publishing**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Not open to students who have completed ENGL 3011.

#### **3082. Writing Center Practicum**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; instructor consent required.

Introduction to Writing Center pedagogy, theory and research methods. Intended primarily for Writing Center staff. Students taking this course will be assigned a grade of S (satisfactory) or U (unsatisfactory).

#### **3091. Writing Internship**

Credit and hours by arrangement, not to exceed six credits per semester. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor. No more than eight credits may be earned in a single placement, and no more than three credits may be counted towards completion of requirements for the English major. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). May be repeated for credit.

Training in writing in a supervised field placement.

#### **3111. Medieval English Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Readings in the literature of the English Middle Ages - lyrics, narratives, dramas, and didactic forms.

#### **3111W. Medieval English Literature**

Prerequisite: ENGL 1010 or 1011 or 2011.

#### **3113. Renaissance English Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Writers studied include More, Spenser, Shakespeare, Donne, Jonson, and Milton.

#### **3113W. Renaissance English Literature**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3115. Restoration and 18th-Century English Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Includes such writers as Dryden, Pope, Swift, Johnson, Burney, and Austen.

**3115W. Restoration and 18th-Century English Literature**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3117. Romantic British Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

British literature from 1790 to 1832.

**3117W. Romantic British Literature**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3118. Victorian British Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

British literature from 1832 to 1900.

**3118W. Victorian British Literature**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3120. Irish Literature in English to 1939**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Fiction, drama, and poetry, including early Irish legends and sagas (in translation); such writers as Swift, Shaw, Wilde, Yeats, Gregory, Synge, Joyce, and Bowen. CA 4-INT.

**3122. Irish Literature in English since 1939**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Fiction, drama, and poetry by such writers as Beckett, O'Brien, Friel, Heaney, Doyle, Carr, McCabe, Tóibin, and McDonagh. CA 4-INT.

**3123. British Literature from 1890 to the Mid-Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Not open to students who have completed 3119/W.

British literature from the late Victorian to the immediate post-World War II period. Works by writers such as Conrad, Lawrence, Mansfield, Forster, Woolf, and Eliot.

**3123W. British Literature from 1890 to the Mid-Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Not open to students who have completed 3119/W.

**3124. British Literature since the Mid-Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Not open to students who have completed 3119/W.

British literature from the immediate post-World War II period through the present. Works by writers such as Hughes, Lessing, Murdoch, Pinter, Rushdie, and Winterson.

**3124W. British Literature since the Mid-Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Not open to students who have completed 3119/W.

**3193. Studies in Britain**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor. Hours by arrangement.

Studies in the British Isles during the intercession, supplemented by weekly seminars in Storrs. Direct experience with aspects of English literature in its social and artistic milieu.

**3207. American Literature since the Mid-Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher.

Formal and thematic developments in American literature since the mid-twentieth century and its engagement with cultural shifts in this period.

**3207W. American Literature since the Mid-Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher.

**3210. Native American Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Examination of the literatures of pre-contact, post-contact, and contemporary indigenous American cultures. CA 4.

**3212. Asian American Literature**

(Also offered as AASI 3212.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Literature, theatre, film about Asian American communities and culture in the United States from the mid-nineteenth century to the present. CA 4.

**3214. Black American Writers I**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Critical and historical examination of the literature of black American writers from Phyllis Wheatley to the present. CA 4.

**3214W. Black American Writers I**

(Also offered as AFRA 3214W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. CA 4.

**3216W. Black American Writers II**

(Also offered as AFRA 3216W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Extensive readings in the works of four or five contemporary black American writers.

**3218. Ethnic Literatures of the United States**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

The literatures of ethnic American authors. Writers may include Natachee Scott Momaday, Maxine Hong Kingston, Zora Neale Hurston, Rolando Hinojosa, Bernard Malamud, Nicholas Mohr, John Fante, among others. CA 4.

**3218W. Ethnic Literatures of the United States**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. CA 4.

**3220. Jewish American Literature and Culture**

(Also offered as HEJS 3401.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Interdisciplinary study of literary and artistic productions by and about Jews in the United States. CA 1. CA 4.

**3220W. Jewish American Literature and Culture**

(Also offered as HEJS 3401W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. CA 1. CA 4.

**3235W. Reading the American City**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

The role of urban environments in American literature. Topics may include the literary representation of cities over time along with their impact on the psychological formation of characters and on family, romantic, and social relationships in urban settings.

**3240. American Nature Writing**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Study of writings, from the colonial era to the modern, reflecting diverse ways of imagining humanity's relation to the natural environment.

**3265W. Seminar in American Studies**

(Also offered as AMST 3265W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

An in-depth study of an event, historical period, or cultural production from an interdisciplinary perspective.

**3301. Celtic and Norse Myth and Legend**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Not open for credit to students who have previously received credit for the same course as ENGL 267.

An examination of the early Celtic and Norse cultures through their medieval literature. Close analysis of works such as *The Tain*, *The Mabinogian*, *The Eddas*, selected sagas, runic and historical texts in association with later English texts that show their influence.

**3318. Literature and Culture of the Third World**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. May be repeated for credit with a change in topic.

The literature of regions outside North America and Europe. Contents of the course will vary according to regional focus. CA 4-INT.

**3320. Literature and Culture of India**

Three credits. Not open for credit to students who have passed ENGL 3318 if taught as topic "India."

Important texts, practices, and ideas drawn from the diverse traditions of Indian literature, arts, philosophy, and religion. CA 1. CA 4-INT.

**3403. Modern and Contemporary Poetry in English**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Poetry since 1900, from major modernist innovators to significant contemporaries.

**3420. Children's Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

The best literature available to children, including works by major writers and forms

such as fable, folk tale, fairy tale, nursery rhyme, and short story.

### 3422. Young Adult Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Not open to students who have passed ENGL 201.

Critical analysis of texts for and about young adults, including an historical range of classic and canonical works from before 1900 to the present.

### 3495. Studies in Early Literature in English

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Studies in literature written in English before 1800.

### 3501. Chaucer

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

The Canterbury Tales and other selected works, and such attention to the Middle English language as is necessary to an understanding of the text.

### 3503. Shakespeare I

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Romantic comedies and principal tragedies.

### 3503W. Shakespeare I

Prerequisite: ENGL 1010 or 1011 or 2011.

### 3505. Shakespeare II

Three credits. Prerequisite: ENGL 3503 or instructor consent; open to juniors or higher.

The early plays, problem plays, and late plays.

### 3507. Milton

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

The lyric, epic and dramatic poetry of Milton, with some consideration of his prose writing.

### 3509. Studies in Individual Writers

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with a change in topic.

Concentrated study in one or two authors writing in English.

### 3601. The English Language

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

A descriptive study of modern American English: constituent sound (phonology), structure of words (morphology), and syntax, with some attention to lexicography and usage.

### 3603. The History of the English Language

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Readings in Old English, Middle English, and Early Modern with a survey of the main developments in the language since Anglo-Saxon times.

### 3605. Latina/o Literature

(Also offered as LLAS 3232.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent; open to juniors or higher.

Extensive readings in Latina/o literature from the late nineteenth century to the present. CA 4.

### 3607. Studies in Latina/o Literature

(Also offered as LLAS 3233.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent; open to juniors or higher. May be repeated for credit with a change of topic.

Advanced study of a theme, form, author, or movement in contemporary Latina/o literature.

### 3609. Women's Literature

(Also offered as WGSS 3609.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Works written by women from different countries and centuries. CA 4.

### 3611. Women's Literature 1900 to the Present

(Also offered as WGSS 3611.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Modern and contemporary works written by women from different countries. CA 4.

### 3613. Introduction to LGBT Literature

(Also offered as WGSS 3613.) Three credits.

An introduction to themes of sexual diversity in literature, related to lesbian, gay, bisexual, and transgender issues. CA 4.

### 3617. Literature and Religion

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Study of diverse imaginative writings concerned with the human search for God, transcendence, and ultimate meaning.

### 3619. Topics in Literature and Human Rights

(Also offered as HRTS 3619.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with a change of topic.

Study of literature from various historical periods and nationalities concerned with defining, exploring, and critiquing the idea of universal human rights.

### 3621. Literature and Other Disciplines

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with a change in topic.

The relationship of literature to other fields of study. Course content will vary by section.

### 3623. Studies in Literature and Culture

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. May be repeated for credit with a change in topic.

An examination of social and culture aspects of printed literature and of its relationship to other media. Contents will vary by section.

### 3625. Literary Theory

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

History of and recent developments in literary theory.

### 3627. Studies in Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with a change in topic.

Advanced exploration of various limited topics, such as a particular literary theme, form, or movement, to be announced from semester to semester.

### 3629. Introduction to Holocaust Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Not open for credit to students who have passed ENGL 3623 or 3619 when taught as Holocaust literature.

Introduction to literature of the Holocaust. CA 1. CA 4-INT.

### 3631. Literature, Culture, and Humanitarianism

(Also offered as HRTS 3631.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores and higher.

Relationships between literature and culture and humanitarian movements, from the eighteenth century to the present.

### 3633. The Rhetoric of Political Discourse in Literature and Society

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. May not be taken for credit by students who have passed ENGL 3623 when offered as "The Rhetoric of Political Discourse."

Rhetorical analysis of literary polemics and of past and current political speeches, writing, and debate. CA 1.

### 3633W. The Rhetoric of Political Discourse in Literature and Society

Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. May not be taken for credit by students who have passed ENGL 3623 when offered as "The Rhetoric of Political Discourse." CA 1.

### 3635. Literature and the Environment

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors and higher, others by consent.

Ecocritical approaches to literary treatment of global environmental issues.

### 3650. Maritime Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Classic works of the maritime literary tradition, including texts by Conrad and Melville and other texts contributing significantly to the culture, history and aesthetics of the sea.

### 3651. Maritime Non-Fiction

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Classics of the non-fictional genre as they apply to an understanding of the culture of the sea. Social, humanistic, intellectual and scientific perspectives are examined through analysis of works by writers such as Steinbeck, McPhee, and Sebastian Junger.

### 3692. Writing Practicum

Credits and hours by arrangement. May be repeated for credit with a change in topic. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

A concentrated introduction to (or review of) a particular aspect of composition. Courses will focus on such topics as writing and publishing on the Internet, legal writing, grammar review, grammar by computer, business writing, and web-page design.

**3693. Foreign Study**

Credits and hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; consent of department head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3695. Special Topics**

Credits and hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Other prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3698. Variable Topics**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Other prerequisites and recommended preparation vary. With a change in topics, may be repeated for credit.

**3699. Independent Study**

Credits and hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor and approval of either the department head, or the department undergraduate coordinator. May be repeated for credit with a change of topic.

Supervised reading and writing on a subject of special interest to the student.

**3701. Creative Writing II**

Three credits. Prerequisite: ENGL 1701; open only with consent of instructor. May be repeated once for credit.

For student writers of proven ability who wish further training in two creative genres (fiction, poetry, or creative nonfiction). Genres vary by semester.

**3703. Writing Workshop**

Three credits. Prerequisite: ENGL 1701; open only with consent of instructor. May be repeated once for credit.

For advanced student writers who wish intensive training in a single creative genre (fiction, poetry, or creative nonfiction). Genres vary by semester.

**3707-3709. Film Writing**

(ENGL 3707 is also offered as DRAM 3145.) Three credits each semester. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Theoretical and practical work in the content and form of the fiction scenario.

**3711. Creative Writing for Child and Young Adult Readers**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor. Recommended preparation: ENGL 1701.

Creative writing for an audience of children and young adults.

**3713. Literary Magazine Editing**

Three credits. Prerequisite: ENGL 1701; consent of instructor required; open to sophomores or higher. Recommended preparation: One 3000-level creative writing workshop. May be repeated once for credit.

Practicum in literary magazine editing, culminating in production of Long River Review.

**3715. Nature Writing Workshop**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher; open only with consent of instructor. Recommended preparation: ENGL 1701.

For student writers of proved ability who wish training in techniques of nature writing. Emphasis on nonfiction or poetry.

**4101W. Advanced Study: British Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in the literature of the British Isles.

**4201W. Advanced Study: American Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in the literature of the United States.

**4203W. Advanced Study: Ethnic Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in British or American literature written by ethnic writers.

**4301W. Advanced Study: Anglophone Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in the English literature of one or more regions, such as South Asia, Africa or the Caribbean.

**4302W. Advanced Study: Literature of Australia, Canada, Ireland, and New Zealand**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in the literature of these Commonwealth countries.

**4401W. Advanced Study: Poetry**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in poetry.

**4405W. Advanced Study: Drama**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in dramatic literature.

**4407W. Advanced Study: Prose**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in literary prose.

**4600W. Advanced Study: Seminars in Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of various limited topics, such as a particular literary theme, form, or movement, to be announced from semester to semester. Small classes with an emphasis on writing.

**4601W. Advanced Study: Literary Criticism and Theory**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in literary criticism and theory.

**4613W. Advanced Study: Lesbian, Gay, Bisexual and Transgender Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher. May be repeated for credit with a change of topic.

Intensive study of particular topics in the literary expression of lesbian, gay, bisexual and transgender identity.

**4897. Honors VIII: Honors Thesis**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor. All Honors students writing an Honors Thesis must register for this course in their last semester after consultation with the director of their thesis and the English department advisor to Honors Students, who is the instructor of record.

**4965W. Advanced Studies in Early Literature in English**

Three credits. Prerequisites: ENGL 1010 or 1011 or 2011 and at least 12 credits of 2000-level or above English courses or consent of instructor; open to juniors or higher.

Advanced studies in literature written in English before 1800.

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**Environmental Engineering (ENVE)**

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*Program Director:* Professor Emmanouil N. Anagnostou

*Office:* Room 313, F.L. Castleman Building

**1000. Environmental Sustainability**

Three credits.

Detailed examination of anthropogenic impacts on the environment, resulting from the need for energy, food and shelter. Subtopics in the broad areas of energy, food, shelter, waste, water, sustainable development will be grounded



with case studies of UCONN activities/programs in sustainability. Overarching and linking each topic is the impact of population and water resources with a focus on environmental literacy. Resolution of scientific/technological, public policy and economic aspects of environmental sustainability issues will be explored, including strategies for success, and possible pitfalls, in achieving environmental sustainability in the subtopic areas. CA 2.

### 2310. Environmental Engineering Fundamentals

(Also offered as CE 2310.) Three credits. Prerequisites: CHEM 1128Q or 1148Q.

Concepts of aqueous chemistry, biology, and physics applied in a quantitative manner to environmental problems and solutions. Mass and energy balances, chemical reaction engineering. Quantitative and fundamental description of water and air pollution problems. Environmental regulations and policy, pollution prevention, risk assessment. Written and oral reports.

### 2320. The Environmental Debate II

One credit. May be repeated for credit (maximum of 3 credits).

Structured review of environmental issues and active debate during class time. Presentation of current environmental issues by environmental professionals and experts.

### 2330. Decision Analysis in Civil and Environmental Engineering

(Also offered as CE 2210.) Three credits. Prerequisite: MATH 1132Q. This course may not be taken for credit if the student has passed CE 2251, CE 281, or ENVE 2251.

Time value of money. Evaluation of alternative projects. Fundamentals of probability theory and statistics. Introduction to critical path method for project scheduling and optimization using linear mathematical models.

### 3120. Fluid Mechanics

(Also offered as CE 3120.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CE 2110; MATH 2110 and MATH 2410Q; enrollment in the School of Engineering. Recommended preparation: CE 2120. This course and ME 3250 may not both be taken for credit.

Statics of fluids, analysis of fluid flow using principles of mass, momentum and energy conservation from a differential and control volume approach. Dimensional analysis. Application to pipe flow and open channel flow. Laboratory activities and written lab reports.

### 3200. Environmental Engineering Laboratory

Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: CE 2310; enrollment in the School of Engineering.

Aqueous analytical chemical techniques, absorption, coagulation/flocculation, fluidization, gas stripping, biokinetics, interpretation of analytical results, bench-scale design projects, written and oral reports. A fee of \$29 is charged for this course.

### 3220. Water Quality Engineering

Three credits. Prerequisites: CE/ENVE 2310; enrollment in the School of Engineering.

Physical, chemical, and biological principles for the treatment of aqueous phase contaminants; reactor dynamics and kinetics. Design projects.

### 3230. Introduction to Air Pollution

Three credits. Prerequisite: Enrollment in the School of Engineering. Recommended preparation: CHEG 2111 or ME 2233.

Gaseous pollutants and their properties; basic analytical techniques for air pollutants; particulate pollutants and their properties; equipment design for removal of gaseous and particulate materials; economic and environmental impact of air pollutants; federal and state regulations.

### 3270. Environmental Microbiology

Three credits. Prerequisite: Enrollment in the School of Engineering.

Content includes general microbiology, cell structure, cell growth kinetics, and genetics. In addition to the fundamental microbiological mechanisms, the application of microbial knowledge in natural environment and engineering systems (including water and wastewater treatment, soil and solid waste treatment) is also included. Will broaden the students' views of microbiological fundamentals and the applications to environmental systems.

### 3300W. Environmental Engineering Technical Communication

One credit. Prerequisite: ENVE 2310; ENGL 1010 or 1011 or 2011; concurrent with ENVE 3200; instructor consent required. *Bushey*

Basic technical writing for the environmental engineering field. Students will step through the various sections of technical reporting, obtaining feedback on each section before compiling complete formal reports. Students will also gain an appreciation for teamwork and effective oral communication. Written assignments will mirror those in ENVE 3200.

### 3530. Engineering and Environmental Geology

(Also offered as CE 3530 and GSCI 3710.) Three credits. Recommended preparation: GSCI 1050 or 1051.

Application of geological principles to engineering and environmental problems. Topics include site investigations, geologic hazards, slope processes, earthquakes, subsidence, and the engineering properties of geologic materials. Course intended for both geoscience and engineering majors.

### 3995. Special Topics in Environmental Engineering

Credits and hours by arrangement as announced. Prerequisite and or consent: Announced separately for each course; enrollment in the School of Engineering. Course may be repeated for credit.

Classroom or laboratory course on specific topics as announced.

### 4210. Environmental Engineering Chemistry

(Formerly offered as ENVE 3210.) Three credits. Prerequisite: (CHEM 1128 or 1148) and MATH 2410; enrollment in the School of Engineering.

Quantitative variables governing chemical behavior in environmental systems. Thermodynamics and kinetics of acid/base, coordination, precipitation/dissolution, and redox reactions. Organic chemistry nomenclature.

### 4310. Environmental Modeling

Three credits. Prerequisite: CE 2310 and (CHEG 3123 or CE 3120); enrollment in the School of Engineering.

Systematic approach for analyzing contamination problems. Systems theory and modeling will be used to assess the predominant processes that control the fate and mobility of pollutants in the environment. Assessments of lake eutrophication, conventional pollutants in rivers and estuaries and toxic chemicals in groundwater.

### 4320. Ecological Principles and Engineering

Three credits. Prerequisite: ENVE 3220; enrollment in the School of Engineering. Corequisite: ENVE 4210.

An introduction to ecology and natural treatment systems for managing waste and pollutants with a focus on aqueous contaminants. Topics will include stormwater management, treatment wetlands, restoration ecology, composting, and bioremediation.

### 4810. Engineering Hydrology

(Also offered as CE 4810.) Three credits. Prerequisite: CE/ENVE 3120 or CHEG 3123; enrollment in the School of Engineering.

Hydrologic cycle: precipitation, interception, depression storage, infiltration, evapotranspiration, overland flow, snow hydrology, groundwater and streamflow processes. Stream hydrographs and flood routing. Hydrologic modeling and design. Computer applications. Design project.

### 4820. Hydraulic Engineering

Three credits. Prerequisites: CE/ENVE 3120 or CHEG 3123; enrollment in the School of Engineering.

Design and analysis of water and wastewater transport systems, including pipelines, pumps, pipe networks, and open channel flow. Introduction to hydraulic structures and porous media hydraulics. Computer applications.

### 4886. Thesis I

One credit. Prerequisite: Consent of instructor; enrollment in the School of Engineering.

Introduction to research through literature review and preparation of a research proposal.

### 4896. Thesis II

Two credits. Prerequisite: ENVE 4886.

Execution of the research proposal prepared in Thesis I, preparation of written report and oral defense.

### 4910W. Environmental Engineering Design I

Two credits. Prerequisite: ENGL 1010 or 1011 or 2011. To be taken during the senior year.

Students working individually or in groups produce solution to environmental engineering design projects from data acquisition through preliminary design, cost estimating and final specifications, oral presentation and written reports.

### 4920W. Environmental Engineering Design II

Two credits. Prerequisite: ENVE 4910W; ENGL 1010 or 1011 or 2011. To be taken during the senior year.

Students working individually or in groups complete the implementations of protocols and techniques covered in ENVE 4910W, final cost

of entire project, feasibility, oral presentation and written reports. Instructors will supply initial conditions and performance expectations.

#### 4999. Independent Study

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only with consent of instructor; enrollment in the School of Engineering.

Individual study of special topics in law as mutually arranged between student and instructor.

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### Environmental Sciences (ENVS)

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#### 3993. Foreign Study

Credits (up to a maximum of 15) and hours by arrangement. Prerequisite: Consent of Program Director required, normally to be granted before the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

#### 3999. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and program director. May be repeated for credit with a change in subject matter.

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### Environmental Studies (EVST)

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Contact: Professor Mark Boyer

Program Office: Young 220

For major requirements, see the College of Liberal Arts and Sciences or the College of Agriculture and Natural Resources section of this Catalog.

#### 1000. Introduction to Environmental Studies

Three credits.

Interdisciplinary survey of relationships between humans and nature; investigation of specific environmental themes and contemporary issues. CA 2.

#### 3412. Global Environmental Politics

(Also offered as POLS 3412.) Three credits. Prerequisite: Open to juniors or higher.

Politics of how humans and natural systems interact. Managing the global environment, regulating resource commons, and coordinating to solve environmental problems.

#### 3991. Supervised Field Work

One to twelve credits. Hours by arrangement. Prerequisite: Open only with consent of the Program Director. May be repeated for up to a total of 12 credits. A total of 6 credits may be counted toward the major.

Designed to provide students experience in research, policy and activism settings not generally available on campus. Students will work with professionals in the environmental field who will provide evaluations to the program director. Student evaluation will be based upon the recommendation of the field supervisor. Students will be required to sign a Supervised Field Work contract detailing expectations for the credits earned.

#### 3993. Foreign Study

One to fifteen credits. Hours by arrangement. Prerequisite: Open to juniors or higher; consent

of Program Director required, normally to be granted before the student's departure. May count toward the major with consent of the advisor up to a maximum of six credits. May be repeated for credit.

Special topics taken in a foreign study program.

#### 3999. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and program director. May be repeated for credit with a change in subject matter.

#### 4000W. Environmental Studies Capstone Research Project

Three credits. Prerequisites: ENGL 1010 or 1011 or 2011; consent of instructor required; open to juniors or higher.

Individual student research projects integrate knowledge and perspectives on environmental issues. Extensive reading, research, written work and presentation/oral communication required.

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### European Studies (ES)

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Program Coordinator: Monica van Beusekom, Individualized and Interdisciplinary Studies Program

Office: Rowe 403

#### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. With a change in content, may be repeated for credit.

#### 3398. Variable Topics

Credits to a maximum of three. With change in topic, may be repeated for credit.

Intensive study of specialized topics relating to Europe not ordinarily covered in the curriculum.

#### 3995. Special Topics in European Studies

Three credits. With a change in topic, may be repeated for credit.

Intensive study of specialized topics related to Europe, not ordinarily covered in the undergraduate curriculum; normally one-time offerings taught by distinguished visiting scholars and/or jointly appointed faculty.

#### 3999. Independent Study

Credits and hours by arrangement. Prerequisite: Requires independent study Authorization Form. May be repeated for credit.

For thesis preparation or other intensive research project relating to Europe.

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### Finance (FNCE)

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Head of Department: Professor Chinmoy Ghosh

Department Office: Room 464, School of Business

For major requirements, see the School of Business section of this Catalog.

Courses in the department are open to juniors and seniors only with the exception of FNCE 1000.

#### 1000. Contemporary Issues in Finance

One credit. Prerequisite: Open to freshmen and sophomores, others with consent of instructor. May not be used to satisfy junior-senior level

major requirements in the School of Business. May be repeated for credit in different sections in combination with BADM 1801 or MGMT 1801 up to a maximum of three credits.

The world of business has changed. No longer can we refer to the cliché "business as usual." Today's business world is a complex, challenging and exciting place. Each section of the course will capture some aspect of this challenge and excitement. Students will be exposed to undercurrents that challenge and perplex today's managers and executives around the world.

#### 3101. Financial Management

Three credits. Prerequisite: ACCT 2001; ECON 1200 or both 1201 and 1202; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; and STAT 1000 or 1100; open only to Business majors with 40 or more credits completed. Not open for credit to students who have passed BADM 3730.

An introductory examination of how a business plans its needs for funds, raises the necessary funds, and invests them to attain its goals.

#### 3230. Real Estate Principles

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Overview of the personal, social and business aspects of real estate. Emphasis on home purchase decisions, location analysis, market characteristics and investment decision-making.

#### 3302. Investments and Security Analysis

Three credits. Prerequisite: FNCE 3101; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status. Not open for credit to students who have passed or are taking FNCE 3303.

A study of the nature of securities, the mechanics and costs of trading, and the ways in which the securities markets operate. Risk-return analysis will be applied in making decisions to buy or sell stocks, bonds and options. The semester-long project requires the student to follow and analyze the performance of individual stocks and a portfolio of investments including stocks, bond, options, and futures. Written analysis is required.

#### 3303. Principles of Investments and Derivatives

Three credits. Prerequisite: FNCE 3101; open only to Business majors of junior or higher status. Not open for students who have passed or are taking FNCE 3302. Offered only at the Hartford, Waterbury, and Stamford Regional Campus locations for students admitted to business major programs offered only at those locations. Cannot be used toward fulfilling the Finance major requirements.

Application of the general principles of investing to a wide range of assets including bonds, stocks, and derivatives. Various models are used to price fundamental assets such as bonds and stocks as well as derivative securities such as options and futures contracts. Written analysis is required.

**3332. Real Estate Investments**

Three credits. Prerequisite: FNCE 3101 or FNCE 3230 or BADM 3730; open only to Business majors of junior or higher status.

Risk-return analysis for alternate types of real estate investments. Techniques and applications of investment decision-making and value estimation. Lease analysis, cash flow, forecasting, appraisal techniques, discounted cash flow modeling, portfolio management, and equity securitization including real estate investment trusts.

**3333. Real Estate Finance**

Three credits. Prerequisite: FNCE 3101 or FNCE 3230 or BADM 3730; open only to Business majors of junior or higher status.

Investment characteristics of mortgages and the structure and operation of mortgage markets -- both primary and secondary, including the role of securitization. Risk and return characteristics of various mortgage instruments, both residential and commercial, are analyzed from the perspective of both the borrower and lender. Tools for measuring and managing the risks of portfolios of mortgages and mortgage-backed securities are introduced.

**3334. Real Estate Markets**

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

The success of an investment in real estate depends on the location of the property and its ability to compete for renters and buyers. The internet and information management technology provide powerful tools for analyzing the property, competitive properties, demographics, employment and other characteristics of demand. Students will gain hands-on experience with the application of technology to the analysis of supply and demand in real estate markets. Case studies and student projects stress applications to commercial real estate such as office buildings, shopping centers and apartments.

**3335. Commercial Real Estate Appraisal**

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

The process used to complete a commercial appraisal assignment, determining a dollar value, as of a certain date, for income producing real estate. Follows standards set by the Appraisal Institute Uniform Standards of Professional Appraisal Practice. Provides students with tools to conduct their own appraisal assignment and answer questions typical of an exam required by the Appraisal Institute. These skills are widely recognized in the real estate industry and are in demand through all phases of the real estate cycle.

**3715. Personal Finance**

Three credits. Prerequisite: Open only to Business majors of junior or higher status. Recommended preparation: Completion of a college level math course is strongly recommended.

Designed to provide students with practical financial management skills that will enable them to identify their personal financial goals, and to plan and make financial decisions that will help them reach those goals. Topics include

budgeting, investing, effective use of cash and credit, taxes, insurance, housing and automobile purchases, and retirement planning.

**4209. Applications in Financial Management**

Three credits. Prerequisite: FNCE 3101; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status. Recommended preparation: OPIM 3103.

An intermediate level course using cases i.e., problems faced by actual firms, to teach students how to apply financial management concepts and techniques to real-world situations.

**4301. Advanced Issues in Security Valuation**

Three credits. Prerequisites FNCE 3101 and FNCE 3302; open only to Business majors of junior or higher status.

Valuation of an investment through assessing a company's ability to produce free cash flow, maintain a consistent return on capital and reinvest capital effectively over time; interpretation of financial and management practices; evaluation of the psychological framework and investment thought process that is useful in the analysis of the physical, intellectual and emotional factors related to valuing an investment.

**4302. Fixed Income Securities**

Three credits. Prerequisite: FNCE 3101 or instructor consent; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status.

Provides an understanding of the common types of fixed income securities and their valuation, the major risks associated with investing in fixed income securities, the standard measures of those risks and approaches to managing those risks. In addition the basics of modeling interest rate processes and valuing securities with embedded options will be introduced.

**4303. Advanced Issues in Asset Allocation and Portfolio Management**

Three credits. Prerequisites FNCE 3101 and FNCE 3302; open only to Business majors of junior or higher status.

Valuation of a business including models such as discounted cash flows, relative metrics, contingent claim valuation and liquidation value; evaluation of specific business models that companies pursue to create competitive advantage including toll gate positioning, segregation vs. integration, and organic vs. mechanistic strategies.

**4304. Financial Risk Management**

Three credits. Prerequisite: FNCE 3101; open only to Business majors of junior or higher status.

Applications of financial structuring and engineering with particular attention to uses of derivatives.

**4305. Global Financial Management**

Three credits. Prerequisite: FNCE 3101; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status.

Focuses on the detailed study of: (1) exchange rate determination, (2) operation of

the foreign currency and global capital markets, and (3) hedging both transaction and economic exposure to exchange rate changes.

**4306. Financial Services**

Three credits. Prerequisite: FNCE 3101; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status.

Study of the role of financial services companies in the money and capital markets, funds acquisitions, investment and credit extension.

**4319. Entrepreneurial Finance**

Three credits. Prerequisite: FNCE 3101; open only to Business majors of junior or higher status.

An overview of the entrepreneurial finance process, both from the perspective of entrepreneurs and also of private equity investors. It focuses on integrating basic knowledge of finance principles with the complexities of new ventures.

**4410. Security Valuation and Portfolio Management**

Three credits. Prerequisite: FNCE 3101; open to juniors or higher; open only to Financial Management majors at the Stamford campus.

Determining asset allocation strategies and equity valuation methods, along with the study and interpretation of business models, and the value drivers that create shareholder wealth. Evaluation of the investment thought process that is useful in the analysis of the physical, intellectual, social, and emotional factors related to valuing a business and/or an investment.

**4420. Alternative Investments and Risk Management**

Three credits. Prerequisite: FNCE 3101; open only to Business majors of junior or higher status.

Provides knowledge of investment characteristics of alternative investments such as hedge funds, private equity, and commodities. Students learn how to form portfolios and evaluate their performance.

**4430. Mergers and Acquisitions**

Three credits. Prerequisite: FNCE 3101; open only to Business majors of junior or higher status.

Provides the theoretical background as well as the analytical and technological tools necessary to analyze corporate combinations, restructurings, and bankruptcies. Specific topics include relevant laws, takeover defenses, corporate control issues, leveraged buyouts, valuation, restructuring and bankruptcy.

**4440. Financial Ethics**

One credit. Prerequisite: BLAW 3175 or BADM 3720; open only to Business majors of junior or higher status.

Provides an understanding of the importance of ethics in the finance profession. The focus is on the concept that capital markets operate on trust; topic coverage includes professionalism and integrity of the capital markets, duties to clients and employers, investment analysis and recommendations, and conflicts of interest.

**4450. Financial Reporting and Analysis**

Three credits. Prerequisite: FNCE 3101; open only to Business majors of junior or higher status.

Provides a more thorough understanding of the general principles of the financial reporting system,

underscoring the critical role of the analysis of financial reports in investment decision.

#### 4891. Field Study Internship

One to three credits. Hours by arrangement. Prerequisite: Students enrolled in the Real Estate Intern program must have earned a "C" or better in FNCE 3230; for all others, completion of FNCE 3101 and at least one other finance course related to the internship area, with a grade of "C" or better in each course; open only to Business majors of junior or higher status; consent of instructor and Department Head required prior to beginning the internship. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for supervised field work in relevant major areas within the Department. Students will work with one or more professionals in their major academic area. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

#### 4893. Foreign Study

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required prior to the student's departure.

Special topics taken in a foreign study program.

#### 4895. Special Topics

Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics in finance, insurance or real estate as announced in advance for each semester.

#### 4899. Independent Study

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only to Business majors of junior or higher status; open only with consent of instructor and Department Head.

Individual study of special topics in finance, insurance or real estate as mutually arranged between a student and an instructor.

#### 4997W. Senior Thesis in Finance

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only to Finance Department Honors Students with consent of instructor and Department Head.

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## Fine Arts (FINA)

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References should be made to the offerings of art, dramatic arts and music. The courses listed below are of common interest to students in various disciplines.

#### 1001. Earthtones: Vocal Ensemble

(Also offered as MUSI 1006.) One credit. One laboratory period. May be repeated for credit with a change of topic for a maximum of 8 credits.

World music vocal ensemble that brings to life the songs of specific cultures as a means to gain knowledge and understanding of communities,

culture, spirituality and social justice. A fee of \$25 is charged for this course. CA 1

#### 1100. Afrocentric Perspectives in the Arts

(Also offered as AFRA 1100.) Three credits. *Molette*

Lectures and discussions about assigned readings focus on historical and aesthetic perspectives of African American Arts and their African sources, with emphasis on how social and aesthetic context impacts on creative expression by African American artists. Presentations by guest lecturers and University of Connecticut faculty plus small group discussions. CA 1. CA 4.

#### 2001. Global and Transcultural Forms

Two credits. Two 1½-hour laboratories per week. Prerequisite: Instructor consent.

Immersion in world arts practices that cross national and cultural boundaries.

#### 3391. Global Arts and Culture Internship

Three credits. Hours by arrangement. Prerequisite: FINA/AFRA 1100; CLCS 2201; three credits of FINA/MUSI 1006; FINA 2001; or MUSI 1114; and three credits of electives for the Global Arts and Culture minor; open only to juniors or higher in the Global Arts and Culture minor with a minimum GPA of 2.8 and consent of department head.

Offers a practical educational base for many culture-related areas in the arts such as arts agencies, corporations, schools or artist studios. Provides faculty supervised professional experience in a private or public organization.

#### 3510. Foundation: Exploring Digital Arts

Three credits. Two 3 hour studio class periods. Prerequisite: Portfolio review; instructor consent.

Initial explorations and concepts in ideation for digital arts.

#### 3710. Protecting the Creative Spirit: The Law and the Arts

Three credits. Three hours of lecture and discussion. Open only to juniors or higher, others with consent of the instructor. Not open for credit to students who have passed FINA 3995 when taught as Law and the Arts.

The law and business practices that affect and protect careers in the arts. Topics include national and international copyright law, trademarks, licensing, and contract negotiations in addition to rights of privacy and publicity.

#### 3995. Investigation of Special Topics

Credits and hours by arrangement. Prerequisite: Instructor consent required. May be repeated up to six credits with a change in course content.

Special topics, taking an interdisciplinary approach to the arts.

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## French (FREN)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Literatures, Cultures and Languages Department listing in this Catalog for requirements for majors in French.

Consult the Departmental Handbook for courses offered and further description of these courses.

#### 1161-1162. Elementary French I and II

Four credits each semester. Four class periods and a one-hour laboratory period. The fourth class period is devoted to culture and society and reinforces through these areas the linguistic skills taught in the preceding classes. Not open for credit to students who have had three or more years of high school French. Students who wish to continue in French but feel ill prepared should contact the head of the Literatures, Cultures and Languages Department.

Elementary French grammar. Emphasis is on the skills of speaking, oral and written comprehension, reading of simple texts and writing.

#### 1163-1164. Intermediate French I and II

Four credits each semester. Four class periods and a one-hour laboratory period. The fourth class period is devoted to culture and society. Prerequisite: FREN 1162 or 173 or two years of high school French.

Continuation of 1161-1162. Review and extension of French grammar. Graded composition. Intensive and extensive reading. Intensive oral practice.

#### 1169. Modernity in Crisis: France and the Francophone World from 1850 to Today

Three credits. Taught in English.

A cultural history of France and its colonial empire through political, social, artistic and literary revolutions and scandals. Topics include: Impressionism and the shock of the new, the Eiffel Tower scandal, Nazi occupation and the resistance, U.S. cultural imperialism, feminism, immigration and the crisis of national identity. CA 1. CA 4-INT.

#### 1171. French Cinema

Three credits. One 3-hour class period. Readings, viewings and lectures in English. May not be used to meet the foreign language requirement.

Weekly screenings of French films from the first comedies and surrealism to the New Wave and the young filmmakers of the 1990's. Introduction to film history, analysis, and interpretation of films. CA 1. CA 4-INT.

#### 1174-1175. Intensive French III and IV

Four credits each semester. Two hours a day, four days a week, plus a 2-hour laboratory practice. Prerequisite: Open only with consent of instructor.

Intensive coverage; French 1174-1175 (spring) covers the same material as 1163-1164.

#### 1176. Literatures and Cultures of the Postcolonial Francophone World

Three credits. Taught in English.

Evolution of literatures and cultures formerly under French colonial rule. Language, identity, religion, art and politics as they shape these societies' passage to cultural autonomy. CA 1. CA 4-INT.

#### 1177. Magicians, Witches, Wizards: Parallel Beliefs and Popular Culture in France

Three credits.

The search for traces of a counter culture which grew out of pagan beliefs and remained latent despite the domination of Christianity from the Middle Ages to modern times. Tales of magic and witchcraft, as presented by texts and

films. The evolution of exemplary figures like Merlin or Nostradamus. Taught in English. CA 1. CA 4-INT.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3210. French Art and Civilization

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

Studies of the arts in the cultural context of French and Francophone civilization, from the Middle Ages to the late nineteenth century. Considerations of social systems, passions, sexuality, relations of power in their manifestations in architecture, painting and sculpture. Some lectures by and discussions with experts from Anthropology, Music, Political Science, History, and Art History. CA 1.

### 3211. Contemporary France

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

An historical and cultural overview of France in the 20th and 21st centuries: from D-Day to the European Union, from Communism to the Green Party, from ballad crooners to rap, from love stories to action films; the changing French nation through authentic documents, literary texts, and films. CA 1. CA 4-INT.

### 3215. Practical Translation

Three credits. Recommended preparation: FREN 3267 or 3268 or instructor consent.

Acquaints students with the practical aspect of translating by working on a variety of articles on politics, science, business, and the arts.

### 3216. Advanced Translation

Three credits. Prerequisite: FREN 3215 or instructor consent. Gordon, Melehy

Translation of texts from the press, contemporary literature, film, and media. This level of translation requires the completion of an individual project.

### 3217. Business French

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

French and international business, from day-to-day entrepreneurial operations to the new European economy and globalization. Preparation for the Diplôme de Français des Affaires given by the Paris Chamber of Commerce and Industry. Recommended for those interested in working in international business and institutions.

### 3218. Francophone Studies

Three credits. Recommended preparation: FREN 3210 or 3211 or 3261 or 3262 or instructor consent.

The literatures, societies, and cultures of French-speaking countries in North Africa, West Africa, the Caribbean, the Pacific and of Francophone communities of Europe and North America. CA 1. CA 4-INT.

### 3220. Theater Studies

Three credits. Recommended preparation: FREN 3261 or 3262 or instructor consent.

A study of French dramatic texts and genres (tragedy, comedy, etc.). Popular theatre. The theory and practice of performance in contemporary France. The semiotics of stage production. Use of audio-visual material.

### 3221. Forms and Topics in French Fiction

Three credits. Recommended preparation: FREN 3261 or 3262 or instructor consent.

A study of literary forms in prose in their social and cultural contexts. Forms include: classic psychological novel, classic and contemporary science-fiction, the realist novel, the fantastic short story, the new novel, detective fiction, electronic fiction.

### 3222. Poetry

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

Examples of poetry of different epochs ranging from the epic to the lyric to the limerick.

### 3223. French Film and Theory

Three credits. Recommended preparation: FREN 3210 or 3211 or 3261 or 3262 or instructor consent.

French and Francophone film and its aesthetic and social function. Evolution of film language and the relation of film to literature and to other cultural expressions. May be offered in English or in French.

### 3224. Issues in Cultural Studies, the Media, and the Social Sciences

Three credits. Recommended preparation: FREN 3211 or instructor consent. May be repeated twice for credit.

The economics of the media industry, mass audiences and new technologies, the marketing of culture, French nationalism and the global market, electronic democracy, the politics of food and addictions, ethics and new forms of human reproduction. CA 1. CA 4-INT.

### 3226. French and Francophone Cinema

Three credits. Prerequisite: FREN 3210 or 3211 or 3261 or 3262, or instructor consent.

Moments and themes in the history of French and Francophone cinema, studied chronologically.

### 3230. The Middle Ages: Myths and Legends

Three credits. Recommended preparation: FREN 3261 or 3262 or instructor consent.

Founding myths and legends of Occidental culture, including a socio-cultural approach. Strong audio-visual component. CA 1.

### 3231. Renaissance and Reformation

Three credits. Recommended preparation: FREN 3261 or 3262 or instructor consent.

Literary works from the sixteenth century in their cultural context: the secularization of daily life, passions, religious violence, the changing roles of women and reconceptualizations of sexuality, representations of the body, the relationship to Greco-Roman Antiquity; the relationship to the "Other," the "New World."

### 3234. Romanticism, Realism, Fin de Siècle: 19th-Century Literature

Three credits. Recommended preparation: FREN 3261 or 3262 or instructor consent.

The literary and artistic innovations that made France the center of 19th-century culture. The Fantastic, Realism, Naturalism, and Decadence. CA 1.

### 3235. French Modernity

Three credits. Recommended preparation: FREN 3261 or 3262 or instructor consent.

A portrait of France in the 20th Century through contemporary French literature: exoticism, sexuality, war, colonialism, feminism, end of the century, related films and works of art. CA 1.

### 3250. Global Culture in French I

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

Intense study of oral French. Learning of oral techniques of communication in conjunction with weekly topics of conversation associated with various francophone cultures. Rigorous and active oral practice through dialogues, interviews, roundtables, and oral reports.

### 3251. Global Culture in French II

Three credits. Recommended preparation: Four years of high school French or FREN 3250 or instructor consent.

Extensive practice in oral French based mainly on authentic cultural materials. Emphasis on perfecting language skills for self-expression and communication, on developing new vocabulary, and on recognizing and working with linguistic differences associated with various francophone cultures.

### 3257. French Phonetics

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

A comprehensive study of the French phonetic system. Practice pronouncing French as the French do in a wide array of contexts.

### 3261W. From the Holy Grail to the Revolution: Introduction to Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

Texts from the Middle Ages to the 18th Century, including the Arthurian legend, Renaissance poetry, Classical theater, and the philosophy of the Enlightenment in the cultural context in which they were produced. CA 1.

### 3262W. From the Romantics to the Moderns: Introduction to Literature

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

Study of poetry, theater and prose fiction that marks the evolution from the psychology of the romantic hero and heroine to Existentialist philosophy and the New Novel, and contemporary fiction and poetry. CA 1.

**3267. Grammar and Culture**

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

The study of French and Francophone culture through fiction, non-fiction, journalism and film. Emphasis on perfecting both oral and written expression through discussion, presentations, and composition on assigned topics. CA 1.

**3268. Grammar and Composition**

Three credits. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent.

Advanced study of French texts and extensive written practice in a variety of forms ranging from compositions, essays, summaries and film reviews. CA 1.

**3268W. Grammar and Composition**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: FREN 1164 or 1175 or three years of high school French or instructor consent. CA 1.

**3269. Advanced French Grammar**

Three credits. Three hours per week. Recommended preparation: French 3268 or equivalent.

Intensive course in French grammar through a variety of fictional and non-fictional texts.

**3270W. French Literature and Civilization in English**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Representative works of French literature, on a particular theme. How literary forms articulate the ideas and values of different periods. CA 1.

**3272. French Literary Theory**

Three credits. Recommended preparation: FREN 3268 or instructor consent.

Introduction to French literary theory, as informed by linguistics, semiotics, historical materialism, psychoanalysis, philosophy, feminist studies, postmodernism and postcolonialism. Critical practice applied to French and Francophone literatures, popular culture, advertising, the media, electronic writing.

**3274. French Cultural Studies**

Three credits. Recommended preparation: FREN 3261 or 3262.

French and Francophone cultures and societies. Themes and topics include: sexuality and politics, education and violence, France and the USA, France and Africa, French multiculturalism, French music (including rap), cities and "banlieues," social and cultural effects of globalization.

**3280. Fiction and Non-fiction by French and Francophone Women**

Three credits. Recommended preparation: FREN 3261W or 3262W or consent of instructor. With a change in content, this course may be repeated for credit.

**3293. Foreign Study**

Credits and hours by arrangement. May be repeated for credit. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3298. Variable Topics**

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

**Education Abroad Program in France.** The University sponsors an academic program at the University of Paris in France. A program description can be found in this Catalog within the Literatures, Cultures and Languages Departmental listing, College of Liberal Arts and Sciences.

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## General and Professional Studies (GPS)

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*Interim Director:* Peter Diplock

*Office:* Room 333B, Center for Undergraduate Education

For major requirements, see the Center for Excellence in Teaching and Learning section of this Catalog.

**3081. BGS Internship**

(Formerly offered as GS 3081.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and BGS mentor/advisor. With a change in content, may be repeated for credit.

**3088. Variable Topics**

(Formerly offered as GS 3088.) Credits and hours by arrangement. With a change in content, may be repeated for credit.

**3099. Independent Study**

(Formerly offered as GS 3099.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and BGS mentor/advisor. With a change in content, may be repeated for credit.

**4278. Integrating General Studies**

(Formerly offered as GS 4278.) Three credits. With a change of topic, may be repeated for credit.

Integrates the fields of general and interdisciplinary studies. Traces emergence of interdisciplinary studies and compares different academic disciplines. Future of interdisciplinary studies is assessed.

**4278W. Integrating General Studies**

(Formerly offered as GS 4278W.) Prerequisite: ENGL 1010 or 1011 or 2011. With a change of topic, may be repeated for credit.

**4279. BGS Summary Project**

(Formerly offered as GS 4279.) Three credits. Prerequisite: Open only with consent of BGS advisor and program director.

A senior interdisciplinary academic enterprise in the form of one of the following:

research paper; experiment; specialized field experience or internship; creative writing or artistic production. The summary project reflects the interdisciplinary nature of student's customized academic plan of study and explores in depth a relevant area of interest as demonstrated in a paper or report.

**4300W. Collaborative Leadership**

Three credits. Prerequisite: GPS 3100; ENGL 1010 or 1011 or 2011; open to students in BPS or BGS, others with permission. Recommended to be taken in the last 12 credits.

Draws on contemporary theories and models of leadership and insights from disciplines such as psychology, sociology, political science, and cultural anthropology to enhance leadership capabilities. Extensive use of inquiry teams to identify situation specific leadership challenges, opportunities, and solutions.

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## Geography (GEOG)

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*Head of Department:* Professor Kenneth Foote

*Department Office:* Room 422, Philip E. Austin Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1000. Introduction to Geography**

Three credits.

Principles, concepts and methods of modern geography are developed both in general form and specific case studies. Examples pertaining to both the human and physical environment will be discussed. CA 2.

**1070. Natural Disasters and Environmental Change**

(Also offered as GSCI 1070.) Three credits. Not open for credit to students who have passed GSCI 1010, 1050, 1051, or 1055. Students who complete both this course and GSCI 1052 may request that GSCI 1070 be converted to a CA 3 laboratory course.

Climate change, global warming, natural hazards, earth surface processes, and the impact these have on populations now and in the past. CA 3.

**1093. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head or advisor may be required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**1200. The City in the Western Tradition**

(130). (Also offered as URBN 1200.) Three credits.

A broad discussion of the role and structure of the city in the western tradition from the Classical period to contemporary America. Special emphasis will be placed on the mechanisms by which cities and ideas about them have been diffused from one place to another and on the changing forces that have shaped the western city. CA 1.

**1300. Climate, Weather, and the Environment**

Three credits.

Interactions between weather and climate and the human and natural environment. Emphasis

on understanding the linkages between natural processes and societal/environmental issues.

### 1302. GIS Modeling of Environmental Change

Four credits. Three class periods and one 3-hour laboratory period.

An introduction to environmental processes and patterns, especially assessing change in environmental systems using spatial analysis techniques. Students will map field sites using Global Positioning System technology and aerial photographs, collect field data on various environmental systems, and build and test a Geographical Information System-based environmental model. CA 3-LAB.

### 1700. World Regional Geography

Three credits.

Study of geographic relationships among natural and cultural environments that help to distinguish one part of the world from another. Analysis of selected countries as well as larger regions, with specific reference to the non-western world. CA 2. CA 4-INT.

### 2000. Globalization

(Formerly offered as GEOG 1100.) Three credits.

Globalization as a complex, multidimensional process. Linkages and interconnectedness between spatial processes and social, cultural, economic, political, and environmental change around the world today. Theory and impacts of economic, social, political, and cultural globalization through case studies at the local, regional, national, and international scales. CA 2. CA 4-INT.

### 2100. Economic Geography

Three credits.

Examination of the relationship among economic, cultural, and geographic processes which affect the patterns, structure, and growth or decline of economic activities. The global extent of the agricultural, manufacturing, and service sectors is presented with particular emphasis on the interdependency of non-western and western economies. CA 2.

### 2200. Introduction to Human Geography

(Formerly offered as GEOG 3120.) Three credits. Two lectures.

Geographic perspectives on the relationships between human behavior/activities, and the physical, economic, and cultural environments.

### 2300. Introduction to Physical Geography

Three credits.

The physical elements and processes of the lithosphere, hydrosphere and atmosphere are considered in relation to one another and to the distribution of the world's environments. Emphasis on the basic concepts and theories of physical geography. CA 3.

### 2320. Climate Change: Current Geographic Issues

Three credits.

Introduction to the science, impacts, and politics of climate change from a geographic perspective. Examination of physical mechanisms, extreme weather events, impacts on water, food and energy systems, impacts on polar regions, energy strategies and solutions,

policy and negotiations, and mitigation and adaptation strategies. CA 2.

### 2400. Introduction to Sustainable Cities

Three credits.

Pathways to make cities more sustainable from social, economic, and environmental perspectives. Topics include sustainable transportation, renewable energy, recycling of waste, and green infrastructure in contemporary metropolitan areas in developed and developing nations. CA 2. CA 4-INT.

### 2410. New Digital Worlds of Geographic Information Science

Three credits.

The role of geospatial technologies in science and society; how these technologies address environmental issues; how further development of these technologies may impact lives in the future. Provides a strong conceptual and scientific foundation for further coursework and includes discussion of career opportunities in GIScience. CA 3.

### 2500. Introduction to Geographic Information Systems

(Formerly offered as GEOG 4500.) Four credits. One 2-hour lecture and two 2-hour laboratory periods.

Fundamental principles of geographic information systems (GIS). Topics include history of the field, components of a GIS, the nature and characteristics of spatial data, methods of data capture and sources of data, database models, review of typical GIS operations and applications. Laboratory exercises provide experience with common computer-based systems.

### 2505. Applications of Geographic Information Systems

(Formerly offered as GEOG 4510.) Four credits. One 2-hour lecture and two 2-hour laboratory periods. Prerequisite: GEOG 2500 or 4500.

Applications of geographic information systems. Particular attention to land use planning and resource management.

### 2510. Visualizing Geographic Data

Three credits.

Survey of methods for representing geographic data in tables, graphs, and maps emphasizing proper application, integration, and interpretation of methods in data visualization.

### 3100. The Geography of Economic Development

Three credits. Recommended preparation: GEOG 1100 or 1700 or 2100.

Analysis of processes and patterns of economic organization and spatial change at the international, national and intra-national scales. Examines development from both linear (neo-classical) and structuralist (political economy) perspectives, and emphasizes relationships between advanced and developing economies within the context of the global economy.

### 3110. Location Analysis

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: GEOG 2100.

The study of issues and approaches in location analysis. Topics include location, theory and models, impacts of locational choice, systems analysis, evaluation of service areas, land use allocation, accessibility and locational

conflict. Implications for planning and public policy are stressed.

### 3200. Urban Geography

(Also offered as URBN 3200.) Three credits.

Analysis of the growth, distribution, and functional patterns within and among Western cities. Application of urban geographical concepts to city planning problems.

### 3220. Race and Food

Three credits. *McCutcheon*

Analysis of the relationship between race, geography and food/agriculture through the lens of African Americans. Topics include food and the African Diaspora, the effects of slavery on food and agriculture, migration and the spread of food traditions and growing practices, community food security, and whiteness in the alternative food movement.

### 3240. Medical and Health Care Geography

Three credits.

Introduction to the geography of disease and health care services.

### 3310. Fluvial Geomorphology

Three credits. One required weekend field trip. Prerequisite: GEOG 2300; or GSCI 1050; or GSCI 1051 and 1052; open to juniors or higher.

Physical forms and processes associated with rivers. Factors controlling open-channel flow, sediment transport, channel morphology, adjustments of rivers to environmental change, and human impacts. A fee of \$20 is charged for this course.

### 3320W. Environmental Evaluation and Assessment

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: GEOG 2300 or 3410.

Concepts and methods of environmental analysis in contemporary geography. Emphasis on the ecological impact of human activities and on the evaluation and assessment of existing and future environments.

### 3330W. Environmental Restoration

Three credits. Prerequisite: GEOG 2300 or BIOL 1108 or instructor consent; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Restoration of natural environments including rivers, wetlands, coastal areas, grasslands and forests. Theoretical discussions of restoration ecology, management and engineering concerns. History of environmental restoration; relevant policy debates; specific case studies of river, wetland, coastal, grassland, and forest restoration.

### 3340. Environmental Planning and Management

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: GEOG 3410.

The basic elements of the conflict between human environments and natural systems are considered, along with the methods of analysis and resolution of problems caused by that conflict. Emphasis on public policy related to environmental issues. A fee of \$10 is charged for this course.

**3400. Climate and Weather**

Three credits. Recommended preparation: GEOG 1300 or 2300.

Analysis of atmospheric processes giving rise to weather systems and climate patterns. The dynamic integration of atmospheric systems is emphasized.

**3410. Human Modifications of Natural Environments**

Three credits.

A geographical and historical interpretation of the changing relationships between culture and environment. Emphasis on the modification of the biophysical environment by preagricultural, agricultural and urban societies in Europe, southwest Asia, and North America.

**3420. Field Methods in Physical Geography**

Four credits. Three lectures and one three-hour lab. Recommended preparation: GEOG 2300 and 2500.

Overview of methods for collecting geographic information in the field, identification of existing data to support field studies, and integration of these data in a geographic information system for further analysis and/or mapping.

**3500Q. Geographic Data Analysis**

Four credits. Three class periods and one 2-hour laboratory. Prerequisite: Open to juniors or higher. Recommended preparation: 1000-level STAT.

An introduction to the use of quantitative methods in conducting research, with particular emphasis on the processing and analysis of geographic data.

**3505. Remote Sensing of Marine Geography**

(Also offered as MARN 3505.) Three credits. Recommended preparation: GEOG 2300 or MARN 1002.

Introduction to remote sensing applications in oceans and seas. Applications include image analysis of sea surface temperature, winds, altimetry, sea ice, chlorophyll, primary productivity, and bathymetry.

**3510. Cartographic Techniques**

Four credits. One 2-hour lecture and two 2-hour laboratory periods.

A laboratory-oriented introduction to computer-based map design and compilation. Concepts of scale, symbolization, map balance, and layout are emphasized for both general and thematic mapping.

**3700. The American Landscape**

Three credits.

Survey and analysis of contemporary U.S. and Canadian landscapes, including consideration of the environmental, social, political, and economic forces that generate them.

**4090. Internship in Geography: Field Study**

Credits, not to exceed three, by arrangement. Hours by arrangement with hosting agency, not to exceed 16 hours per week. Prerequisite: Consent of instructor; open to juniors or higher. Corequisite: GEOG 4091. May not be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

A fieldwork internship program under the direction and supervision of the geography staff. Students will be placed in agencies or industries where their academic training will be applied. One 8-hour work day per week (or its equivalent) for the host agency during the course of the semester will be necessary for 3 academic credits.

**4091. Internship in Geography: Seminar**

Credits, not to exceed three, by arrangement. Prerequisite: Consent of instructor; open to juniors or higher. Corequisite: GEOG 4090.

Description, analysis, and evaluation of the fieldwork portion (GEOG 4090) of the internship. Written reports are required.

**4093. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required prior to the student's departure.

Special topics taken in a foreign study program.

**4095. Special Topics**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.

**4096. Senior Thesis**

Three credits. Hours by arrangement. Prerequisite: One advanced seminar in geography and/or 3 credits of independent study in geography; open to juniors or higher; open only with consent of instructor and department head.

**4096W. Senior Thesis**

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; one 3000-level or above course in GEOG and/or 3 credits of independent study in geography; open to juniors or higher; open only with consent of instructor and department head.

**4098. Variable Topics**

Three credits. Prerequisite: Open to juniors or higher. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**4099. Independent Study**

Credits, not to exceed 6, and hours by arrangement. Prerequisite: Open to juniors or higher. May be repeated for credit.

**4110W. Regional Development and Policy**

Three credits. Prerequisite: GEOG 2100 or instructor consent; ENGL 1010 or 1011 or 2011; open to juniors or higher.

A study of theory and practice in regional development and planning. Emphasis on evaluation of regional problems and public policies designed to resolve them, with a primary focus on the United States.

**4130. Transportation Geography**

Three credits. Recommended preparation: GEOG 2100.

Investigation of the role of transportation in global trade, spatial organization, economic development, and the natural and built environment. Application of GIS to the study of transport systems and modeling.

**4200W. Geographical Analysis of Urban Social Issues**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: GEOG 3200.

Analysis of socioeconomic patterns and issues within urban areas, with emphasis on applied geographical research. Policy implications are stressed.

**4210. Urban and Regional Planning**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: GEOG 2100 or instructor consent.

Urban and regional planning, with emphasis on (1) duties of local planners, especially land use planning, and (2) the political context for planners' work. Legal and political issues in communities and organizations.

**4220. Population Geography**

(Formerly offered as GEOG 3210.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: GEOG 1000 or 2100.

Composition and growth of human populations. Concepts and techniques for analyzing populations in the context of significant population issues in the United States.

**4230. GIS and Remote Sensing for Geoscience Applications**

(Also offered as GSCI 4230.) Three credits. Prerequisite: GEOG 2300; or GSCI 1050; or GSCI 1051 and 1052.

Application of Geographic Information Systems, remote sensing, and image interpretation to problems in geoscience. Data acquisition, processing and analysis of Digital Elevation Models and satellite imagery. Geologic materials, processes, landforms and landscapes.

**4300. Advanced Physical Geography**

Three credits. Prerequisite: GEOG 2300 or instructor consent; open to juniors or higher.

Problems involving the application of physical processes in our changing environment.

**4515. Web GIS**

Three credits. Lecture and lab. Prerequisite: GEOG 2500, 2505, and consent of instructor.

Introduction to Internet GIS. The basics of system architecture, geospatial web services, mashups, key elements of mobile GIS solutions, the functionality of geoportals and web technologies, web mapping interoperability using universal data standards such as OGC (Open Geospatial Consortium) web services, and the current state of e-business and e-government web mapping interests.

**4700. Contemporary Europe: A Geography**

Three credits. Prerequisite: Open to juniors or higher.

An introduction to the Europe (including the European republics of the former U.S.S.R.). Emphasis on the economic, political, and social forces both maintaining national identities and shaping a united Europe.

**4710. Geography of Latin America**

Three credits. Prerequisite: Open to juniors or higher.



An integrative study of the physical, historical, social, political and economic geography of Latin America. Particular emphasis on patterns, processes and problems of spatial economic change in the region.

## Geoscience (GSCI)

*Director:* Professor Lisa Park Boush, Center for Integrative Geosciences

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1010. Dinosaurs, Extinctions, and Environmental Catastrophes

(Formerly offered as GEOL 1010.) Three credits. Not open for credit to students who have passed GSCI 1050, 1051, 1055, or 1070. Students who complete both GSCI 1010 and GSCI 1052 may request that GSCI 1010 be converted to a CA 3 laboratory course.

A reconstruction of the Mesozoic world of the dinosaurs based on paleontological and geological evidence. Past and present environmental catastrophes leading to mass extinctions and changes in biodiversity. Fundamental concepts of geology, stratigraphy, historical geology, and paleoclimatology. CA 3.

### 1050. Earth's Dynamic Environment

(Formerly offered as GEOL 1050.) Four credits. Three class periods and one 3-hour laboratory period. Not open for credit to students who have passed GSCI 1010, 1051, 1055, or 1070.

Origin and history of planet Earth, emphasizing how rock, air, water, and life interact at different scales to produce the earth's crust, landforms, life systems, natural resources, catastrophes, and climatic regimes. Provides a scientific context for human-induced global change. A fee of \$10 is charged for this course. CA 3-LAB.

### 1051. Earth's Dynamic Environment (Lecture)

(Formerly offered as GEOL 1051.) Three credits. Three class periods. Not open for credit to students who have passed GSCI 1010, 1050, 1055, or 1070. Students who complete both GSCI 1051 and 1052 may request that GSCI 1051 be converted to a CA 3 laboratory course.

Origin and history of planet Earth, emphasizing how rock, air, water, and life interact at different scales to produce the earth's crust, landforms, life systems, natural resources, catastrophes, and climatic regimes. Provides a scientific context for human-induced global change. CA 3.

### 1052. Earth's Dynamic Environment (Laboratory)

(Formerly offered as GEOL 1052.) One credit. Prerequisite or corequisite: GSCI 1010, 1051, 1055, or 1070. Not open to students who have passed GSCI 1050. Students who complete both GSCI 1052 and one of GSCI 1010, 1051, 1055 or 1070 may request that the prerequisite be converted to a CA 3 laboratory course.

Laboratory complement to GSCI 1010, 1051, 1055, and 1070. Provides an opportunity to work with specimens (minerals, fossils, rocks), terrain images, maps, physical models, and simulation experiments. Includes local field trips. A fee of \$10 is charged for this course.

### 1053. Discussion Earth and Life through Time

(Formerly offered as GEOL 1053.) One credit. Corequisite: GSCI 1050 or 1051 or 1052 or instructor consent. May be repeated for credit with instructor consent.

Faculty-taught, weekly discussions to enhance GSCI 1050 and 1051. Emphasis and approach will vary, but all sections will track the lecture syllabus.

### 1054. Field Trips Earth and Life through Time

(Formerly offered as GEOL 1054.) One credit. Corequisite: GSCI 1050 or 1051 or 1052 or instructor consent. May be repeated for credit with instructor consent.

Two or more faculty-led weekend field trips to nearby sites of interest, designed to enhance GSCI 1050 and 1051.

### 1055. Geoscience and the American Landscape

(Formerly offered as SCI 1051.) Three credits. Prerequisite: Open only to Honors students. Not open for credit to students who have passed GSCI 1010, 1050, 1051, or 1070. Students who complete both GSCI 1055 and 1052 may request that GSCI 1055 be converted to a CA 3 laboratory course.

An Honors Core course. Foundation course in geology linked to the American Landscape through readings from American history and literature. CA 3.

### 1070. Natural Disasters and Environmental Change

(Also offered as GEOG 1070.) Three credits. Not open for credit to students who have passed GSCI 1010, 1050, 1051, or 1055. Students who complete both this course and GSCI 1052 may request that GSCI 1070 be converted to a CA 3 laboratory course.

Climate change, global warming, natural hazards, earth surface processes, and the impact these have on human populations now and in the past. CA 3.

### 3010. Earth History and Global Change

(Formerly offered as GEOL 3010.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GSCI 1050; or GSCI 1051 and 1052.

Reconstruction of earth history from geological data. Processes and events responsible for the stratigraphic record, and techniques used to decipher it. An integrated survey of earth history. One or more weekend field trips may be required.

### 3020. Earth Surface Processes

(Formerly offered as GEOL 3020.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GSCI 1050; or GSCI 1051 and 1052.

Processes responsible for the formation of the unconsolidated materials, landforms, and soils which constitute the Earth's surface. Introduction to surface-water and groundwater hydrology, geological hazards and the effects of climatic change. One or more weekend field trips may be required.

### 3030. Earth Structure

(Formerly offered as GEOL 3030.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GSCI 1050; or GSCI 1051 and 1052.

Structure and composition of the earth, including a survey of plate tectonics and crustal evolution. Gravitational, thermal and tectonic processes associated with the earth's surface and interior. One or more weekend field trips may be required.

### 3040. Earth Materials

(Formerly offered as GEOL 3040.) Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: GSCI 1050; or GSCI 1051 and 1052. Recommended preparation: CHEM 1124-1126 or 1127 and 1128.

Principles of symmetry and crystal chemistry and the identification of minerals by hand sample, petrographic and x-ray methods. Description of the mineralogy and texture of igneous, sedimentary and metamorphic rocks and the application of contemporary petrogenetic models to the interpretation of the geologic environments they record. One or more weekend field trips may be required.

### 3230. Beaches and Coasts

(Formerly offered as GEOL 3230.) (Also offered as MARN 3230.) First semester (Avery Point). Three credits. Prerequisite: MARN 1002 or 1003 or GSCI 1050 or 1051 or instructor consent.

Introduction to the processes that form and modify coasts and beaches, including tectonic setting, sediment supply, coastal composition, energy regimes and sea level change; tools and techniques utilized in marine geologic mapping and reconstruction of submerged coastal features; field trips to selected coastal features.

### 3710. Engineering and Environmental Geology

(Formerly offered as GEOL 3710.) (Also offered as CE 3530 and ENVE 3530.) Three credits. Recommended preparation: GSCI 1050 or 1051. *Liu*

Application of geological principles to engineering and environmental problems. Topics include site investigation, geologic hazards, slope processes, earthquakes, subsidence, and the engineering properties of geologic materials. Course intended for both geoscience and engineering majors.

### 3990. Spring Field Trip

(Formerly offered as GEOL 3990.) Three credits. Prerequisites: GSCI 1050 or 1051, or BIOL 1107 or 1108, or consent of instructor.

A field-based introduction to the integration of geological and biological observations and processes. Field trip during and weekly meetings before and after spring break. May be repeated for credit with change in field venue or permission of the instructor.

### 4050W. Geoscience and Society

(Formerly offered as GEOL 4050W.) Three credits. Prerequisite: GSCI 1050 or 1051; at least two 2000-level or above GSCI courses one of which may be taken concurrently; ENGL 1010 or 1011 or 2011; or instructor consent; open to juniors or higher.

Application of fundamental geological principles to issues of concern to society such as global climate change; wildfires; drought and water resources; earthquake, volcano, and tsunami hazards; medical geology; energy resources; sustainability; and coastal processes.

**4110. Sedimentology**

(Formerly offered as GEOL 4110.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GSCI 1050; or GSCI 1051 and 1052. Recommended preparation: GSCI 3020.

Basic principles of sedimentology with an emphasis on the description of sedimentary texture and structure. Physicochemical and biological processes that characterize depositional environments. Diagenesis. Examination of modern systems to interpret ancient sedimentary environments. One or more weekend field trips may be required.

**4120. Paleobiology**

(Also offered as EEB 4120.) (Formerly offered as GEOL 4120.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: GSCI 1050; or GSCI 1051 and 1052; or BIOL 1108.

Ancient life, including the preservation of organisms as fossils, evolution, ecology, geobiology, biostratigraphy, and major events in the history of life. Includes microorganisms, animals, and plants.

**4130. Geomicrobiology**

Three credits. Prerequisites: GSCI 1050; or GSCI 1051 and 1052; or BIOL 1108; or instructor consent. Recommended preparation: GSCI 3010, MCB 2610. Dupraz, Visscher

Microbial diversity and biogeochemistry, microbe-mineral interactions, fossil record, atmospheric record, microbialites, and research methodology in geomicrobiology. A weekend field trip may be required.

**4210. Glacial Processes and Materials**

(Formerly offered as GEOL 4210.) Three credits. One 2-hour class period and one 3-hour laboratory (for lab exercises and field trips). Recommended preparation: GSCI 3020.

Reconstruction of former glaciers and the interactive processes leading to the character and distribution of unconsolidated surface materials in glaciated regions. Techniques for interpreting subsurface unconsolidated materials.

**4230. GIS and Remote Sensing for Geoscience Applications**

(Also offered as GEOG 4230.) Three credits. Prerequisite: GEOG 2300; or GSCI 1050; or GSCI 1051 and 1052. *Ouimet*

Application of Geographic Information Systems, remote sensing, and image interpretation to problems in geoscience. Data acquisition, processing and analysis of Digital Elevation Models and satellite imagery. Geologic materials, processes, landforms and landscapes.

**4330. Active Tectonics**

Three credits. Prerequisite: GSCI 1050; or GSCI 1051 and 1052; or GSCI 1070 and 1052; or GEOG 2300; or consent of instructor. Recommended preparation: GSCI 3020 and 3030. *Byrne*

Tectonic processes that shape the Earth's surface, particularly its landforms. Emphasis on short-term processes that produce disasters and catastrophes and affect human society.

**4390. Field Problems in Earth Structure**

(Formerly offered as GEOL 4390.) Two credits. Two weekend field trips and one 1-hour class period. Prerequisite or corequisite: GSCI 3030.

Mapping techniques and map interpretation using concepts developed in GSCI 3030.

Emphasis on mapping moderately deformed rocks in which sedimentary and tectonic features can be differentiated. A fee of \$35 is charged for this course.

**4510. Applied and Environmental Geophysics**

(Formerly offered as GEOL 4510.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHYS 1230 or 1402 or 1502 or 1602, which may be taken concurrently; MATH 1122 or 1132 or 1152, which may be taken concurrently. Not open to students who have passed GEOL 268Q. *Liu*

Principles of imaging the Earth's interior using observations of electric, magnetic, and gravity fields, with applications to environmental problems.

**4520. Exploration Seismology**

(Formerly offered as GEOL 4520.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHYS 1230 or 1402 or 1502 or 1602, which may be taken concurrently; MATH 1121 or 1131 or 1151, which may be taken concurrently. Not open to students who have passed GEOL 267Q. *Liu*

Principles of seismic methods for imaging the interior of the earth, with applications to resource exploration and environmental problems.

**4550. Physics of the Earth's Interior**

(Formerly offered as GEOL 4550.) (Also offered as PHYS 4100.) Three credits. Prerequisite: PHYS 1230 or 1402 or 1502 or 1530 or 1602, which may be taken concurrently; MATH 1122 or 1126 or 1131, which may be taken concurrently. Recommended preparation: MATH 1132. Not open to students who have passed GEOL 264Q. *Cormier*

The composition, structure, and dynamics of the Earth's core, mantle, and crust inferred from observations of seismology, geomagnetism, and heat flow.

**4560. Fundamentals of Planetary Science**

(Formerly offered as GEOL 4560.) (Also offered as PHYS 4130.) Three credits. Prerequisite: PHYS 1230 or 1402 or 1502 or 1530 or 1602, which may be taken concurrently; MATH 1122 or 1126 or 1131, which may be taken concurrently. Not open to students who have passed GEOL 266Q. *Cormier*

Evolution of the solar system, celestial mechanics, tidal friction, internal composition of planets, black-body radiation, planetary atmospheres.

**4735. Introduction to Ground-Water Hydrology**

(Formerly offered as GEOL 4735.) (Also offered as NRE 4135.) Four credits. Three class periods and one 3-hour laboratory for which occasional field trips will be substituted. Prerequisite: GSCI 1050; or GSCI 1051 and 1052; or instructor consent; open to juniors or higher. *Robbins*

Basic hydrologic principles with emphasis on ground water flow and quality, geologic relationships, quantitative analysis and field methods.

**4989. Undergraduate Research in Geoscience**

(Formerly offered as GEOL 4989.) Three credits. Hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Independent research for the advanced undergraduate student interested in investigating a special problem involving field and/or laboratory observations in geoscience. The student is required to give an oral presentation in a departmental seminar at the end of the semester.

**4990. Internship in Geoscience: Field Study**

(Formerly offered as GEOL 4990.) One to three credits. May not be repeated. Internship contract must be formulated before internship work begins. Students with summer internship must preregister for GSCI 4990 for the fall semester. Prerequisite or corequisite: GSCI 3010, 3020, 3030, and 3040. Must be taken concurrently with GSCI 4991; no credit will be given for one course without the other. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

An internship program under the direction of Geoscience faculty. Students will be placed with government agencies or businesses where academic training will be applied in a program of activities to be planned and agreed upon in advance by the job site supervisor, the faculty coordinator, and the intern. One credit may be earned for each 42 hours of pre-approved activities up to a maximum of three credits.

**4991. Internship in Geoscience: Research Paper**

(Formerly offered as GEOL 4991.) One credit. May not be repeated. Students with summer internship must preregister for GSCI 4991 for the fall semester. Prerequisite or corequisite: GSCI 3010, 3020, 3030, and 3040. Must be taken concurrently with GSCI 4990; no credit will be given for one course without the other.

Preparation of written report and oral presentation to Department summarizing internship experience and evaluating the applicability of academic experience to job situations and the impact of the internship experience on academic and career plans.

**4995. Special Topics**

(Formerly offered as GEOL 4995.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Investigation of special topics related to, but not ordinarily covered in the undergraduate offerings; emphasis on laboratory projects.

**4996W. Undergraduate Research Thesis in Geoscience**

(Formerly offered as GEOL 4996W.) Three credits. Hours by arrangement. Prerequisite: GSCI 4989; ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.

Writing of a formal thesis based on independent research conducted by the student.

**4998. Variable Topics**

(Formerly offered as GEOL 4998.) Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**4999. Independent Study**

(Formerly offered as GEOL 4999.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

## German (GERM)

*Head of Department:* Associate Professor  
Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Literatures, Cultures and Languages Department listing in this Catalog for requirements for Majors in German.

### 1131-1132. Elementary German I and II

Four credits each semester. Four class periods, and one 1-hour laboratory practice. Not open for credit to students who have had three or more years of German in high school. Students who wish to continue in German but feel ill prepared should contact the head of the Literatures, Cultures and Languages Department. Not open for credit to students who have passed GERM 1111-1112.

Fundamentals of German. Presentation of dialogues, conversation, vocabulary building, grammar and culture. Emphasis on speaking, oral comprehension, reading of simple texts and writing, to satisfy basic survival needs within a cultural setting.

### 1133-1134. Intermediate German I and II

Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: GERM 1132 or two years of high school German. Not open for credit to students who have passed GERM 1113-1114.

Review and extension of grammar, vocabulary expansion, graded composition, intensive and extensive reading, and intensive oral practice to further develop communicative abilities within a cultural setting.

### 1140W. German Literature in English

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Representative works of German literature in English, especially from the 20th and the 21st centuries. Development of close reading and critical thinking skills, improvement of student composition, and the development of a conceptual framework for understanding another culture. CA 1.

### 1169. Contemporary Germany in Europe

Three credits. Taught in English. *Finger*

Familiarizes students with contemporary German society and the cultural and historical aspects that shape everyday life in Germany in the 21st century. Students will explore a range of topics, including reunification, minorities, education and youth, the arts, and gender. CA 1. CA 4-INT.

### 1171. The German Film

Three credits. Readings and lectures in English. May not be used to meet the undergraduate foreign language requirement.

Weekly showings of German films from the 1920's to the present. Introduction to film history, analysis and interpretation of films, outside readings, term papers. CA 1. CA 4-INT.

### 1175. Human Rights and German Culture

Three credits. Readings and lectures in English. May not be used to fulfill the undergraduate foreign language requirement.

Study of philosophical discourse on human rights from the Enlightenment to the present and analysis of related ethical problems in conjunction with an examination of relevant literary texts, film, and other art forms. Germany's role in the development of international human rights instruments. CA 1. CA 4-INT.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 2400. The Environment in German Culture

Three credits. Three lectures/discussions. Prerequisite: Open to sophomores or higher. *Weidauer*

Ecological thinking in German culture from the Greeks (Plato) to the Greens (Amery). The second half of the semester consists of student projects on current environmental policies in the European Union. CA 1.

### 3200. Intensive Language Practice

Three credits. Hours by arrangement. Prerequisite: GERM 1133 or equivalent and consent of instructor.

Two or three weeks of concentrated study in Europe. Exclusive use of the language, with three to four daily contact hours. Practice in all active and passive language skills, combined with periodic review sessions during the rest of the semester.

### 3220. German Recitation in Applied Mechanics

One credit. One class period. Prerequisite or corequisite: GERM 1133 or equivalent.

Technical German in engineering through the basic concepts and problem solving techniques used in applied mechanics.

### 3221. Introduction to the Sciences in German

One credit. One class period. Prerequisite or corequisite: GERM 1134, CHEM 1128Q, and PHYS 1502Q or equivalent.

A series of lectures and discussion periods about basic concepts in the physical sciences presented in German. Topics will be primarily from the various engineering disciplines, chemistry, physics, and mathematics.

### 3222. Fields of Technology

One credit. One class period. Prerequisite: GERM 3220 and GERM 3221; open only with consent of instructor.

A series of lectures and discussion periods on special topics in science and engineering.

### 3231. German for Professional Use I

Three credits. Prerequisite: GERM 1134 or equivalent. Recommended preparation: GERM 3233-3234.

Development of oral and written skills using a content-based methodology and drawing on authentic documents in a variety of formats that convey the language and culture of professional environments in the German-speaking countries. Preparation for the Goethe Institute's test of German for Professional Purposes (Deutsch für den Beruf).

### 3233-3234. Building Language Skills Through Culture I and II

Three credits each semester. Prerequisite: GERM 1134 or equivalent. Not open for credit to students who have passed GERM 2201-2202 or GERM 2204-2205.

Development of oral and written skills using a content-based methodology and drawing on texts that deal with issues in contemporary culture of German-speaking countries. Emphasis on acquisition of a sophisticated understanding of cultural differences while building vocabulary, improving accuracy, and increasing facility in self-expression and communication.

### 3245. German Grammar and Etymology

Three credits. Corequisite: GERM 3233 or equivalent or instructor consent.

German grammar and etymology for advanced students. A conceptual foundation for communicative language skills and comparison with English.

### 3251. German Culture and Civilization

Three credits. Conducted in English.

An interdisciplinary course on the German-speaking countries, analyzing cultural life and past and present development. Period or thematic emphasis may vary. Discussion of selected non-fictional and fictional readings, films, slides and recordings. CA 1. CA 4-INT.

### 3252W. Studies in Early German Literature

Three credits. Prerequisite or corequisite: GERM 3233 or instructor consent. Prerequisite: ENGL 1010 or 1011 or 2011.

Study of a cohesive group of texts that mark the periods of the Middle Ages, Humanism, Reformation, and Baroque. Emphasis may vary. Attention will be given to the relevant socio-historical context and, when possible, to the visual and performing arts. Taught in German. CA 1.

### 3254W. Studies in 19th Century German Literature

Three credits. Prerequisite or corequisite: GERM 3233 or instructor consent. Prerequisite: ENGL 1010 or 1011 or 2011.

Study of a cohesive group of texts that mark the periods of Late Romanticism, Vormärz, Realism and Naturalism. Emphasis may vary. Attention will be given to the relevant socio-historical context and to the visual and performing arts. Taught in German. CA 1.

### 3255. Studies in 20th Century German Literature

Three credits. Prerequisite or corequisite: GERM 3233 or instructor consent.

Study of a cohesive group of texts that mark the period. Attention will be given to the relevant socio-historical context and to the visual and performing arts. Taught in German. CA 1.

### 3255W. Studies in 20th Century German Literature

Prerequisite or corequisite: GERM 3233 or instructor consent. Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

### 3258. Germans in Africa, Blacks in German-Speaking Countries. Colonial and Postcolonial Perspectives

Three credits. Taught in English.

Interdisciplinary study of former German colonialism in Africa and Blacks in German-speaking societies, past and present. Construction of intercultural and interracial power and dialog in historical perspective. Diversity of black and white experiences and perspectives across class, racial-ethnic groups, gender, cultures, religions, and national borders. Discussion of selected literary and non-fictional readings, films, other visual images, and recordings. CA 1. CA 4-INT.

#### **3261W. German Film and Culture**

Three credits. Prerequisite or corequisite: GERM 3233. Prerequisite: ENGL 1010 or 1011 or 2011.

Critical analysis of artistic issues in writing screenplays and making movies. Dynamic interplay between German film, the other arts, and their socioeconomic context, and the cinematic traditions of other cultures. Taught in German. CA 1. CA 4-INT.

#### **3264W. German Cinema in Cross-Cultural Perspective**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Taught in English.

Cross-cultural comparison of film genres using examples from German film history and other cinematic traditions. CA 1.

#### **3265. Topics in German Culture**

Three credits. Prerequisite or corequisite: GERM 3233 or instructor consent. With a change in topic, this course may be repeated for credit.

An analysis of the cultural trends of a selected period or theme in a German-speaking country, taking into account the historical, political, and socioeconomic background, aspects of daily life, philosophical trends, major literary works and other artistic achievements in art, music, and architecture. Specialists from other departments will be invited as guest lecturers.

#### **3292. German Language Practicum**

Credits (not to exceed six) and hours by arrangement. Prerequisite: Three years of college-level German or the equivalent; open only to juniors and seniors with consent of instructor.

Placement of students as trainees in business, industry and social or government agencies where foreign language skills can be put to use.

#### **3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of advisor. May be repeated for credit.

Special topics taken in a foreign study program.

#### **3294. German Seminar**

Credits and hours by arrangement. Prerequisite: Open only to juniors and seniors with consent of instructor. May be repeated for credit.

Intensive investigation of selected problems in German literature and/or German studies.

#### **3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

#### **3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

#### **3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

#### **4246. The Finishing Touch: A Capstone in German Studies**

Three credits. Prerequisite: GERM 3234 plus a minimum of 6 additional 2000-level or above credits in German.

A course in which advanced students assess and polish their German language skills, consolidate their learning in German Studies, and demonstrate that learning in a final project.

German Education Abroad. An academic year or spring semester at the University of Salzburg, Austria, operated jointly with other New England state universities, allows students to earn up to 34 credits in all disciplines. The University of Connecticut sponsors a variety of programs at any of nine universities in the state of Baden-Wuerttemberg. Students also have the possibility of language study at a Goethe Institute, and a combination of study and work through programs in Mannheim and Regensburg.

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### **Healthcare Management and Insurance Studies (HCMI)**

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*Director:* Professor Rexford Santerre

*Center Office:* Room 460, School of Business

For major requirements, see the School of Business section of this Catalog.

Healthcare Management and Insurance Studies courses are open to juniors and seniors only.

#### **3221. Risk Management and Insurance**

(Formerly offered as FNCE 3221.) Three credits. Prerequisite: Open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status.

A study of the concept of risk and its treatment by insurance. It covers why the individual or corporation purchases insurance, what constitutes an intelligent insurance plan and what products are available in the insurance marketplace.

#### **3240. Introduction to Health Care Management**

(Formerly offered as HSMG 3240.) Three credits. Prerequisite: Open to juniors or higher in the School of Business and Allied Health Sciences with Healthcare Administration concentration majors, others with instructor consent.

Presents and examines various aspects of the U.S. health care delivery system as well as introduces and compares the health care systems in different countries. Attention is paid to the financing, reimbursement, and delivery of medical care, the adoption of new medical technologies, and the role of the market and government. The effect of health care system design on cost, quality, efficiency, and equity is studied.

#### **3243. Health Care Industry Analysis**

(Formerly offered as HSMG 3243.) Three credits. Prerequisite: HCMI 3240; open to juniors or higher in the School of Business and Allied Health Sciences with Healthcare Administration concentration majors, others with instructor consent.

Provides a set of economic tools to better understand the structure, conduct and performance of various health care industries. Theories regarding demand, production, costs, and various market models are discussed within the context of health care products. After addressing various antitrust and regulatory issues, the course culminates with an in-depth economic analysis of the markets for health insurance, physician, hospital, pharmaceutical and long-term care services.

#### **4225. Health and Social Insurance**

(Formerly offered as HSMG 4225.) Three credits. Prerequisites: HCMI 3240 or instructor consent; open only to Business majors of junior or higher status.

Addresses various business practices associated with providing private health insurance such as underwriting, medical claims cost control, pricing, and marketing. In that context, managed care techniques and benefit package designs including consumer directed health plans, and value-based insurance design, are discussed. Attention is also paid to design and functioning of various social insurance programs such as Medicare, Medicaid, unemployment compensation, disability insurance, workers compensation, and Social Security.

#### **4243. Health Law and Policy**

(Formerly offered as HSMG 4243.) Three credits. Prerequisite: HCMI 3240 or instructor consent; open only to Business majors of junior or higher status.

Introduction to the United States legal system as it relates to health care, public health and ethics. Sessions represent important applications of law to health including the powers of the state governments; privacy and confidentiality in health care; the right to privacy; the right to refuse treatment and end of life issues; hospital, physician and managed care liability; the Americans with Disabilities Act; and public health policy and advocacy. This course is structured to encourage lively and interesting in-class discussions of legal and ethical principles as they relate to the health care system.

#### **4250. Healthcare Financial and Human Resource Management**

(Formerly offered as HSMG 4250.) Three credits. Prerequisites: HCMI 3240 and 3243; or instructor consent; open only to Business majors of junior or higher status.

Focuses on various economic and financial analyses that managers in the health care industry may use to make strategic and operating decisions. Case studies allow students to apply these skills to examine decisions/situations such as estimating a health system's profitability by product line or valuing a drug that is being developed. In addition, the course applies personnel economics towards an understanding of how to better manage human resource activities within a health care setting.

**4325. Life Insurance and Retirement Security**

(Formerly offered as FNCE 4325.) Three credits. Prerequisite: HCMI 3221; open only to Business majors or Mathematics-Actuarial Science-Finance majors of junior or higher status.

Focuses on the basic principles underlying life insurance, pensions, and other methods of insuring for financial security. Emphasis is given to the following general topics – the need for life insurance and annuities, individual retirement planning, employer provided group insurance and pensions, types of life insurance and annuity contracts, deferred compensation plans, the mathematics of life insurance, company operations, regulation, settlement options, and life insurance programming.

**4326. Risk Management: Property and Liability Exposures**

(Formerly offered as FNCE 4326.) Three credits. Prerequisite: HCMI 3221; open only to Business majors of junior or higher status.

Critically examines the risk management process introduced in HCMI 3221. Emphasis is on identification and treatment of pure loss exposures faced by commercial and institutional entities. Available risk management treatment techniques are identified and discussed. Analysis of applicable commercial property and liability insurance coverages are stressed.

**4448. Clinical and Social Issues in Health Care**

(Formerly offered as HSMG 4448.) Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Covers clinical and social issues affecting health care provider organizations, such as the health needs of special population groups, public health concerns, epidemiological issues, and health care quality. Discussion will include how health care organizations address such issues through methods including clinical studies, disease management, partnership between private and public sectors, and legislative initiatives.

**4891. Internship in Health Care Management**

(Formerly offered as HSMG 4891.) One to three credits. Hours by arrangement. Prerequisite: Open only to Business majors of junior or higher status; consent of instructor and Program Director required prior to beginning the internship. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised field work in a health care organization where students work with health care professionals to expand their expertise in solving health systems problems and increase their awareness of the issues involved in the day to day operations of a health care institution. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

**4895. Special Topics**

(Formerly offered as HSMG 4895.) Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to Business majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics in Healthcare Management and Insurance Studies as announced in advance for semester.

**4899. Independent Study for Undergraduates**

(Formerly offered as HSMG 4899.) Credits by arrangement; not to exceed six in any semester. Prerequisite: Open only to Business majors of junior or higher status; open only with consent of instructor.

Individual study of special topics in health care management as mutually arranged between a student and an instructor.

**4997W. Senior Thesis in Health Care Management and Insurance Studies**

(Formerly offered as HSMG 4997W.) Prerequisite: ENGL 1010 or 1011 or 2011; open only to Health Systems Management majors of junior or higher status enrolled in the honors program; instructor consent required.

Individual study of special topics on health care management and insurance.

**Hebrew and Judaic Studies (HEJS)**

*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Departmental Handbook for courses being offered and further description of these courses.

**1101. The Land of Israel from Biblical Times to the Present**

(Formerly offered as HEB and JUDS 1101.) Three credits. Taught in English. May not be used to meet the foreign language requirement. *Miller*

An in-depth look at the history, culture and civilizations of the land of Israel. The importance of the land in Judaism and its significance for Christianity and Islam will be discussed. Lectures and discussion will be enhanced by slide presentations.

**1103. Literature and Civilization of the Jewish People**

(Formerly offered as HEB and JUDS 1103.) Three credits. Taught in English. May not be used to meet the foreign language requirement. *Miller*

The major concepts, personalities and literary works of the Hebraic tradition from the Biblical and Talmudic periods to the present. CA 1. CA 4.

**1149-1150. Elementary Biblical Hebrew I and II**

(Formerly offered as HEB 1149-1150.) Four credits each semester. Four class periods. Not open for credit to students who have had three or more years of Hebrew in high school. Students who wish to continue in Hebrew but feel ill prepared should contact the head of the Literatures, Cultures and Languages department.

An introduction to the biblical language for the student with no previous background. Grammar and drills, using simple texts, prepare the student for independent reading of Hebrew Scripture in the original.

**1151-1152. Elementary Modern Hebrew I and II**

(Formerly offered as HEB 1151-1152.) Four credits each semester. Four class periods and one

1-hour laboratory practice. Not open for credit to students who have had three or more years of Hebrew in high school.

Elementary Hebrew grammar. Drill in pronunciation. Reading of simple texts. Practice in easy conversation.

**1153-1154. Intermediate Hebrew I and II**

(Formerly offered as HEB 1153-1154.) Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: HEJS 1152 or the equivalent.

Review of elementary Hebrew grammar. Graded composition and translation. Intensive and extensive reading. Oral practice in the language. The basic structure patterns of Hebrew.

**1193. Foreign Study**

(Formerly offered as HEB 1193.) Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**2104. Modern Jewish Thought**

(Formerly offered as HEB, HEJS, and JUDS 1104.) Three credits. Recommended preparation: HEJS 1103. Taught in English. May not be used to meet the foreign language requirement.

Nationalism, culture, ethics and philosophy in the writings of the major Jewish thinkers from Spinoza to the present. Emphasis on the work of Moses Mendelssohn, Hermann Cohen, Franz Rosenzweig, Martin Buber, Mordecai Kaplan, Judith Plaskow, and others. CA 1. CA 4-INT.

**3201. Selected Books of the Hebrew Bible**

(Formerly offered as HEB and JUDS 3201.) Three credits. Prerequisite: INTD 3260 or HIST 3301 or HEJS 1103, which may be taken concurrently or instructor consent. A knowledge of Hebrew is not required. May be repeated with change of content and consent of instructor. Taught in English. May not be used to meet the foreign language requirement. *Miller*

Focuses on a biblical book (or books) and emphasizes its literary structure and content using modern approaches as well as midrashic and medieval exegesis. Historical and archaeological material introduced where relevant.

**3202. Sects and Movements in Judaism**

(Formerly offered as JUDS 3202.) Three credits. Taught in English. May not be used to meet the foreign language requirement.

Varieties of Jewish expression and belief from Biblical times to the present. Topics include: the Dead Sea Sect, Pharisees, Sadducees, Karaites, Marranos, Hasidism and the Reform, Conservative, Orthodox and Reconstructionist movements of the modern era.

**3203. The Holocaust**

(Formerly offered as HEB and JUDS 3203.) (Also offered as HIST 3418.) Three credits. Taught in English. May not be used to meet the foreign language requirement.

Origins, development, and legacy of the Holocaust. Topics include the history of modern European anti-Semitism, the creation of the Nazi state, the catalytic role of the Second World War, the actions and attitudes of the perpetrators,

victims, and bystanders, and the diverse ways in which scholars and societies have dealt with the legacy of the Holocaust.

### 3218. Palestine Under the Greeks and Romans

(Formerly offered as HEB and JUDS 3218.) (Also offered as CAMS 3256 and HIST 3330). Three credits. Prerequisite: CAMS 1101 or 1102 or CAMS 3253/HIST 3301; or HIST 3320 or 3325; or INTD 3260; or HEJS 1103 or 3202; or instructor consent. Taught in English. May not be used to meet the foreign language requirement. *Miller*

The political, historical and religious currents in Greco-Roman Palestine. Includes the Jewish Revolts; sectarian developments, the rise of Christianity and the Talmudic academies.

### 3218W. Palestine Under the Greeks and Romans

(Also offered as CAMS 3256W and HIST 3330W). Three credits. Prerequisite: CAMS 1101 or 1102 or CAMS 3253/HIST 3301; or HIST 3320 or 3325; or INTD 3260; or HEJS 1103 or HEJS 3202; or instructor consent; ENGL 1010 or 1011 or 2011; open to juniors or higher. Taught in English. May not be used to meet the foreign language requirement. *Miller*

### 3241. Jewish Magic: from Late Antiquity through the Early Modern Period

(Formerly offered as JUDS 3241.) Three credits.

Jewish magical beliefs and practices from the rabbinic period through the early modern period. Texts include spells, kabbalistic lore, magical books, incantations, legends, prayers, medical texts, exempla.

### 3251-3252. Advanced Hebrew

(Formerly offered as HEB 3251-3252.) Three credits each semester. Prerequisite: HEJS 1154 or instructor consent.

Further grammar study. Practice in composition involving the use of everyday vocabulary and idiomatic expressions. Readings and films relevant to Israeli culture and history. With a change in content, either or both of these courses may be repeated for credit.

### 3279. Modern Israeli Literature in Translation

(Formerly offered as HEB 3279.) Three credits.

Major themes and literary achievements of modern Israeli writing in translation. Authors range from the pre-Statehood period to the present.

### 3293. Foreign Study

(Formerly offered as HEB 3293.) Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

(Formerly offered as HEB 3295.) Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

### 3298. Variable Topics

(Formerly offered as HEB 3298.) Three credits. With a change in topic, may be repeated

for credit. Prerequisites and recommended preparation vary.

### 3299. Independent Study

(Formerly offered as HEB 3299.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

### 3301. The Jewish Middle Ages

(Formerly offered as HEB and JUDS 3301.) Three credits.

Survey of sacred and secular literature in a wide variety of genres produced by Jews in the medieval period from major centers of European settlement. CA 1. CA 4.

### 3401. Jewish American Literature and Culture

(Formerly offered as JUDS 3401.) (Also offered as ENGL 3220.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. *Shoulson*

Interdisciplinary study of literary and artistic productions by and about Jews in the United States. CA 1. CA 4.

### 3401W. Jewish American Literature and Culture

(Formerly offered as HEB and JUDS 3401W.) (Also offered as ENGL 3220W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Interdisciplinary study of literary and artistic productions by and about Jews in the United States. CA 1. CA 4.

### 3511. American Jewry

(Formerly offered as JUDS 3511.) Three credits. Prerequisite: Open to juniors or higher. Taught in English. May not be used to meet the foreign language requirement. *Dashefsky*

Historical, demographic, organizational, and sociopsychological perspectives.

Education Abroad in Israel. Students may spend a semester or academic year at Hebrew University in Jerusalem, Tel Aviv, Haifa or Ben Gurion Universities. Students should take at least one semester of Hebrew at UConn before studying abroad. The University also sponsors an archaeological excavation at Sepphoris during the month of June. This is a six-credit program.

## Hindi (HIND)

*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

### 1101-1102. Elementary Hindi Levels I and II

### 1103-1104. Intermediate Hindi Levels I and II

1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3298. Variable Topics

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

## History (HIST)

*Head of Department:* Professor Christopher Clark

*Department Office:* Room 121, Wood Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1100. The Historian as Detective

Three credits.

Uses historical documents focusing on a single incident in the past to reconstruct what happened and why. Emphasizes development of historical research skills such as evaluating evidence, explaining cause and effect, and understanding events in their larger social, political, cultural, and economic contexts. CA 1.

### 1100W. The Historian as Detective

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

### 1201. Modern World History

Three credits.

A survey of the historical experiences of the world's major civilizations during recent centuries with particular attention to the modernization of the traditional cultures of Asia, Latin America, and Africa. CA 1.

### 1203. Women in History

(Also offered as WGSS 1121.) Three credits.

The historical roots of challenges faced by contemporary women as revealed in the Western and/or non-Western experience: the political, economic, legal, religious, intellectual, and family life of women. CA 1. CA 4.

### 1206. Living Through War in World History Since 1500

Three credits. *Watson*

Experiences and perceptions of both military and civilian participants in different kinds of wars around the world over the past 500 years. CA 1. CA 4-INT.

### 1250. Sports in History

Three credits.

The sports peoples around the globe have played and watched from ancient Greece to the present; the meanings of athletic performance and spectacle.

**1300. Western Traditions before 1500**

Three credits.

An analysis of the traditions and changes which have shaped Western political institutions, economic systems, social structures and culture in ancient and medieval times. CA 1.

**1400. Modern Western Traditions**

Three credits.

History of political institutions, economic systems, social structures, and cultures in the modern Western world. CA 1.

**1501. United States History to 1877**

Three credits. Not open to students who have passed HIST 231 or HIST 231W.

Surveys political, economic, social, and cultural developments in American history through the Civil War and Reconstruction. CA 1.

**1501W. United States History to 1877**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

**1502. United States History since 1877**

Three credits. Not open to students who have passed HIST 232 or HIST 232W.

Surveys political, economic, social, and cultural developments in American history from 1877 to the present. CA 1.

**1502W. United States History since 1877**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 1.

**1503. Introduction to American Studies**

(Also offered as AMST 1201 and ENGL 1201.) Three credits.

What is an American? A multi-disciplinary inquiry into the diversity of American societies and cultures. CA 4.

**1570. Migrant Workers in Connecticut**

(Also offered as LLAS 1570.) Four credits. Prerequisite: Open only by instructor consent.

*Gebelein, Overmyer-Velázquez*

Interdisciplinary honors course on the life and work experiences of contemporary Latin American and Caribbean migrant workers with focus on Connecticut. Integrated service learning component. Field trips required. CA 1. CA 4.

**1600. Introduction to Latin America and the Caribbean**

(Also offered as LLAS 1190.) Three credits.

Multidisciplinary exploration of the historical development of such aspects of Latin America and the Caribbean as colonization and nation formation; geography and the environment; immigration and migration; race, ethnicity, and gender in society, politics, economy, and culture. CA 1. CA 4-INT.

**1800. The Roots of Traditional Asia**

Three credits.

A survey of the early development and staying power of the traditional cultures from which the major societies of modern Asia have evolved. CA 1. CA 4-INT.

**1801. History of Asia in the World to 1500**

Three credits.

Development and spread of the Indic and Sinitic civilizations, to 1500, with attention to cross-cultural contacts.

**1805. East Asian History Through Hanzi Characters**

Three credits.

East Asian history taught through analysis of select "hanzi" (Chinese ideographic symbols), focusing on their changing meanings and institutional manifestations in different regions over time. CA 1. CA 4-INT.

**1993. Foreign Study**

Credits and hours by arrangement. Prerequisite: consent of department head required, normally granted before the student's departure. May be repeated for credit with a change in content.

**1995. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

**1998. Varieties of History**

Three credits. With a change in content may be repeated for credit.

A major topic in history through contemporary sources and historical interpretations.

**2100. The Historian's Craft**

Three credits. Prerequisite: Open only to history majors.

Learning critical reading, thinking and writing skills by interpreting a variety of primary sources.

**2206. History of Science**

(Also offered as SCI 2206.) Three credits. *Roe*

Development of modern science and technology in relation to culture, politics, and social issues. CA 1.

**2210. History of the Ocean**

(Also offered as MAST 2210.) Three credits.

Cultural, environmental, and geopolitical history of the ocean from prehistory to the present. Examines the impact of migration, industrialization, modernization, and globalization on the relationships between people and oceans. CA 1.

**2240. History of War in the Modern World**

Three credits. Recommended preparation: HIST 1400. *Dintenfass*

Selected topics analyzing the interactions of warfare, military theories and practice with social, economic and technological developments since 1815.

**2401. Europe in the Nineteenth Century**

Three credits. Recommended preparation: HIST 1400.

Examines the Restoration, the mid-century revolutions, and the forces of nationalism, liberalism and imperialism. New social and economic movements and currents of thought are described and explored. CA 1.

**2401W. Europe in the Nineteenth Century**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: HIST 1400. CA 1.

**2402. Europe in the Twentieth Century**

Three credits. Recommended preparation: HIST 1400. *Buckley*

Twentieth Century Europe and its world relationships in the era of two world wars, the great depression, and the cold war. CA 1.

**2402W. Europe in the Twentieth Century**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: HIST 1400. CA 1.

**2993. Foreign Study**

Credits and hours by arrangement. Prerequisite: consent of department head required, normally granted before the student's departure. May count toward the major with consent of advisor. May be repeated for credit with a change in content.

**3095. Special Topics**

(Formerly offered as HIST 3995.) Credits and hours by arrangement. With a change of content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3098. Variable Topics**

(Formerly offered as HIST 3998.) Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**3100W. Biography as History**

Three credits. Two class periods of 75 minutes. Prerequisite: ENGL 1010 or 1011 or 2011.

What the lives of significant individuals reveal about major historical periods and themes. Variable topics.

**3101W. History through Fiction**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

What classic novels and other works of fiction reveal about major historical periods and themes in history. Variable topics. May be offered from an American or European perspective. With a change in topic, this course may be repeated for credit.

**3102. Topics in Public History**

Three credits. With a change in content, may be repeated for credit. *Forbes, Rozwadowski, Woodward*

Introduction to the field of public history; in-depth study and practice of one selected topic in public history, such as exhibit design, oral history, institutional history, or archive management.

**3201. The History of Human Rights**

(Also offered as HRTS 3201.) Three credits. *Gilligan*

Case studies in the emergence and evolution of human rights as experience and concept.

**3202. International Human Rights**

(Also offered as HRTS 3202.) Three credits. *Omara-Otunnu*

Historical and theoretical survey of the evolution of human rights since 1945.

**3203. History of the Family**

(Also offered as HDFS 3423.) Three credits.

Pre-industrial and industrial family life in Western society since the Middle Ages, with emphasis on the changes in demography, family size and structure, family economy, social expectations, sex roles, sexuality, and affective bonds.

**3204W. Science and Social Issues in the Modern World**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Social context of science in the United States and Europe since 1850. Genetics and eugenics; ecology and the environment; nuclear issues; gender, race, and science. CA 4.

**3205. Personality and Power in the Twentieth Century**

Three credits.

Dynamic leadership in historical crises, including, for example, Churchill, Roosevelt, Stalin, Hitler, De Gaulle, Kennedy, and Mao.

**3206. Black Experience in the Americas**

(Also offered as AFRA 3206). Three credits. Recommended preparation: AFRA/HIST/HRTS 3563; AFRA/HIST 3564, 3620; or HIST/LLAS 3609. *Pappademos*

Major themes in recent scholarship of African-descended communities in the Americas and their interconnection beyond geopolitical boundaries; race, gender, sexuality, class, religion, cultural movements and practices, slavery, political economy, political movements, and African consciousness, from historical perspective. CA 1. CA 4-INT.

**3207. Genocide after the Second World War**

(Also offered as HRTS 3207.) Three credits. Recommended preparation: HIST/HRTS 3201. *Gilligan*

Origins of the 1948 Genocide Convention. Several case studies of genocide post WWII: Cambodia, Rwanda, the former Yugoslavia, and Darfur. Causes and underlying dynamics of genocide with an emphasis on the international response. Critical evaluation of military, political, and non-governmental measures to prevent genocidal acts.

**3209. Maritime Archaeology of the Americas**

(Also offered as ANTH 3531 and MAST 3531.) Three credits. Recommended preparation: ANTH 1500, ANTH 2501, ANTH 2510 or HIST 3544.

Archaeological and historical sources to examine the development of seafaring practices, exploration, waterborne trade and economic systems, naval warfare and shipbuilding in the Americas from the fifteenth to the beginning of the twentieth century.

**3210. Archaeology of the Age of Sail**

(Also offered as ANTH 3532 and MAST 3532.) Three credits. Recommended preparation: ANTH 1500, ANTH 2501, or ANTH 2510.

Overview of archaeological and historical sources on the development of seafaring and navigation, exploration, waterborne trade and economic systems, colonialism and empire building, naval warfare and shipbuilding in Europe, Asia and Australia from the fifteenth to the beginning of the twentieth century.

**3300. Near Eastern Prehistory**

(Also offered as ANTH 3513.) Three credits.

From the earliest hunter-gatherers to the rise of the state: the transition from food-gathering to food-producing and the development of complex societies in the Near East.

**3301. Ancient Near East**

(Also offered as CAMS 3253.) Three credits.

The history of Near Eastern civilization from the Neolithic period to the Persian Empire. The birth of civilization in Mesopotamia and Egypt. The political, economic, social, and cultural achievements of ancient Near Eastern peoples.

**3320. Ancient Greece**

(Also offered as CAMS 3254.) Three credits. *Caner*

The history of Greece from Minoan and Mycenaean times into the Hellenistic period with special emphasis on the Fifth Century and the Golden Age of Athens.

**3325. Ancient Rome**

(Also offered as CAMS 3255.) Three credits. *Caner*

From the beginning of Rome to the reign of Justinian. The growth of the Roman Republic and Empire. Roman civilization and its influence upon later history.

**3330. Palestine Under the Greeks and Romans**

(Also offered as CAMS 3256 and HEJS 3218.) Three credits. Prerequisite: CAMS 1101 or 1102 or CAMS 3253/HIST 3301; or HIST 3320 or 3325; or INTD 3260; or HEJS 1103 or 3202; or instructor consent. *Miller*

The political, historical and religious currents in Greco-Roman Palestine. Includes the Jewish Revolts, sectarian developments, the rise of Christianity and the Talmudic academies.

**3330W. Palestine Under the Greeks and Romans**

(Also offered as CAMS 3256W and HEJS 3218W.) Three credits. Prerequisite: CAMS 1101 or 1102 or CAMS 3253/HIST 3301; or HIST 3320 or 3325; or INTD 3260; or HEJS 1103 or 3202; or instructor consent; ENGL 1010 or 1011 or 2011; open to juniors or higher. Taught in English. May not be used to meet the foreign language requirement. *Miller*

**3335. The Early Christian Church**

(Also offered as CAMS 3250.) Three credits. Recommended preparation: HIST 3325/CAMS 3255 or HIST 3330/CAMS 3256. *Caner*

The evolution of Christian institutions, leadership and doctrines in the Roman Empire ca. 50-451 C.E. Topics may include gnosticism, prophecy, martyrdom, asceticism, pilgrimage, heresy, orthodoxy.

**3340. World of Late Antiquity**

(Also offered as CAMS 3243.) Three credits. *Caner*

The profound social and cultural changes that redefined the cities, frontiers, and economies of the classical world and led to the Middle Ages. Developments in the eastern and western Mediterranean lands between the second and seventh centuries, including neo-Platonism, the spread of Christianity, Rabbinic Judaism, and Islam.

**3350. Byzantium**

Three credits.

A survey of the major developments from the fourth through the fifteenth centuries: religious controversies, the theme system, the Crusades, Byzantine civilization, its law, art, literature, and its impact upon European and Russian civilization.

**3360. Early Middle Ages**

Three credits. *Olson*

The decline of Rome, rise of Christianity, the barbarian invasions and kingdoms, culminating in the civilizations of the Carolingian Empire, of Byzantium, and of Islam.

**3361. The High Middle Ages**

Three credits. *Olson*

The history of Europe from the tenth through the fourteenth centuries. The development and expansion of European civilization, the revival of a money economy and town life, the development of feudal monarchy, the conflict of Empire and Papacy, the Crusades.

**3370. The Renaissance**

Three credits. *Gouwens*

Europe in the fourteenth and fifteenth centuries.

**3371. The Reformation**

Three credits. *Gouwens, Kane*

Europe in the sixteenth century with emphasis on religious developments, rise of the modern state, birth of science, expansion of Europe, and the Commercial Revolution.

**3400. Europe in the Seventeenth Century**

Three credits. *Kane*

Conflict of constitutionalism and absolutism, colonial expansion and rivalry, development of science, and the age of reason, the age of the baroque, the age of Louis XIV.

**3412. Intellectual and Social History of Europe in the Nineteenth Century**

Three credits. *Lansing*

The thought and feeling of Europeans in their social context.

**3413W. Intellectual and Social History of Europe in the Twentieth Century**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

The thought and feeling of Europeans in their social context.

**3416. Gender and Sexuality in Modern Europe**

(Also offered as WGSS 3416.) Three credits. *Schafer*

The construction of gender difference and ideas about sexuality in Western Europe since 1789. Masculinity and femininity; sexuality, identity and the state; European power and personhood in global context.

**3418. The Holocaust**

(Also offered as HEJS 3203.) Three credits. *Lansing*

Origins, development, and legacy of the Holocaust. Topics include the history of modern European anti-Semitism, the creation of the Nazi state, the catalytic role of the Second World War, the actions and attitudes of the perpetrators, victims, and bystanders, and the diverse ways in which scholars and societies have dealt with the legacy of the Holocaust.

**3420. English History to 1603**

Three credits. *Kane*

A survey of English history from its origin to the close of the Tudor period. Emphasis is placed on the development of the English nation and the



growth of its culture. Recommended to majors in English.

#### **3421. History of Modern England**

Three credits. *Watson*

Cultural, political, economic, and intellectual development of modern Britain, with special emphasis on changing ideas of national identity.

#### **3426. Social and Economic History of Modern Britain**

Three credits. *Watson*

The change from an agrarian to an industrial society.

#### **3430. History of Ireland**

Three credits. *Kane*

History of Ireland, with emphasis on the modern period. The rise of Irish nationalism, the Irish Literary Revival, and the problems of Northern Ireland.

#### **3440. France Since 1715**

Three credits. *Schafer*

The disintegration of the monarchical synthesis prior to and during the French Revolution; the attempts to harmonize French society under subsequent regimes.

#### **3451. Germany Since 1815**

Three credits. *Lansing*

A study of German political, social, and intellectual history since the Napoleonic Wars. This course also considers European and world problems as reflected in the emergence of Germany as a pivotal force in international affairs.

#### **3456. The Habsburg Monarchy and Its Peoples, 1740-1918**

Three credits. Recommended preparation: HIST 1400.

The rise and fall of the multinational, dynastic state of the Habsburgs, with emphasis upon those forces which sustained it through the nineteenth century and those which brought its collapse in 1918.

#### **3460. Italy 1250-1600**

Three credits. *Gouwens*

Italy from the triumph of the city-state and the *popolo grasso* to the end of the Renaissance. The complex interrelationship between society and culture will be the focus of study.

#### **3463. The Modernization of Italy from 1815 to Present**

Three credits. *Davis*

The modernization of Italy's traditional sociopolitical and economic structure; Industrialization, unification, the liberal regime, fascism, and the republic.

#### **3470. Medieval and Imperial Russia to 1855**

Three credits.

The development of Russia from the emergence of the Slavs to the reign of Alexander II. Russian political institutions, orthodoxy and cultural traditions, nobility, peasantry, and townsmen.

#### **3471. History of Russia Since 1855**

Three credits. Recommended Preparation: HIST 3470. *Gilligan*

Continuation of HIST 3470. Late imperial Russia, the former Soviet Union, and contemporary Russia.

#### **3502. Colonial America: Native Americans, Slaves, and Settlers, 1492-1760**

Three credits. Dayton, McKenzie

The legacy of Columbus, creative survival of Native Americans in the face of disease and warfare, religious utopianism and the profit motive in colonization. The growth of a distinctive Anglo-American political culture, gender and family relations, and the entrenchment of a racial caste system.

#### **3502W. Colonial America: Native Americans, Slaves, and Settlers, 1492-1760**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

#### **3504. The American Revolution**

Three credits. *Clark*

Creation of the United States of America from the beginnings of the independence movement through the adoption of the Constitution and Bill of Rights.

#### **3510. Civil War America**

Three credits.

The social, economic and cultural forces that shaped the Civil War and its aftermath. Sectional conflict, industrialization, reform and abolitionism, race relations, and class, gender and constitutional issues from the 1830's to the 1880's.

#### **3516. Rise of U.S. Global Power**

Three credits. *Costigliola*

The people and ideas that powered the growth of America's global empire. Emphasis on the world wars, the Cold War, the Vietnam War, intervention in Latin America, and the global economy.

#### **3519. Contemporary America**

Three credits. Not open for credit to students who have passed HIST 3095 or 3995 when taught as Contemporary America, 1973-Present.

American politics, society, and economy from 1973 through the present. Topics include: Conservatism, feminism, gay liberation, the end of the Cold War, Latino immigration, deindustrialization, and the New Economy.

#### **3520. Social and Cultural History of Connecticut and New England**

Three credits. Either 3520 or 3522, but not both, may be counted for credit toward the History major. Baldwin, Clark, Woodward

Race, class, gender, religion, politics, and economy in New England. Interpretations of the region's culture from the 1600's through the 1800's. Introduces accessible primary sources and interpretive issues at public history sites.

#### **3522. History of Connecticut**

Three credits. Either 3520 or 3522, but not both, may be counted for credit toward the History major. *Woodward*

A survey of Connecticut's history from 1633 to the present from a constitutional and political perspective.

#### **3530. Asian-American Experience Since 1850**

(Also offered as AASI 3578.) Three credits. *Chang*

Survey of Asian-American experiences in the United States since 1850. Responses by

Asian-Americans to both opportunities and discrimination.

#### **3531. Japanese Americans and World War II**

(Also offered as AASI 3531.) Three credits. *Buckley*

The events leading to martial law and executive order 9066, the wartime experience of Japanese Americans, and national consequences. CA 1. CA 4.

#### **3540. American Environmental History**

Three credits. *Rozwadowski, Shoemaker, Woodward*

Transformations of the North American environment: the effects of human practices and policies, varying ideas about nature across cultures and time periods, and the rise of environmental movements.

#### **3540W. American Environmental History**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

#### **3541. The History of Urban America**

(Also offered as URBN 3541.) Three credits. *Baldwin*

The development of Urban America with emphasis on social, political, physical, and environmental change in the industrial city.

#### **3541W. The History of Urban America**

(Also offered as URBN 3541W.) Prerequisite: ENGL 1010 or 1011 or 2011.

#### **3542. New England Environmental History**

Three credits. Recommended preparation: ENGL 1010 or 1011 or 2011. *McKenzie*

Interdisciplinary history of New England's terrestrial and marine environmental change. Links among land, sea, and human natural resource use and management, including precontact patterns, colonial impacts, agricultural decline, industrial pollution, overfishing, reforestation, and the rise of eco-tourism.

#### **3544. Atlantic Voyages**

(Also offered as MAST 3544.) Three credits.

Seafaring and society since the age of Columbus. Emphasis on the Anglo-American experience.

#### **3550. Constitutional History of the United States**

Three credits.

The Constitution and the Supreme Court in relation to the political, economic, and intellectual history of the United States.

#### **3551. Topics in U.S. Legal History**

Three credits. With change in content, may be repeated for credit. *Dayton*

Introduction to legal culture and appellate case materials from the eighteenth through the twentieth centuries. Topics include: child custody and family law, the courts' role in industrial development, the law of slavery and freedom in the North, and various aspects of civil rights.

#### **3551W. Topics in U.S. Legal History**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

#### **3554. Immigrants and the Shaping of American History**

Three credits. Recommended preparation: One course in American History. *Chang*

The origins of immigration to the United States and the interaction of immigrants with the social, political, and economic life of the nation after 1789, with emphasis on such topics as nativism, assimilation, and the “ethnic legacy.”

### **3555. Work and Workers in American Society**

Three credits. *McKenzie*

Changes in work from the 17th through the 20th centuries. Workers’ experiences, ideologies, and activities as shaped by gender, race/ethnicity, region, occupation, and industry.

### **3555W. Work and Workers in American Society**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher

### **3556W. History Workshop: Topics in American Society and Culture**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with change of topic.

Techniques of primary historical research based on collaborative research and writing on a topic selected by the instructor.

### **3560. Constructions of Race, Gender, and Sexuality in U.S. History**

(Also offered as WGSS 3560.) Three credits. Not open for credit to students who have passed HIST 3095 or 3995 when taught as Constructions of Race, Gender, and Sexuality in U.S. History. *McElya*

Examination of historical development, interconnections, and complexities of conceptions of race, gender, and sexuality in U.S. from European conquest to the present.

### **3561. History of Women and Gender in the U.S. to 1850**

(Also offered as WGSS 3561.) Three credits. *Dayton*

Gender ideologies of indigenous and settler cultures, changing conditions of women’s and men’s lives as the U.S. became a nation, while emphasizing intersections with ethnicity, race, class, religion, and region.

### **3562. History of Women and Gender in the United States, 1850-Present**

(Also offered as WGSS 3562.) Three credits. *McElya*

History of gender and the lives and cultural representations of women in the U.S., emphasizing intersections with race, sexuality, class, region, and nation.

### **3563. African American History to 1865**

(Also offered as HRTS 3563 and AFRA 3563.) Three credits. *Ogbar*

History of African-American people to 1865, from their West African roots, to their presence in colonial America, through enslavement and emancipation. Adaptation and resistance to their conditions in North America. Contributions by black people to the development of the United States.

### **3564. African American History Since 1865**

(Also offered as AFRA 3564.) Three credits. *Ogbar*  
History of African-American people since the Civil war. Contributions by black people to American development. African-American activity in international arenas.

### **3568. Hip-Hop, Politics and Youth Culture in America**

(Also offered as AFRA 3568.) Three credits. *Ogbar*

History of hip-hop, its musical antecedents and its role in popular culture. Race, class, and gender are examined as well as hip-hop’s role in popular political discourse.

### **3570. American Indian History**

Three credits. *Shoemaker*

Surveys American Indian history in what is now the United States from pre-Columbian times up to the present. Cultural diversity among Indian peoples, the effects of European contact, tribal sovereignty, and other current issues. CA 4.

### **3575. Latinos/as and Human Rights**

(Also offered as HRTS 3221 and LLAS 3221.) Three credits. *Overmyer-Velázquez, Silvestrini*

Latino/a issues related to human, civil and cultural rights, and gender differences.

### **3607. Latin America in the Colonial Period**

(Also offered as LLAS 3607.) Three credits. Prerequisite: Open to sophomores or higher.

Pre-Columbian Civilization in America, the epoch of conquest and settlement, together with a study of the Ibero-Indian cultural synthesis which forms the basis of modern Latin American civilization. CA 1. CA 4-INT.

### **3608W. The Hispanic World in the Ages of Reason and Revolution**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: HIST 3607. *Silvestrini*

The transformation of Spanish America from the Bourbons in 1700, through the wars of independence and the struggle to build stable national states in the Nineteenth Century.

### **3609. Latin America in the National Period**

(Also offered as LLAS 3609.) Three credits. Prerequisite: Open to sophomores or higher. *Healey, Silvestrini*

Representative countries in North, Central, and South America and the Caribbean together with the historic development of inter-American relations and contemporary Latin American problems. CA 1. CA 4-INT.

### **3610. Latin America and the Great Powers**

Three credits.

Great power diplomatic, commercial, and cultural relations with Latin America from the end of the colonial period to the present. Emphasis on the United States and Great Britain.

### **3619. History of the Caribbean**

(Also offered as AFRA and LLAS 3619) Three credits.

Encounter experience; slavery, antislavery mobilization, and abolitionism; colonialism; citizenship and nation building; race and gender; political cultures and movements; migration/immigration; cultural production; and political economy; topics will be examined from a historical perspective. CA 1. CA 4-INT.

### **3620. Cuba, Puerto Rico, and the Spanish Caribbean**

(Also offered as AFRA 3620.) Three credits. *Pappademos, Silvestrini*

Discovery and settlement, slavery and plantation economy, recent political and economic developments, and United States relations with the Spanish Caribbean.

### **3621. Cuba in Local and Global Perspective**

Three credits. Recommended preparation: HIST 3607, 3608W, 3609, 3620, 3635. *Pappademos*

Major themes in Cuban politics and culture. Local and global perspective. Key topics include race, gender, class, cultural movements and practices, slavery, political economy and movements, nationalism.

### **3622. History of Gender and Sexuality in Latin America and the Caribbean**

(Also offered as AFRA, LLAS, and WGSS 3622.) Three credits.

Topics may include empire and colonialism/anti-colonialism; slavery, science, and the state; cultural practices and institutions; feminisms and masculinities; law and public policies; immigration; forms of labor and political mobilization; sex and reproduction; and human rights from historical perspective.

### **3635. History of Modern Mexico**

(Also offered as LLAS 3635.) Three credits. Recommended preparation: HIST 3607. *Overmyer-Velázquez*

The emergence of modern Mexico from independence to the present with emphasis on the Revolution of 1910. CA 1. CA 4-INT.

### **3640. Andean Societies**

Three credits. Recommended preparation: HIST 3607 or 3609.

History of the geographical and social region occupied by the Inca Empire: pre-Columbian cultures, the period of Spanish colonial rule, and the modern Andean republics (primarily Ecuador, Peru, and Bolivia).

### **3643. Argentina and LaPlata Region**

Three credits. Recommended preparation: HIST 3607 or 3609. *Healey*

Colonial heritage, social and economic transformation of Argentina, Uruguay and Paraguay, foreign relations and contemporary turmoil.

### **3650. History of Urban Latin America**

(Also offered as URBN 3650.) Three credits. Open to sophomores or higher. Not open to students who have passed HIST 3095 or 3995 when taught as Latin American Urban History.

The development of Latin American cities with emphasis on social, political, physical and environmental change, from Spanish conquest to present. CA 1.

### **3660W. History of Migration in Las Américas**

(Also offered as LLAS 3660W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; instructor consent. Recommended preparation: LLAS 1190, ANTH 3042, HIST 3635, HIST 3609, or HIST 3674/LLAS 3220; LLAS 3210. Spanish useful, but not required. *Gabany-Guerrero, Overmyer-Velázquez*

Applies broad chronological and spatial analyses of origins of migration in the Americas to the experiences of people of Latin American origin in Connecticut. Addresses a range of

topics from the initial settlement of the Americas to 21st century migrations. CA 1. CA 4.

### 3674. History of Latinos/as in the United States

(Also offered as LLAS 3220.) Three credits. *Overmyer-Velázquez, Silvestrini*

Settlement and growth of Hispanic-origin populations in the United States today, from Spanish and Mexican settlement of western United States to the growth of Latino communities. Student oral history project. CA 1. CA 4.

### 3704. Medieval Islamic Civilization to 1700

Three credits. Recommended preparation: HIST 1300 or 1400. *Azimi*

The social dynamics of faith, culture, and change from the rise of Islam to the Ottoman decline and the Islamic challenge to Greek and Latin Christendom.

### 3705. The Modern Middle East from 1700 to the Present

Three credits. *Azimi*

Tradition, change, modernization and development in the Middle East from the Ottoman decline and rise of successor states to the Arab-Israeli and oil crises. CA 1. CA 4-INT.

### 3712. The Middle East Crucible

Three credits. *Azimi*

Twentieth-century issues in the Middle East heartland with analysis focusing on the Ottoman heritage, nationalism, Arab-Israeli and other conflicts, Islam, oil, water, rapid sociopolitical change, trends in development, super-power rivalries, and the search for identity, independence, and peace with justice.

### 3752. History of Pre-Colonial Africa

(Also offered as AFRA 3752.) Three credits. *Omara-Otunnu, Vernal*

The history of pre-colonial Africa with particular attention to the rise and fall of African Kingdoms, interaction between different ethnic groups, African trade with other continents, and the impact of foreigners on African societies.

### 3753. History of Modern Africa

(Also offered as AFRA 3753.) Three credits. *Omara-Otunnu, Vernal*

The history of African perceptions of and responses to the abolition of the slave trade, Western imperialism and colonialism, and the development of nationalism and struggle for independence.

### 3760. History of Southern Africa

(Formerly offered as HIST 3422.) Three credits. Prerequisite: Open to sophomores or higher. *Vernal*

Survey of Southern African societies with an emphasis on the socio-economic and political structure of indigenous societies, the imposition of colonial rule, gendered experiences of colonialism, colonial economies, the rise of nationalism and post-independence developments.

### 3808. East Asia to the Mid-Nineteenth Century

(Also offered as AASI 3808.) Three credits.

The major problems and issues of traditional Chinese and Japanese history and historiography. Special emphasis on the "Great Tradition" in ideas of both civilizations.

### 3809. East Asia Since the Mid-Nineteenth Century

(Also offered as AASI 3809.) Three credits.

The reactions of East Asia to the Western threat, and the rise of Asian nationalism, communism, and fascism. Special attention to the tensions caused by the conflict of ideas.

### 3810. China and the West

Three credits. Open to sophomores or higher. Not open to students who have passed HIST 3095 or 3995 when taught as China and the West to 1949.

China's political, economic, and cultural encounters with Western Powers from the sixteenth century to 1949.

### 3812. Modern India

(Also offered as AASI 3812.) Three credits. *Buckley*

An introduction to the history of India from the Mughal and European invasions of the 16th Century to the present. India's synthesis of Eastern and Western culture, traditional and new, will be the focus.

### 3820. History of Modern Chinese Political Thought

Three credits.

Survey of Chinese political ideas and ideologies since the nineteenth century.

### 3822. Modern China

Three credits.

Survey of patterns of modern China since 1800. Topics will include reforms and revolutions, industrialization and urbanization, and family and population growth.

### 3832. Modern Japan

Three credits. *Dudden*

Examines the dawn of the modern era to the present day in a place we call Japan. In each of our readings, we will seek to understand what constitutes, as one scholar put it, "history versus the radiant myth of belonging."

### 3841. Empire and Nation in Southeast Asia

Three credits. Prerequisite: Open to sophomores or higher.

Major themes in modern Southeast Asian history from the 17th century to the present: growth of global commerce; western imperialism; nationalism; emergence of independent nation-states; challenges of the post-independence period. Emphasis on the region's largest countries: Burma, Cambodia, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.

### 3842. History of Vietnam

Three credits. Prerequisite: Open to sophomores or higher.

Introduction to the history of the Vietnamese from the late Bronze Age to the present: the ancient culture of the Red River delta, the millennium of Chinese rule, the independent kingdom of Dai Viet and its successors, French colonialism, the Vietnam War, and postwar Vietnam.

### 3845. The Vietnam War

Three credits. Prerequisite: Open to juniors or higher.

Origins, evolution, and aftermath of the Vietnamese conflict: the prewar history of

colonialism, nationalism, communism, and anticommunism; the formation and development of the three main Vietnamese belligerents; American intervention; culture and politics in wartime Vietnam; escalation and de-escalation of the war; the postwar legacy.

### 3863. War and Diplomacy in East Asia

Three credits. *Dudden*

European struggle for power in Asia since 1842, in the context of the rise of Japan and the reassertion of Chinese power.

### 3875. Asian Diasporas in the Americas

(Also offered as AASI 3875 and LLAS 3875.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HIST 3607, 3609, 3610, 3635, 3660W, or 3674. Not open to students who have passed HIST 3095 or 3995 when taught as Asian Diasporas in the Americas.

Transnational history of migration and settlement of Chinese, Japanese, Korean, and South Asian diasporas across South, Central, and North America and the Caribbean, colonial through national period. Emphasis on political economy, racial formations, and constructions of national identity.

### 3991. Supervised Field Work

Credits and hours by arrangement. Prerequisite: Open only with consent of Department Head; open to juniors or higher. May be repeated for credit up to a maximum of 12 credits. No more than six credits will count toward the department's major or minor requirements.

Internship in applied history.

### 3993. Foreign Study

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of department head required, normally to be granted before the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

### 4989. Directed Research

Three credits. Prerequisite: Open only to senior history majors.

An introduction to research methods and resources in history.

### 4994W. Senior Seminar

Three credits. Prerequisite: HIST 2100; ENGL 1010 or 1011 or 2011; open only to undergraduate history majors in their senior year. With a change in content, may be repeated for credit.

These seminars give students the experience of reading critically and in depth in primary and secondary sources, and of developing and defending a position as an historian does.

### 4997W. Senior Thesis in History

Three credits. Hours by arrangement. Prerequisite: HIST 2100 and either HIST 4994W or 4999; ENGL 1010 or 1011 or 2011; open only to Honors students with consent of instructor and History Honors advisor.

### 4999. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

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## Horticulture (HORT)

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*Head of Department:* Professor Richard McAvoy

*Department Office:* Room 133, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

### 1110. Fundamentals of Horticulture

Three credits. Three class periods. *Salsedo*

Science and practice of horticultural plant propagation and culture. Basic concepts of plant structure, growth and function. Integrated pest management. Impact of new technology. Horticulture and the environment.

### 2430. Herbaceous Ornamental Plants

Three credits. Taught with SAPL 430. Not open for credit to graduate students. *Kuzovkina*

Identification, nomenclature, cultural requirements and landscape uses of herbaceous perennials, ornamental grasses, ferns, annuals and bulbs. Study of live plants is required.

### 2520. Floral Art

Two credits. One class period and one 2-hour studio period. Taught with SAPL 520. *Palmieri*

The study of flower arrangement as an art form with emphasis on historical background, artistic principles, color harmony and care of perishable media. Individual expression is encouraged in the creation of floral composition. A fee of \$75 is charged for this course.

### 2560W. Written Communications in Horticulture

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; open only to Horticulture or Turfgrass Science majors; others by consent. *Lubell*

Writing as a component of communicating facts and opinions in the theory and practice of Horticulture. Assignments will reflect forms of writing commonly encountered by professional horticulturists, including descriptive brochures, articles for mass media, extension bulletins, and technical manuals.

### 2750. Landscape Plant Maintenance

Three credits. Recommended preparation: BIOL 1110. Taught with SAPL 750. *Elliott*

Planting, establishment and maintenance of woody and herbaceous plants in built and managed environments. Plant structural and functional requirements. Preserving and protecting established plants. Soil conditions and modification. Influence of climate and modification of microclimate. Plant selection. Pruning, mulching, water and irrigation, nutrition and fertilization, plant health care and other horticultural practices.

### 3410. Woody Plants: Common Trees, Shrubs and Vines

Three credits. Taught with SAPL 410. Two class periods and one 2-hour outdoor laboratory. Recommended preparation: BIOL 1110. *Brand*

Taxonomy, identification, ornamental characteristics, cultural requirements and landscape use of deciduous and evergreen woody plants most often utilized in landscapes of the northeastern United States and similar environs.

### 3530. Advanced Floral Design

Two credits. Taught with SAPL 530. One class period and one 2-hour lab. Not open for credit to graduate students. Prerequisite: HORT 2520; instructor consent. *Palmieri*

In-depth study of post-harvest requirements for specialized floral crops. Exposure to novel floral materials with an emphasis on special events and wedding designs. Mass marketing, retail price structuring and mass-production concepts are covered. A fee of \$75 is charged for this course.

### 3540. Garden Center Management

Three credits. Taught with SAPL 540. Not open for credit to graduate students. *Bonelli*

Fundamentals related to horticultural specialty businesses with particular emphasis on the retail and contracting areas. Specialty and mass merchandising firms are considered and compared.

### 3560. Indoor Plants and Interiorscaping

Three credits. Taught with SAPL 560. *Kuzovkina*

Taxonomy, identification, ornamental characteristics, cultural requirements and use of tropical plants. Principles of interiorscaping in the home, office, public buildings, and related locations.

### 3620. Vegetable Production

Four credits. Three class periods and one 2-hour field laboratory period. Taught with SAPL 620. Field trips required. Not open for credit to graduate students. *Berkowitz*

Fundamentals of soil management and crop plant husbandry as applied to commercial vegetable production and home gardening. Horticultural principles of crop growth. Focus is on sustainable practices. Field laboratory will consist of field trips (some outside designated laboratory time) during the early part of the semester to organic and conventional farms to observe production and marketing practices.

### 3640. Plant Propagation

Three credits. Two class periods and one 2-hour laboratory period. Not open for credit to graduate students. Taught with SAPL 640. *Brand*

Theory and practice in sexual and asexual propagation of horticultural plants, emphasizing the anatomical, physiological, and ecological principles involved. Laboratories provide practical experience with seeds, division, cuttings, budding, grafting, layering and tissue culture.

### 3660. Nursery Production

Three credits. Two class periods and one 2-hour laboratory period. Taught with SAPL 660. *Lubell*

Principles of field and container production of nursery stock. Emphasis on production practices for woody nursery stock from propagule to sale.

### 3670. Greenhouse Technology and Operations

Three credits. Two class periods. Prerequisite: BIOL 1108 or 1110; open to juniors or higher. Recommended preparation: SOIL 2120. *McAvoy*

Introduction to greenhouse systems with emphasis on structures, environmental control, root media, irrigation and fertilization, and pest control, in relation to requirements for plant growth and crop production.

### 3740. Landscape Construction

Three credits. Two 1-hour lectures per week and seven 4-hour outdoor laboratories per semester. Taught with SAPL 740.

Principles and techniques used to build landscape structures including patios, walls, walkways, water features, and green roofs.

### 3765. Phytotechnology: Use of Plants for Ecosystem Services

Three credits. Two class periods and one 2-hour laboratory. Recommended preparation: HORT 2750. Field trips and workshops are part of this class. Not open for credit to students who have passed HORT 3760. *Kuzovkina*

Principles of sustainable landscapes and ecological enhancement using planted systems. Modification of urban environments with streetscaping, green roofs and green walls. Phytoremediation of soil pollution and brownfield reclamation. Bioretention for integrated water resource management. Role of planted systems in biodiversity conservation and climate change.

### 4650. Plant Tissue Culture

Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: CHEM 1122 or 1124 or 1127 and instructor consent. Not open for credit to students who have passed HORT 3650. *McAvoy*

In vitro techniques for plant propagation, biotechnology and research. Media preparation, aseptic micropropagation techniques including meristem culture, direct and indirect-organogenesis and embryogenesis, embryo rescue, somaclonal variation, and pathogen indexing.

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## Human Development and Family Studies (HDFS)

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*Head of Department:* Professor Ronald Sabatelli

*Office:* Room 106, Family Studies Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1060. Close Relationships Across the Lifespan

Three credits.

Theory and research on topics in the close relationship literature including attraction, relationship development and maintenance, friendship and social support, love, sexuality, intimacy, power, communication, conflict, dissolution and divorce, and bereavement. CA 2.

### 1070. Individual and Family Development

Three credits.

Human development throughout the life span, with emphasis upon the family as a primary context. CA 2.

### 1095. Special Topics Lecture

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### 2001. Diversity Issues in Human Development and Family Studies

Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HDFS 1070.

Critical issues in diversity and multiculturalism in human development, family relations, and professional practice. CA 4.

**2004W. Research Methods in Human Development and Family Studies**

Four credits. Prerequisite or corequisite: HDFS 1070, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only to HDFS majors; open to sophomores or higher. Not open for credit to students who have completed HDFS 290.

Overview of research methods with emphasis on (1) the social context in which research occurs and is used, and (2) strengths and limitations of social science research methods. Includes topics such as hypothesis formation, measurement of social variables, research ethics, data collection techniques, and interpreting results.

**2100. Human Development: Infancy Through Adolescence**

Three credits. Prerequisite: Open to sophomores or higher.

Individual development and behavior from prenatal period through adolescence; impact of peers, school, other social agencies, and especially the family.

**2200. Human Development: Adulthood and Aging**

Three credits. Prerequisite: Open to sophomores or higher.

Individual development and behavior from young adulthood through later life with special attention given to family and social influences. Physical, cognitive, social and personality changes, role transitions, and interpersonal and intergenerational relationships.

**2300. Family Interaction Processes**

Three credits. Prerequisite: Open to sophomores or higher.

Family interaction: communication processes, bonding behaviors, management of conflict and aggression, negotiation of family crisis.

**3042. Baseball and Society: Politics, Economics, Race and Gender**

(Also offered as AFRA 3042 and WGSS 3042.) Three credits. Prerequisite: Open to juniors or higher.

Baseball in historical, political, sociological, and economic contexts. Topics may include: impact on individuals and families; racial discrimination and integration; labor relations; urbanization; roles of women; treatment of gay athletes; and implications of performance-enhancing drugs.

**3080. Supervised Field Experience**

Three or six credits. May be repeated up to a maximum of six credits. Prerequisites: GPA of 2.5 in HDFS courses: 15 credits of 2000-level or above HDFS courses and consent of the Director of Undergraduate Studies. Students who do not meet all of these requirements may take the course with the consent of the fieldwork coordinator and of the seminar instructor. Weekly seminar required. Practicum by arrangement.

Supervised participation in settings where purposes and functions are related to the development and welfare of individuals and families.

**3083. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Director of Undergraduate Studies required, preferably prior to student's departure. With a change in content, this course may be

repeated for credit. A maximum of six credits can be used to meet major requirements.

Special topics taken in a foreign study program.

**3087. Honors Proseminar**

Two credits. Class meets once a week for two hours. Prerequisite: Open only with consent of instructor to students in the Honors Program. May be repeated for credit.

Overview of the Human Development and Family Studies Honors Programs and the opportunities available through University Honors. Includes presentations by Family Studies faculty members and discussions with faculty regarding research. Provides direction to students planning honors theses.

**3090. Fieldwork in Community Settings**

Three credits. Prerequisites: HDFS 3080; GPA of 2.5 in HDFS courses: 15 credits of 2000-level or above HDFS courses and consent of the Director of Undergraduate Studies. Cannot be repeated for credit. Cannot be used toward meeting major requirements in HDFS nor towards meeting GPA requirements in HDFS. Weekly seminar required. Practicum by arrangement.

Supervised participation in settings where purposes and functions are related to the development and welfare of individuals and families.

**3092. Research Practicum in Human Development and Family Studies**

Credits and hours by arrangement. Prerequisite: GPA of 2.5 in HDFS courses and consent of instructor. May be taken more than one semester.

Supervised experience conducting research in human development and family studies.

**3095. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**3098. Selected Topics in Human Development and Family Studies**

Variable credits. With a change in content this course may be repeated for credit.

**3101. Infant and Toddler Development**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher. Prerequisite or corequisite: HDFS 2004W or NURS 3215 or PSYC 2100 or SOCI 3201.

Study of children from birth to three years from an integrated human development perspective; biological and social contextual influences.

**3102. Early and Middle Childhood Development**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher. Prerequisite or corequisite: HDFS 2004W or NURS 3215 or PSYC 2100 or SOCI 3201.

Study of children ages 3-8 years from an integrated human development perspective that focuses on the interdependence of physical growth and cognitive, emotional, and social development.

**3103. Adolescent Development**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher. Prerequisite or

corequisite: HDFS 2004W or NURS 3215 or PSYC 2100 or SOCI 3201.

Theoretical approaches to adolescence; contextual research findings regarding adolescent development, with an emphasis on evaluating the match between these findings and the lived experience of adolescents; interventions designed to help adolescents meet the challenges of contemporary life.

**3110. Social and Community Influence on Children in the United States**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher.

Based on an ecological/contextual perspective students investigate the impact on child development of community characteristics and social groups and organizations on the development of children in the United States. Possible topics include: family, peers, schools, media, economic status, health care, social services, and the legal system. For each topic, focus is on factors related to promoting resilience.

**3120. Introduction to Programs for Young Children**

Three credits. Prerequisite: Open to juniors or higher; open only with instructor consent. Must be taken concurrently with HDFS 3180 or 3183.

Components of early care and education programs. Guided observations are integrated with lecture material. Designed for students who intend to work with infants and young children.

**3122. Integrated Curriculum Methods and Materials for Infants and Toddlers**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Open to juniors or higher; open only with instructor consent.

Integration of child development theory with best teaching practices for developmentally appropriate learning for children from birth to three years in specific domains including arts, sensory motor, social/emotional, and physical development.

**3123. Integrated Curriculum Methods and Materials for Preschool and Kindergarten**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Open to juniors or higher; open only with instructor consent.

Integration of child development theory with best teaching practices for developmentally appropriate learning for children from preschool through kindergarten in specific domains including cognitive development, mathematical and scientific thinking, social studies, and personal/social development.

**3125. Emergent Literacy and Language Arts in Early Childhood Education**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 3122 or 3123; open to juniors or higher.

Developmentally and individually appropriate integrated curriculum methods and materials in emergent literacy and language arts for children birth to eight.

**3127. Professional Development and Advocacy in Early Childhood**

Three credits. Prerequisite: HDFS 3120. Consent of the instructor is required. Not open to students who have completed HDFS 3126.

Historical, philosophical, psychological, and contemporary influences on the field. Comprehensive services, the workforce, quality, funding, and child outcomes. Focus on each student's professional development and on advocacy for change.

**3180. Programs for Young Children: Introductory Laboratory**

One credit. One 2-hour laboratory by arrangement. Prerequisite: Open only to students concurrently enrolled in HDFS 3120; and only with instructor consent.

Guided observation and participation in a program for young children.

**3181. Observing Infant and Toddler Development**

One credit. Weekly seminar. Lab by arrangement. Prerequisite or corequisite: HDFS 3101. Not open to students who have passed HDFS 3182.

Observation of children ages 8 weeks to two years in early care and education programs.

**3182. Observing Early Childhood Development**

One credit. Weekly seminar. Lab by arrangement. Prerequisite or corequisite: HDFS 3102. Not open to students who have passed HDFS 3181.

Observing young children in early care and education settings.

**3183. Early Childhood Development and Education: Supervised Fieldwork Practicum**

Four credits. Prerequisite: HDFS 3120 and 3180 and HDFS 3101 and 3181 or HDFS 3102 and 3182; completion of or concurrent enrollment in HDFS 3122 or HDFS 3123; open to juniors or higher; open only with instructor consent. Weekly seminar. Practicum by arrangement.

Supervised participation with typically developing and special needs children within the Child Development Lab classrooms. Topics include understanding informed observation and how relationships and play guide early learning and development.

**3240. Aging in American Society**

(Also offered as SOCI 3459.) Three credits. Prerequisite: Open to juniors or higher.

Social gerontology: the role and status of older people in a changing society.

**3240W. Aging in American Society**

(Also offered as SOCI 3459W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3249. Gender and Aging**

Three credits. Prerequisite: Open to juniors or higher.

Aging process as it impacts on men and women; historical and cross-cultural perspectives, changing family roles, including grandparenthood and widowhood, and implications of changing gender roles for self-actualization of older persons.

**3250. Disabilities: A Lifespan Perspective**

Three credits. Prerequisite: HDFS 1070; open to juniors or higher.

Introduction to disabilities, approaching the topic from historical, developmental-lifespan, individual, and family perspectives. Topics include social constructions, models, definitions,

and types of disabilities, disability rights, public policy, and philosophies and systems of education and support for individuals and families.

**3251. Biotechnology, Disability and the Family**

Three credits. Prerequisite: Open to juniors or higher. Consent of instructor is required.

Politics and ethics of treating and/or preventing disabilities in reproduction and across the lifespan. Family/caregiver experiences analyzed through disability studies, medical sociology, science and technology studies, and bioethics.

**3252. Death, Dying, and Bereavement**

Three credits. Prerequisite: Open to juniors or higher.

Cultural context of death, personal meaning of death at different stages in life cycle, and the effect of death upon survivors.

**3261. Men and Masculinity: A Social Psychological Perspective**

Three credits. Prerequisite: Open to juniors or higher.

Men's gender role socialization over the life span; men's developmental issues, gender role, conflicts, and interpersonal dynamics with women. Theory, research, and personal exploration are integrated. CA 4.

**3268. Latinos: Sexuality and Gender**

(Also offered as LLAS 3251.) Three credits. Prerequisite: Open to juniors or higher.

Critical discussion of issues involving gender and sexuality among Latinos, with particular attention to race, class, ethnicity, and acculturation.

**3277. Issues in Human Sexuality**

Three credits. Prerequisite: Open to juniors or higher.

Contemporary issues concerning human sexuality; impact upon individuals and family units.

**3310. Parent-Child Relations in Cross-Cultural Perspective**

Three credits. Prerequisite: Open to juniors or higher.

Theory and research on major dimensions of parenting in the U.S.A. and cross-culturally: parental warmth, control and punishment.

**3311. Parenthood and Parenting**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 1070 or 2200; open to juniors or higher.

Parent behavior and the dynamics of parenthood; interpersonal, familial, and societal roles of parents and variables influencing these roles across the lifespan. CA 2.

**3311W. Parenthood and Parenting**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 1070 or 2200; ENGL 1010 or 1011 or 2011; open to juniors or higher who are HDFS majors. CA 2.

**3319. Risk and Resilience in Individuals and Families**

Three credits. Prerequisite: HDFS 2300; open to juniors or higher.

Challenges, stresses, and crises experienced by individuals and families; protective factors and resilience; coping strategies; prevention and intervention.

**3340. Individual and Family Interventions**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: HDFS 2300.

An introduction to individual, couple, family, and group intervention. Topics include counseling theories, developmentally appropriate interventions, and methods for addressing diversity. Intervention strategies used in a variety of human services settings are examined.

**3341. Family and Consumer Sciences: Developing Curriculum for Adolescents**

Three credits. Prerequisite: HDFS 2100 and HDFS 3103; open to students in Human Development and Family Studies, others with permission. Course may be repeated up to three times with change in content/topic for a total of 9 credits.

Theory, research and practicum related to instruction of adolescents using developmentally appropriate practices. Curriculum development, methodology, and assessment of students in selected content areas (i.e. interior design, clothing and textiles, quantity food production) for the preparation of teachers of Family and Consumer Sciences.

**3342. Family Resource Management**

Three credits. Prerequisite: Open to juniors or higher.

Decision-making process of families concerning the utilization of financial, personal, environmental and social resources.

**3343. Family Life Education**

Three credits. Prerequisite: Open to juniors or higher.

Theory and practice of family life education including program development, implementation, evaluation, and professional ethics.

**3420. Abuse and Violence in Families**

Three credits. Prerequisite: HDFS 2300; open to juniors or higher.

Historical, psychological, sociological and legal issues relating to abuse and family violence across the lifespan, including child maltreatment and elder abuse. Introduction to methods for prevention and remediation.

**3421. Low Income Families**

Three credits. Prerequisite: Open to juniors or higher.

Impact of poverty and related problems on development of the child in the context of the family. Family structure, childrearing patterns, early educational and community programs.

**3423. History of the Family**

(Also offered as HIST 3203.) Three credits.

Pre-industrial and industrial family life in Western society since the Middle Ages, with emphasis on the changes in demography, family size and structure, family economy, social expectations, sex roles, sexuality, and affective bonds.

**3430. The Family-School Partnership**

Three credits. Prerequisite: HDFS 1070 or HDFS 2100 or PSYC 2400; open to juniors or higher.

The role of families in the education process. The effective family-school-community partnership in educating children: Communications and the implications of culture, socio-economics, family form, family dynamics, family supports, and public policy.

**3431. Families and Work**

Three credits. Prerequisite: Open to juniors or higher.

Interaction of the world of work with family structure; social psychological dynamics that enhance or impede working families' lives.

**3433. Consumer Rights and Responsibilities**

Three credits. Prerequisite: Open to juniors or higher.

The rights and responsibilities of consumers with emphasis on the consumer decisions of individuals, households, and families throughout the lifespan.

**3442. Latino Health and Health Care**

(Also offered as LLAS 3250.) Three credits. Prerequisite: Open to juniors or higher.

Overview of health and health care issues among Latinos in the United States. Particular attention is paid to cultural and social factors associated with health and well-being (e.g. migration, acculturation, SES).

**3473. Asian-Pacific American Families**

(Also offered as AASI 3473.) Three credits.

Overview of social, cultural, educational, demographic and economic characteristics of Asian-Pacific American families. Examination and critique of values, customs, traditions and beliefs that distinguish families of this heterogeneous ethnic population.

**3510. Planning and Managing Human Service Programs**

Three credits. Prerequisite: Open to juniors or higher.

Planning techniques: needs assessment, data collection and analysis, budgeting, and evaluation. Management skills: decision making, management theory and organizational behavior, personnel motivation, accountability, and financial management.

**3520. Legal Aspects of Family Life**

Three credits. Prerequisite: Open to juniors or higher.

Overview of historical roots and key aspects of family law. The case method is used to analyze the causes and effects of contemporary trends. Topics include: the regulation of marriage, separation, and divorce; procreation and abortion; adoption; child custody and support; and, end-of-life issues.

**3530. Public Policy and the Family**

Three credits. Prerequisite: Open to juniors or higher.

Analysis of government programs and policies impacting the family: child care, aging, family law, mental health, family violence, income maintenance, and family impact analysis.

**3540. Child Welfare, Law and Social Policy**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 2004W or PSYC 2100; open to juniors or higher.

Examines the methods through which empirical social science research can affect law and public policy affecting children and families. CA 2.

**3540W. Child Welfare, Law and Social Policy**

Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 2004W or PSYC 2100; ENGL 1010 or 1011 or 2011; open to juniors or higher; open only to HDFS majors. CA 2.

**3550. Comparative Family Policy**

Three credits. Prerequisite: Open to juniors or higher.

Comparative analysis of government programs and policies impacting families in the United States and other countries. Health and welfare policies, family planning, child care, teen pregnancy, and care of the aged.

**4004. Senior Seminar in Research Methods**

Three credits. Prerequisite: HDFS 2004W, 12 credits of 2000-level or above HDFS courses; open only to Human Development and Family Studies Majors; open only with consent of instructor.

Students will work as a research team to conduct a research project through all of its phases, from formulating a research question to final presentation of findings.

**4007W. Professional Communication in Human Development and Family Studies**

Three credits. Prerequisite: HDFS 2004W and an additional 12 credits completed in 2000-level or above HDFS courses; ENGL 1010 or 1011 or 2011; open only to HDFS majors.

Development of advanced written and oral communication skills required for professional careers and graduate studies. Emphasis is placed on appropriate presentation and writing styles for the diverse audiences and purposes encountered in research and practice.

**4087W. Honors Thesis**

Three to six credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor to students in the Honors Program; students must have a thesis advisor and have an approved thesis topic.

Individual study with student's honors thesis supervisor for the purpose of writing the honors thesis.

**4097. Honors Thesis Preparation Seminar**

One credit. Class meets once a week for one hour. Prerequisite: HDFS 3087; open only with consent of instructor to students in the Honors Program. May be repeated for credit.

Prepares students to tackle the honors thesis by covering the basics of the thesis process. Course content will focus on strategies to make the thesis manageable, organizational and writing skills, and discussion of seminar members' thesis projects and progress. In this seminar, students form a community of scholars to discuss and support each other's work.

**4099. Independent Study for Undergraduates**

Credits and hours by arrangement. Prerequisite: HDFS 2004W; open only with consent of instructor. May be taken more than one semester.

Students, working with a faculty supervisor, develop plans for an independent research project or review paper, execute the project, and complete a report.

**4181W. Early Childhood Development and Education: Supervised Teaching Practicum**

Nine credits. Two class periods and laboratory by arrangement. Prerequisite: HDFS 2100, 3101, 3102, 3120, 3122, 3123, 3183, and either 3181 or 3182; ENGL 1010 or 1011 or 2011; GPA of 2.7 in HDFS courses, and instructor consent.

Supervised teaching experience within the Child Development Labs or approved early education center. Development of advanced written and oral communication skills required for early childhood educators with emphasis on appropriate presentation and writing skills for diverse audiences.

**4182. Administration and Leadership in Early Childhood Programs: Practicum**

Variable credits. Two class periods and laboratory by arrangement. Prerequisite: HDFS 4181W, GPA of 2.5 in HDFS courses; open to juniors or higher; instructor consent.

Continuation of HDFS 4181W. Experience in early childhood program implementation, administration, staff supervising, policy making, and curriculum planning.

**4255. Living with Chronic or Life-threatening Illness**

Three credits. Prerequisite: Open only to juniors or higher.

Chronic and/or life-threatening illness from diagnosis through long term management. Psychological, interpersonal, family, and ethical aspects of the chronic illness experience across the life span, in contexts of culture and health policy.

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## Human Rights (HRTS)

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*Director:* Associate Professor Kathryn Libal

*Office:* 152 Human Rights Institute, Dodd Research Center

**1007. Introduction to Human Rights**

Three credits.

Exploration of central human rights institutions, selected human rights themes and political controversies, and key political challenges of contemporary human rights advocacy. CA 2. CA 4-INT.

**2170W. Bioethics and Human Rights in Cross-Cultural Perspective**

(Also offered as PHIL 2170W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher.

Philosophical examination of the ethical and human rights implications of recent advances in the life and biomedical sciences from multiple religious and cultural perspectives. CA 1.

**2263. Women and Violence**

(Formerly offered as HRTS 3263.) (Also offered as WGSS 2263.) Three credits. Prerequisite:

Open to sophomores or higher. Recommended preparation: Any 1000-level WGSS course.

Discussion of various forms of gendered violence in the United States and in a global context. Physical, sexual, emotional and structural violence; social, political and personal meanings of gendered violence; special emphasis on women.

### **3028. Indigenous Rights and Aboriginal Australia**

(Also offered as ANTH 3028.) Three credits. Recommended preparation: ANTH 2000.

An introduction to the study and understanding of Aboriginal ways of life and thought. An exploration of the complexity of contemporary indigenous social orders and land rights issues. CA 4-INT.

### **3028W. Indigenous Rights and Aboriginal Australia**

(Also offered as ANTH 3028W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: ANTH 2000. CA 4-INT.

### **3042. The Theory of Human Rights**

(Also offered as POLS 3042.) Three credits. Prerequisite: Open to juniors or higher. *Hiskes*

Various theories of human rights, both historical and contemporary. Conceptual arguments both in favor and critical of the theory and practice of human rights will be considered, with literature taken primarily from philosophy and political theory.

### **3139. Theatre and Human Rights**

(Also offered as DRAM 3139.) Three credits each semester. Two class periods.

Provides a critical study of theatre production as political discourse in global areas of conflict and how that discourse defines, or is defined by, human rights issues.

### **3149. Human Rights Through Film**

Three credits.

Human rights-related issues explored via the cinematic medium. Both the substantive content and the technical aspects of the films will be analyzed through a combination of lecture, viewing, and group discussion.

### **3149W. Human Rights Through Film**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only to juniors or higher.

### **3153W. Human Rights in Democratizing Countries**

(Also offered as ANTH 3153W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor.

Human rights, political violence, political and legal anthropology, prosecutions of human rights offenders, truth and memory, reconciliation, international justice. CA 4-INT.

### **3200. International Human Rights Law**

Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HRTS 1007.

International and regional human rights law, institutions, and regimes; specialized topics include corporate social responsibility, women's human rights, truth commissions, humanitarian

intervention, international criminal law, monitoring, and compliance. CA 1. CA 4-INT.

### **3200W. International Human Rights Law**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: HRTS 1007. CA 1. CA 4-INT.

### **3201. The History of Human Rights**

(Also offered as HIST 3201.) Three credits.

Case studies in the emergence and evolution of human rights as experience and concept.

### **3202. International Human Rights**

(Also offered as HIST 3202.) Three credits.

Historical and theoretical survey of the evolution of human rights since 1945.

### **3207. Genocide after the Second World War**

(Also offered as HIST 3207.) Three credits. Recommended preparation: HIST/HRTS 3201. *Gilligan*

Origins of the 1948 Genocide Convention. Several case studies of genocide post WWII: Cambodia, Rwanda, the former Yugoslavia, and Darfur. Causes and underlying dynamics of genocide with an emphasis on the international response. Critical evaluation of military, political, and non-governmental measures to prevent genocidal acts.

### **3209. Sustainable Energy in the 21st Century**

(Also offered as ENGR 3209 and POLS 3209.) Three credits. Open to juniors or higher.

Political, socioeconomic, environmental, science and engineering challenges of energy sources; comparison of feasibility and sustainability of energy policies around the world.

### **3212. Comparative Perspectives on Human Rights**

(Also offered as POLS 3212.) Three credits. Prerequisite: Open to juniors or higher.

Cultural difference and human rights in areas of legal equality, women's rights, political violence, criminal justice, religious pluralism, global security, and race relations.

### **3219. Topics in Philosophy and Human Rights**

(Also offered as PHIL 3219.) Three credits. Prerequisite: One 3-credit course in Philosophy or instructor consent; open to juniors or higher. With a change in content, may be repeated for credit.

What are human rights? Why are they important? Topics may include the philosophical precursors of human rights, the nature and justification of human rights, or contemporary issues bearing on human rights.

### **3219W. Topics in Philosophy and Human Rights**

(Also offered as PHIL 3219W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; one 3-credit course in Philosophy or instructor consent; open to juniors or higher. With a change in content, may be repeated for credit.

### **3220. Philosophical Foundations of Human Rights**

(Also offered as PHIL 3220.) Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Ontology and epistemology of human rights investigated through contemporary and/or historical texts. CA 1.

### **3220W. Philosophical Foundations of Human Rights**

(Also offered as PHIL 3220W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; at least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107. CA 1.

### **3221. Latinos/as and Human Rights**

(Also offered as HIST 3575 and LLAS 3221.) Three credits. *Silvestrini*

Latino/a issues related to human, civil and cultural rights, and gender differences.

### **3250. Human Rights and New Technologies**

Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HRTS 1007.

The role of new technologies in the fulfillment, protection, and enforcement of human rights; technology-related human rights benefits and risks, including privacy, security, and equality; technical and legal innovations for balancing benefits and risks. CA 1.

### **3250W. Human Rights and New Technologies**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: HRTS 1007. CA 1.

### **3254. Business Solutions for Societal Challenges**

Three credits. Open only to non-business students of junior or higher status. Not open to students who have passed or are taking BADM 3254 or BLAW 3254.

Market-based solutions to social and human rights challenges; how companies create value both for society and business, including role of for-profit businesses as agents for positive social impact in changing legal, regulatory, policy, and market environments. Regulatory and business strategies for long-term economic viability, sustainability, and human rights. Social innovation, statutory benefit corporations, corporate social certifications, social investment, shared value, strategic philanthropy, and business opportunities serving emerging markets.

### **3256. Politics and Human Rights in Global Supply Chains**

(Also offered as POLS 3256.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 and 1402 and POLS/HRTS 3212.

Political and human rights implications of regulating contemporary global supply chains: official regulatory frameworks; non-regulatory approaches to rule-making (such as voluntary corporate codes of conduct and industry standards); social responses to the dilemmas of "ethical" sourcing of goods and services.

### **3256W. Politics and Human Rights in Global Supply Chains**

(Also offered as POLS 3256W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: POLS 1202 and 1402 and POLS/HRTS 3212.



**3257. Assessment for Human Rights and Sustainability**

Three credits. Taught with ENGR 3257. Not open to students who have passed or are taking ENGR 3257.

Foundational concepts of human rights and environmental impacts pertaining to global supply chains. Regulations and voluntary standards in engineering-intensive sectors, including infrastructure, biofuels, electronics. Case study analysis of corporate assessment practices for labor rights protection and environmental impacts.

**3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of the Minor Director required prior to departure. With a change in content, may be repeated for credit. May be taken for a maximum of 15 credits.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

Issues in human rights, theory, history, law and policy, or practices.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Instructor consent. With a change in content may be repeated for credit.

Supervised reading and writing on a subject of special interest to the student.

**3418. International Organizations and Law**

(Also offered as POLS 3418.) Three credits. Prerequisite: Open to juniors or higher.

The role of intergovernmental and nongovernmental organizations and international law in world affairs with special attention to contemporary issues.

**3420. Being International: Geopolitics and Human Rights**

Three credits.

Human rights theories and debates and their historical, institutional and geopolitical contexts.

**3421. Class, Power, and Inequality**

(Also offered as SOCI 3421.) Three credits. Prerequisite: Open to juniors or higher. *Bernstein, Glasberg, Villemez, Wallace*

Inequality and its consequences in contemporary societies.

**3428. The Politics of Torture**

(Also offered as POLS 3428.) Three credits. Prerequisite: Open to juniors or higher.

Examination of the usage of torture by state and non-state actors. Questions include, "Why is torture perpetrated?" "What domestic and international legal frameworks and issues related to the use of torture?" "How effective are existing legal prohibitions and remedies?" "Who tortures?" and "How does torture affect transitional justice?"

**3429. Sociological Perspectives on Poverty**

(Also offered as SOCI 3429.) Three credits. Prerequisite: Open to juniors or higher. *Cazenave, Villemez*

Poverty in the U.S. and abroad, its roots, and strategies to deal with it.

**3430. Evaluating Human Rights Practices of Countries**

(Also offered as POLS 3430.) Three credits. Prerequisite: Open to juniors or higher.

Examination of the ways in which governments, businesses, NGOs, IGOs, and scholars assess which human rights are being respected by governments of the world. Hands-on experience in rating the level of government respect for human rights in countries around the world.

**3475. Economic Development and Human Rights**

Three credits.

Microeconomics of economic development and human rights. Impacts of human capital, health, education, on well-being and poverty.

**3505. White Racism**

(Also offered as AFRA 3505 and SOCI 3505.) Three credits. Prerequisite: Open to juniors or higher. *Cazenave*

The origin, nature, and consequences of white racism as a central and enduring social principle around which the United States and other modern societies are structured and evolve. CA 4.

**3563. African American History to 1865**

(Also offered as HIST 3563 and AFRA 3563.) Three credits. *Campbell, Ogbar*

History of African-American people to 1865, from their West African roots, to their presence in colonial America, through enslavement and emancipation. Adaptation and resistance to their conditions in North America. Contributions by black people to the development of the United States.

**3571. Sociological Perspectives on Asian American Women**

(Also offered as AASI 3221 and SOCI 3221.) Three credits. Prerequisite: Open to juniors or higher. *Purkayastha*

An overview of social structures, inter-group relations, and women's rights, focusing on the experience of Asian American women. CA 4.

**3573. Asian Indian Women: Activism and Social Change in India and the United States**

(Also offered as AASI 3222 and SOCI 3222.) Three credits. Prerequisites: SOCI 1001, 1251 or 1501; open to juniors or higher.

How gender, class and ethnicity/race structure everyday lives of Asian Indian women in both India and the United States.

**3575. Human Rights and Visual Culture**

(Also offered as ARTH 3575.) Three credits.

The problematics of visual representation and media in defining, documenting and visualizing human rights and humanitarianism from the 19th century birth of photography to 21st century social media.

**3619. Topics in Literature and Human Rights**

(Also offered as ENGL 3619.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open

to juniors or higher. May be repeated for credit with a change of topic.

Study of literature from various historical periods and nationalities concerned with defining, exploring, and critiquing the idea of universal human rights.

**3631. Literature, Culture, and Humanitarianism**

(Also offered as ENGL 3631.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores and higher.

Relationships between literature and culture and humanitarian movements, from the eighteenth century to the present.

**3801. Political Sociology**

(Also offered as SOCI 3801.) Three credits. Prerequisite: Open to juniors or higher. *Glasberg*

Social analysis of power, democracy and voting, society and the state, and political economy.

**3807. Constitutional Rights and Liberties**

(Also offered as POLS 3807.) Three credits. Prerequisite: Open to juniors or higher.

The role of the Supreme Court in interpreting the Bill of Rights. Topics include freedoms of speech and religion, criminal due process, and equal protection.

**3825. African Americans and Social Protest**

(Also offered as AFRA 3825 and SOCI 3825.) Three credits. Prerequisite: Open to juniors or higher. *Cazenave*

Social and economic-justice movements, from the beginning of the Civil Rights movement to the present.

**3831. Human Rights in the United States**

(Also offered as SOCI 3831.) Three credits. Prerequisite: Open to juniors or higher.

Sociological analyses of human rights issues in the United States, including economic, racial, and gender justice; prisoner's rights and capital punishment; the role of the United States in international human rights agreements and treaties; and struggles on behalf of human rights.

**3835. Refugees and Humanitarianism**

(Also offered as SOCI 3835.) Three credits.

Social and political challenges of living as a refugee and working in humanitarian settings. Refugee camps, the institutional development of the United Nations High Commissioner for Refugees, and alternative approaches to sanctuary.

**3835W. Refugees and Humanitarianism**

(Also offered as SOCI 3835W.) Three credits. Prerequisites: ENGL 1010 or 1011 or 2011. Suggested preparation: HRTS 1007.

**3837. Sociology of Global Human Rights**

(Also offered as SOCI 3837.) Three credits.

Comparative approach to the study of human rights in the United States and elsewhere around the world from a sociological perspective.

**3837W. Sociology of Global Human Rights**

(Also offered as SOCI 3837W.) Three credits. Prerequisites: ENGL 1010 or 1011 or 2011.

**4291. Service Learning Seminar/Internship**

Three credits. Class hours by arrangement. Prerequisite: Open only with instructor consent.

Combination of internship work within the larger human rights community with regular classroom meetings for reflection/analysis on the application of human rights concepts and practices. Includes the production of a written/media portfolio of semester's work.

#### **4996W. Senior Thesis**

Three credits. Class hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only with instructor consent.

Research and writing of major project exploring a topic with human rights, with close supervision and production of multiple written drafts.

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### **India Studies (INDS)**

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*Director:* Professor Betty Hanson

*Office:* 419 Oak Hall

#### **3210. Ancient and Classical Indian Literature in Translation**

Three credits.

Literary achievements of Indian civilization from the ancient and classical periods. Attention given to major genres and their development in both secular and religious texts.

#### **3293. Foreign Study**

Credits and hours by arrangement. May be taken for a maximum of 15 credits. Prerequisite: Consent of Coordinator of India Studies required prior to departure.

Special topics taken in a foreign study program.

#### **3295. Special Topics**

Variable credits. Hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

#### **3298. Variable Topics**

Credits and hours by arrangement. With a change of content, may be repeated for credit.

#### **3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Instructor consent. With a change in content, may be repeated for credit.

Supervised reading and writing on a subject of special interest to the student.

#### **3375. Indian Art and Popular Culture: Independence to the Present**

(Also offered as ART 3375 and AASI 3375.) Three credits. Prerequisite: Open to juniors or higher. *Myers*

An interdisciplinary lecture/studio art course introducing diverse forms of Indian Art from the traditional through the contemporary. Students complete either research or studio art assignments responding to course content. CA 1. CA 4-INT.

#### **4296. Senior Thesis**

Three credits. Hours by arrangement. Prerequisite: Open only with instructor consent.

Research and writing of thesis.

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### **Interdepartmental (INTD)**

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*University Interdisciplinary Courses Committee Chair:* Associate Professor Eric Donkor

*Individualized and Interdisciplinary Studies Program:* 4th Floor, John W. Rowe Center for Undergraduate Education

The INTD designation is used for interdisciplinary courses sponsored by 2 or more academic departments based in the schools and colleges.

#### **1985. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

Students taking this course will be assigned a final grade of S (satisfactory) or (U) unsatisfactory.

#### **1993. International Study**

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Course work undertaken within approved Education Abroad programs.

#### **1995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

#### **1999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only to freshmen and sophomores with consent of instructor. May be repeated for credit with a change in topic.

#### **2245. Introduction to Diversity Studies in American Culture**

Three credits. Prerequisite: Open to sophomores or higher.

An interdisciplinary introduction to comparative multicultural studies in the United States. Topics may include: African American, Asian American, Latino/a, and Native American cultures; gender, feminism, religious and sexual identities; and disability studies. CA 4.

#### **3200. Introduction to Correctional Health**

Three credits. Prerequisite: Open to honors students; open only with consent of instructor.

Major concepts and topics in correctional health.

#### **3222. Linkage through Language**

One credit. Prerequisite: Language skills equivalent to two to four semesters of college course work in a single foreign language (may be completed concurrently). May be repeated for credit, with a change in content. Sponsored by the Literatures, Cultures and Languages Department in collaboration with the department offering the companion course.

Supplements a three-credit course in a particular discipline by studying selected foreign language texts related to the topic of its companion course. Practice in oral and written expression.

#### **3260. The Bible**

Three credits, which may be counted toward the related field requirement in History, Philosophy, or English.

The literary, historical, and philosophical content, circumstances and problems of the Old and New Testaments. CA 1.

#### **3584. Seminar in Urban Problems**

Three credits. Hours by arrangement. Prerequisite: Open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3594.

Discussions based upon assigned readings and led by faculty and invited speakers from outside and within the University. CA 4.

#### **3590. Urban Field Studies**

Nine credits. Hours by arrangement. Prerequisite: Open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3584 and 3594.

Field experience supervised by the director and an examining committee consisting of the director and two or more faculty members from two departments in the College of Liberal Arts and Sciences.

#### **3594. Urban Semester Field Work Seminar**

Three credits. Hours by arrangement. Prerequisite: Open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3584.

Students make analytic presentations of their field experiences, relating these to the pertinent available literature. Particular issues are discussed with experts invited from inside and outside the University.

#### **3594W. Urban Semester Field Work Seminar**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3584.

#### **3985. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

#### **3993. International Study**

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17).

Course work undertaken within approved Education Abroad programs.

#### **3995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in topic, may be repeated for credit.

#### **3999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

#### **4200. Translating Evidence: Applied Correctional Research**

Three credits. Prerequisite: Open to honors students; open only with consent of instructor.

Systematic review as a research methodology for translation of clinical evidence into a

clinical environment. Production of a poster for presentation. Two-semester projects are possible for students interested in oral presentation of findings, or co-authored publication.

### Italian Literary and Cultural Studies (ILCS)

*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Literatures, Cultures and Languages Departmental listing in this Catalog for requirements for Majors in Italian Literary and Cultural Studies.

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

Note: All courses noted as taught in English cannot be used to satisfy the foreign language requirement.

#### 1101. The Italian Renaissance

Three credits. A knowledge of Italian is not required. Taught in English. May not be used to meet the foreign language requirement.

A survey of Italian Renaissance civilization, with emphasis on literature and intellectual life. CA 1.

#### 1145-1146. Elementary Italian I and II

Four credits each semester. Four class periods and one 1-hour laboratory practice. Not open for credit to students who have had three or more years of Italian in high school. Students who wish to continue in Italian but feel ill prepared should contact the head of the Literatures, Cultures and Languages Department.

Elementary Italian grammar. Drill in pronunciation. Reading of simple texts. Practice in easy conversation.

#### 1147-1148. Intermediate Italian I and II

Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: ILCS 1146 or equivalent.

Review of elementary Italian grammar. Graded composition and translation. Intensive and extensive reading. Oral practice in the language.

#### 1149. Cinema and Society in Contemporary Italy

Three credits. Three class periods and one 2-hour laboratory period. Films in Italian with English subtitles.

A critical analysis of contemporary Italian society seen through the media of film and literature. Taught in English. CA 1. CA 4-INT.

#### 1158. Italian American Experience in Literature and Film

Three credits. Three class periods and one 2-hour laboratory period.

Focuses on the Italian American experience as represented in a variety of fields, including literature and cinema. Taught in English. CA 1. CA 4.

#### 1160. Culture of Fascist Italy

Three credits.

The way Italian literary and cinematic culture justified, survived, and fought the terrors of the

Fascist totalitarian regime. Taught in English. CA 1. CA 4-INT.

#### 1170. Introducing Italy through Its Regions

Three credits. Taught in English. May not be used to meet the foreign language requirement. May be repeated for credit with a change of subject matter for a maximum of nine credits.

The diverse culture of Italy, studied through analysis of sociological, literary, artistic, and cinematic works from and about a single one of the different Italian regions and that region's cultural centers, such as Rome, Naples, Florence, Palermo, or Venice. CA 1.

#### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

#### 3237. Italy Today

Three credits. Prerequisite: ILCS 1148.

A survey of contemporary Italian political, social, economic and cultural life.

#### 3239. Italian Composition and Conversation I

Three credits. Prerequisite: ILCS 1148 or equivalent.

Practice in written and oral composition. Syntax study.

#### 3240. Italian Composition and Conversation II

Three credits. Prerequisite: ILCS 3239 or equivalent.

Further practice in written and oral composition. Treatment of the finer points in syntax.

#### 3243. Main Currents of Italian Literature Through the Renaissance

Three credits. Prerequisite: ILCS 1148 or equivalent.

The history of Italian literature through the Renaissance is traced through its main developments. Acquaints the student with the principal authors, literary schools and trends.

#### 3244. Main Currents of Italian Literature After the Renaissance

Three credits. Prerequisite: ILCS 1148 or equivalent.

The history of Italian literature after the Renaissance is traced through its main developments. The aim of the course is to acquaint the student with the principal authors, literary schools and trends.

#### 3245. Italian Literature and the City

Three credits. Prerequisite: ILCS 1148 or equivalent. *Bouchard*

Survey of Italian literature through the changing images of Italian cities.

#### 3246. Italian Women Writers

Three credits. Prerequisite: ILCS 1148 or equivalent. *Bouchard*

Survey of Italy's women writers from the early modern period to the present. Developments of Italian feminism and gender issues.

#### 3247. Jewish Literature and Film in 20th Century Italy

Three credits. Prerequisite: ILCS 1148 or equivalent

Italy's literary and cinematic representations of Jews in the 20th Century. Jewish identity under Fascism, during World War II, and beyond. Taught in Italian.

#### 3250. Italian Theatre of the Eighteenth Century

Three credits. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.

Readings from Metastasio, Goldoni, and Alfieri.

#### 3251. Machiavelli, Michelangelo and Renaissance Literature

Three credits each semester. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.

Selected readings from the works of Poliziano, Leonardo da Vinci, Lorenzo de' Medici, Michelangelo, Ariosto, Machiavelli, Castiglione, Tasso, and others.

#### 3253. Dante and His Time

Three credits. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.

Selected readings from Dante, Petrarch, Compagni, and Villani.

#### 3254. Boccaccio and His Time

Three credits. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.

Readings from Boccaccio and others with special attention to the problems of social and sexual ethics.

#### 3255W. Dante's Divine Comedy in English Translation

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. *Masciandaro*

Dante's poem as a unique synthesis of Medieval culture. Emphasizes its integration of ethics, political thought, and theology with poetic imagination. Taught in English. CA 1.

#### 3256. The Literature of the Italian Renaissance

Three credits. Not open to students who have passed ILCS 3251-3252.

A survey, in English, of the major literary and philosophical currents of the Italian Renaissance. Selections from Boccaccio, Petrarch, Pico della Mirandola, Machiavelli, Castiglione, and others. Taught in English.

#### 3258W. Cinematic Representations of Italian Americans

Prerequisite: ENGL 1010 or 1011 or 2011.

Cinematic representations of Italian Americans in the works of major directors from the silent era to the present. Construction of and attempts to dislodge negative stereotypes of Italian American male and female immigrants. Taught in English. CA 1. CA 4.

#### 3259. Topics in Italian Cinema

Three credits. One 3-hour class period and one 2-hour laboratory. Prerequisite: ILCS 1148.

Major topics in modern and contemporary Italian cinema. Taught in Italian.

#### 3260W. Italian Cinema

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Two class periods and one 2-hour laboratory period. Films in Italian with English subtitles. *Bouchard*

Italian cinema from the silent era to the present. Its genres, such as epic film, melodrama, comedy "Italian-style," "Spaghetti-Westerns,"

and political cinema. Cinema as a reflection on and comment upon the social and political contexts of Italian history from pre-fascist Italy to modernization and beyond. Taught in English. CA 1. CA 4-INT.

### 3261. Twentieth-Century Italian Literature

Three credits. Recommended preparation: ILCS 3237 or 3239 or 3240. *Bouchard*

Major trends in twentieth-century Italian Literature from the early modern period to contemporary times.

### 3262. Nineteenth-Century Italian Literature

Three credits. Recommended preparation: ILCS 3237 or 3239 or 3240 or 3243 or instructor consent. *Bouchard*

Nineteenth-century Italian drama, poetry, and narrative from the Napoleonic period to the years immediately following the conquest of Rome in 1870.

### 3270. Business Italian

Three credits. Prerequisite: ILCS 1148 or instructor consent.

Introduction to Italian business culture. Written and oral practice in the language of business Italian.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3298. Variable Topics

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

### 4279. Capstone in Italian Studies

Three credits. Prerequisite: ILCS 1148 or instructor consent.

Advanced language practicum and integration of studies in Italian Literature and Culture.

**Education Abroad in Italy.** Students can participate in a variety of UConn-sponsored Education Abroad programs and also have the option of enrolling in non-sponsored programs. In either case, students should consult with the ILCS faculty to determine which courses will receive credits. Students who enroll in study abroad programs not sponsored by UConn do not necessarily receive UConn credits for their coursework. No more than 12 credits taken in any study abroad program may count toward a major in Italian at this University.

## Japanese (JAPN)

*Head of Department:* Professor Jonathan Bobaljik

*Department Office:* Room 368, Oak Hall

### 1101-1102. Elementary Japanese Levels I and II

**1103-1104. Intermediate Japanese Levels I and II**  
1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3298. Variable Topics

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

## Journalism (JOUR)

*Head of Department:* Professor Maureen Croteau

*Department Office:* Room 468, Oak Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1002. The Press in America

Three credits.

The development of American print journalism from 18th century print shops to 21st century corporations; how journalists and their work have evolved and influenced American life.

### 2000W. Newswriting I

Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Prerequisite: ENGL 1010 or 1011 or 2011.

Defining news; exercising news judgment in a diverse society; employing principles of Associated Press style; writing basic news stories. Laboratory offers intensive newswriting exercises.

### 2001W. Newswriting II

Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Prerequisite: JOUR 2000W; ENGL 1010 or 1011 or 2011.

Live reporting using the university and the surrounding community as a laboratory. Emphasis on fact gathering, interviewing, diversity of sources, news judgment and deadline writing. A fee of \$10 is charged for this course.

### 2003. Literary Journalism

Three credits. Prerequisite: JOUR 1002 or 2000W. May be taken concurrently with JOUR 2000W.

Critical survey embracing the diverse voices of literary journalism from the 17th century through the 21st.

### 2111. Journalism Portfolio I: Multimedia Skills

One credit. Prerequisite: JOUR 2000W. Open to Journalism majors, others with consent of instructor.

Introduction to online and multimedia skills used by journalists; emphasis on ethical practices. Students provided portfolio space on a department-maintained site.

### 3000W. Public Affairs Reporting

Three credits. Prerequisite: JOUR 2001W; ENGL 1010 or 1011 or 2011; open to juniors or higher.

In-depth reporting on state and local government- municipal agencies, boards, commissions, courts, public safety, schools. Field trips required.

### 3002. Journalism Ethics

Three credits. Prerequisite: JOUR 1002.

Discussion of such contemporary problems as privacy, good taste, community standards, effectiveness of the press and responsibility of the press.

### 3005. Introduction to Online Journalism

Three credits. Prerequisite: JOUR 2000W.

Application of newswriting techniques to online journalism including assembling and producing interactive news stories.

### 3012W. Feature Writing

Three credits. Prerequisite: JOUR 2001W; ENGL 1010 or 1011 or 2011.

Emphasis on finding, developing and writing feature stories. Outside stories will be assigned weekly.

### 3013W. Magazine Journalism

Three credits. Prerequisite: JOUR 2001W; ENGL 1010 or 1011 or 2011.

Survey of magazine journalism examining different forms of periodicals and their operation, from mission to final product. Students research, report and write for various publications.

### 3019. Daily Campus Critique

One credit. One class period. Prerequisite: Open only with consent of instructor. May be repeated only once for credit.

A weekly critique of the content of the student daily from news stories, through editorials to advertising copy and printing.

### 3020. Journalism Law

Three credits. Prerequisite: Open to juniors or higher.

Typical subjects: libel, slander, invasion of privacy, obscenity, legal problems of newsgathering, protecting the political process,

protecting state secrets, protecting the public welfare.

### 3030. Copy Editing

Three credits. Prerequisite: JOUR 2000W.

Editing for grammar, style and content, headline writing, introduction to basic news design concepts.

### 3031. Online and Print News Design

Three credits. Prerequisite: JOUR 3030.

Copy and photo selection, copy fitting, photo editing layout and production for print and online publications.

### 3033. Opinion Writing

One credit. One 2-hour lab-lecture period. Prerequisite: JOUR 2001W.

Writing for the editorial and op-ed pages.

### 3040. Newswriting for Radio and Television

Three credits. Two 75-minute lab-lecture sessions plus a field trip. Prerequisite: JOUR 2000W.

Application of newswriting techniques to the broadcast media.

### 3041. Reporting and Editing TV News

Three credits. Prerequisite: JOUR 3040.

This is an advanced broadcast journalism class that teaches students how to gather, edit and deliver accurate, newsworthy information for television newscasts. Students develop the skills needed to report news and organize newscasts through actual experience in and out of class.

### 3045. Specialized Journalism

Three credits. Prerequisite: JOUR 2000W.

Introduction to specialized fields such as business, science, education, arts, sports, and entertainment reporting. Students will examine some of the best work in the fields and will consider ethical issues and other problems.

### 3045W. Specialized Journalism

Three credits. Prerequisite: JOUR 2000W; ENGL 1010 or 1011 or 2011.

### 3046. Environmental Journalism

Three credits. Prerequisite: JOUR 2000W or consent of the instructor; open to juniors or higher.

Explores specialized coverage of environmental issues by journalists, emphasizing news reporting with the opportunity to produce print, visual and multimedia news reports.

### 3050. Professional Seminar

Three credits. Three hours. Prerequisite: JOUR 2000W, which may be taken concurrently.

Journalists discuss the economic, technological, sociological and ethical issues that challenge their profession.

### 3065. Visual Journalism

Three credits. Prerequisite: JOUR 2000W; open to juniors or higher.

Examines current trends in visual digital journalism; develops skills in photojournalism, multimedia and video storytelling. Instructor approved digital camera required.

### 3087. Honors Thesis Preparation Seminar

One credit. Prerequisite: JOUR 2000W, 2001W and at least three other journalism credits at the

2000-level or above; open only by instructor consent.

Honors students choose topics for their theses or projects, develop research proposals and apply for funding if needed. Students work as a community of scholars to discuss and support each other's work. Usually taken the semester before JOUR 3097, Honors Thesis.

### 3093. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required before the student's departure. May count toward the major with consent of the advisor. May be repeated for credit with permission of Department Head.

*Croteau*

### 3095. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

### 3097. Honors Thesis

Three credits. Hours by arrangement. Prerequisite: JOUR 2000W, 2001W and at least six additional journalism credits at the 2000-level or above; open only with consent of instructor.

Students in the Honors Program undertake in-depth research and writing under the guidance of a faculty member. Majors must consult with the departmental Honors Advisor and develop a research proposal in the semester before taking the course.

### 3098. Variable Topics

Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated for credit.

### 3111. Journalism Portfolio II: Content Development

One credit. Prerequisite: JOUR 2111.

Development of online and multimedia skills used by journalists; emphasis on ethical practices. Students will contribute journalism content completed in other courses and develop new content to build a professional portfolio provided on a department-maintained site.

### 4016. Publication Practice

One to three credits. Hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Students and faculty work together to research, write, edit and produce a publication.

### 4035. Investigative Reporting

Three credits. Prerequisite: JOUR 2001W.

Using the Internet, databases, and other computer resources to research and report on the actions of courts, businesses, public agencies, and governments. Consideration of ethical questions.

### 4091. Supervised Field Internship

One to three credits. Hours by arrangement. Prerequisite: JOUR 2000W, 2001W and 3002; open only with consent of Department Head.

Students research, report and write for newspapers, news departments of radio and television stations, and online publications under supervision of professionals.

### 4099. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Open to qualified students who present suitable projects for independent work in journalism.

### 4111. Journalism Portfolio III: Professional Presentation

One credit. Prerequisite: JOUR 3111.

Completion of student journalism portfolios that include examples of journalistic endeavors in print, still and video photography, audio and multimedia packages.

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## Kinesiology (KINS)

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*Head of Department:* Professor Craig Denegar

*Department Office:* Koons Hall, Room 116; and Gampel Pavilion, Room 223A

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

All KINS 2000-level or above courses are open to majors in the Kinesiology Department only or by instructor consent.

### 1160. Courses in Lifetime Sports Program

(Formerly offered as EKIN 1160.) One credit. Open to all University students. This course may be repeated with change of activity and/or skill level; not to exceed 3 credits towards graduation of combined KINS 1160 and AH 1200 credits. Students in the Department of Kinesiology, as part of their approved plan of study, may take up to six different activities for six credits toward graduation.

A variety of lifetime sports and skills are offered. The teaching of each activity will be geared to individual, dual, and team activities. Students who have physical disabilities in the least restrictive environment possible. Participants requiring accommodations should contact the Program Coordinator.

### 2100. Introduction to Athletic Training I

(Formerly offered as EKIN 2100.) First semester. First seven weeks. One credit. Prerequisite: Open only to Pre-Athletic Training students who are sophomores or higher.

A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers training and conditioning, nutrition, environment, and legal issues.

### 2110. Introduction to Athletic Training II

(Formerly offered as EKIN 2110.) First semester. Second seven weeks. One credit. Prerequisite: Open only to Pre-Athletic Training students who are sophomores or higher.

A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers tissue healing, rehabilitation, modalities, taping, and bandaging.

### 3091. Internship

(Formerly offered as EKIN 3091.) Variable credits. Prerequisite: In accordance with departmental policy, students will have

completed all academic course work in their concentration excluding Athletic Training prior to undertaking the internship; open only to students in Kinesiology programs. May be repeated for credit.

Field service or experiences in cooperating agencies.

### 3098. Variable Topics

(Formerly offered as EKIN 3098.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in content.

### 3099. Independent Study for Undergraduates

(Formerly offered as EKIN 3099.) Credits and hours by arrangement. Prerequisite: Open only to seniors with consent of Department Head or Instructor. May be repeated for credit with a change in content.

Laboratory or library research to expand understanding of a specialized topic in sport, leisure, or exercise sciences.

### 3099W. Independent Study for Undergraduates

(Formerly offered as EKIN 3099W.) Prerequisite: Open only to seniors with consent of the Department Head or Instructor; ENGL 1010 or 1011 or 2011.

### 3100. Prevention and Care of Athletic Injuries

(Formerly offered as EKIN 3100.) Three credits. Prerequisite: Open only to students in Kinesiology programs. *Mazerolle*

An introductory class to explore general considerations of preventing, recognizing, and treating athletic injuries.

### 3101. Documenting Outcomes in Athletic Training

(Formerly offered as EKIN 3101.) One credit. Prerequisite: Open only to Athletic Training majors; must be concurrently enrolled in KINS 3130.

Allows students to gain skill competence in the area of medical writing.

### 3102. Therapeutic Interventions I

(Formerly offered as EKIN 3102.) Four credits. Prerequisite: Open only to Athletic Training majors.

Provides students with an integrated approach to treatment of athletic injuries. Evidence based course provides fundamental concepts as well as application of the skills and knowledge learned.

### 3103. Therapeutic Interventions II

(Formerly offered as EKIN 3103.) Four credits. Prerequisite: Open only to Athletic Training majors.

Provides students with an integrated approach to treatment of athletic injuries. Evidence based course provides fundamental concepts as well as application of the skills and knowledge learned.

### 3104. Orthopedic Assessment of the Spine

(Formerly offered as EKIN 3104.) Three credits. Prerequisite: Open only to Athletic Training majors.

Covers anatomy, evaluation, pathology of spinal injuries and conditions, diagnosis, and management of injuries related to the spine, thorax, and core.

### 3110. Athletic Training Clinical Rotation I

(Formerly offered as EKIN 3110.) Two credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

### 3111. Athletic Training Clinical Rotation II

(Formerly offered as EKIN 3111.) Two credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

### 3112. Athletic Training Clinical Rotation III

(Formerly offered as EKIN 3112.) Two credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

### 3113. Athletic Training Clinical Rotation IV

(Formerly offered as EKIN 3113.) Three credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

### 3114. Athletic Training Clinical Rotation V

(Formerly offered as EKIN 3114.) Three credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

### 3115. Sports Medicine Experiences

(Formerly offered as EKIN 3115.) One credit. Repeatable for 4 credits. Prerequisite: Open only to Athletic Training majors.

Experiences in a variety of sports medicine settings that will serve to broaden an athletic-training student's awareness of medical coverage of athletic events and other medical personnel involved in athletic health care.

### 3120. Functional Anatomy for Athletic Trainers

(Formerly offered as EKIN 3120.) Three credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides students majoring in athletic training in-depth knowledge of anatomy related to athletic injuries.

### 3122. Gross Anatomy Laboratory for Athletic Trainers

(Formerly offered as EKIN 3122.) One credit. Will be taught concurrently with KINS 3120. *Di Stefano, Mazerolle*

Develops knowledge of structural and functional anatomy. Includes a comprehensive study of the internal and surface anatomy of the human body with emphasis on body tissues, the systems approach to anatomy, the head, neck, face, the upper extremity, thorax, abdomen, vertebral column, deep back, pelvis, and lower extremity. The relationships of muscular, skeletal, neural, and vascular structures will be discussed and demonstrated in human prosected material in a regional approach. Anatomical

relationships to normal movement will be included. Labs will include the study of human prosected material, skeletons, and joint models.

### 3125. Taping and Bracing Laboratory

(Formerly offered as EKIN 3125.) Two credits. Prerequisite: Open only to Athletic Training majors who are sophomores or higher.

Provides an overview of the general concepts and principles related to dealing with specific athletic injuries.

### 3130. Evaluation of the Extremities

(Formerly offered as EKIN 3130.) Three credits. Prerequisite: Open only to Athletic Training majors who are sophomores or higher. *Casa*

Techniques and procedures used to evaluate injuries to the extremities. Includes history, observation, palpation, special tests, manual muscle testing, blood flow, nerve function, and other injury specific skills.

### 3140. Emergency Procedures in Athletic Training

(Formerly offered as EKIN 3140.) Three credits. Prerequisite: Open only to Athletic Training majors. *Casa*

Evaluation and treatment skills for athletic injuries to the head, face, neck, trunk, spine, thorax, and abdomen. Acute first-aid considerations in life-threatening situations will also be covered in-depth.

### 3150. Assessment Laboratory

(Formerly offered as EKIN 3150.) Two credits. Prerequisite: Open only to Athletic Training majors. *Mazerolle*

Provides an assessment of athletic injuries experience that integrates the material in previous courses so as to serve as a capstone academic experience related to evaluation skills for athletic injuries.

### 3155W. Athletic Training Administration

(Formerly offered as EKIN 3155W.) Prerequisite: Open only to Athletic Training majors; ENGL 1010 or 1011 or 2011.

Administrative/management concerns for the athletic trainer. Insurance, budgeting, counseling, facility design, hiring, record keeping, and other issues will be covered.

### 3156. Professional Development for Athletic Trainers

(Formerly offered as EKIN 3156.) Two credits. Prerequisite: Open only to Athletic Training majors.

Covers concepts pertaining to professional development in athletic training including workshop development, ethics and ethical decision making, organizational structure, workplace culture, and other topics pertaining to the profession.

### 3160. Counseling in Sports Medicine

(Formerly offered as EKIN 3160.) Three credits. Prerequisite: Open only to Athletic Training majors.

Counseling concerns for the athletic trainer. Theory, practical skills, assessment, referral and specific counseling issues in athletic health care.

**3165W. Current Research and Issues in Athletic Training**

(Formerly offered as EKin 3165W.) Three credits. Prerequisite: Open only to Athletic Training majors; ENGL 1010 or 1011 or 2011. *Casa*

Acquaints students with recent research in the field, the components of conducting and publishing research in the field, and preparation for research at the graduate level. Important issues relevant to the athletic training profession will be discussed.

**3170. Health and Medicine**

(Formerly offered as EKin 3170.) Three credits. Prerequisite: Open only to Athletic Training majors.

Knowledge, skills, and values that a health professional must possess to recognize, treat, and refer, when appropriate, the general medical conditions and disabilities of athletes and others involved in physical activity.

**3177. Pathophysiology and Pharmacology for Athletic Trainers**

(Formerly offered as EKin 3177.) Three credits. Prerequisite: Open only to Athletic Training majors.

Focuses on the pathophysiology and pharmacology as it relates to athletic injuries. Specifically, the injury and repair process of skin, muscle, bone, ligaments, tendons, and cartilage. The pharmacology of therapeutic medications and performance enhancing substances will be covered.

**3200. Sport Administration II**

(Formerly offered as EKin 3200.) Three credits. Prerequisite: Open only to students in Kinesiology programs.

Focuses on the many administrative roles the coach undertakes to involve the community in his/her sports program. The role of support groups; sport organizations; leagues and conferences; camps and clinics; local community relations; along with the relevance of youth, amateur and professional competition; are considered in depth by professors, coaches and guest speakers.

**3210. Sport Administration I**

(Formerly offered as EKin 3210.) Three credits. Prerequisite: Open only to students in Kinesiology programs.

Focuses on the many administrative roles the coach assumes within the school when developing, maintaining and/or improving a sports program entrusted to him/her. The coach; the athlete; the program; facilities and equipment; academic and financial aid; scouting and recruiting; and, the media will be emphasized by professors, coaches and guest speakers.

**3215. Theory of Coaching**

(Formerly offered as EKin 3215.) Three credits. Prerequisite: Open only to students in Kinesiology programs.

Focuses development of a coaching philosophy and the skills necessary to develop as a professional. Coaches, professors and guest speakers provide insight into the essential elements of coaching, including technical

training, tactical awareness, physical fitness and psychological preparation.

**3320. Introduction to Sport and Exercise Psychology**

(Formerly offered as EKin 3320.) Three credits. Prerequisite: Open only to Kinesiology majors.

Examines psychological theories and research related to sport and exercise behavior. Explores the study of how personality and situational variables affect motivation, anxiety, and aggression in sport. Additional topics to be examined include group processes in sport, performance enhancement and psychological development through sport.

**3500. Exercise and Sport Science for Coaches**

(Formerly offered as EKin 3500.) Four credits. Prerequisite: Open only to students in Kinesiology programs.

Provides fundamental physiological principles and their application to coaching competitive athletics.

**3522. Biomechanics of Injury and Sport**

(Formerly offered as EKin 3522.) Three credits. Three lectures. Prerequisite: PNB 2264-2265; basic mathematics skills; open only to students in Kinesiology programs.

Quantitative and qualitative analyses of sport related injuries and movements during sport, including the study of linear and angular motion, force and torque, momentum, energy, and equilibrium.

**3525. Fundamentals of Resistance Training**

(Formerly offered as EKin 3525.) Four credits. Prerequisite: Open only to students in Kinesiology programs.

Coaching professionals must have the knowledge, skills, and understanding of the scientific principles on which to design individualized resistance training programs needed for optimal performance and injury prevention.

**3530. Physiological Assessment of Competitive Athletes**

(Formerly offered as EKin 3530.) Three credits. Prerequisite: Open only to students in Kinesiology programs. *Van Heest*

Focuses on the development of analysis techniques of human physiology specific to competitive athletes. The course will include both laboratory and field methods to evaluate aerobic ability, anaerobic ability, flexibility, muscular strength and power and body composition. It requires a strong foundation in musculoskeletal anatomy and physiology. The course is designed to better prepare the student for development of scientifically sound coaching practices.

**3530W. Physiological Assessment of Competitive Athletes**

(Formerly offered as EKin 3530W.) Prerequisite: Open only to students in Kinesiology programs; ENGL 1010 or 1011 or 2011. *Van Heest*

**3545. Resistance Training Exercise Techniques and Evaluation**

(Formerly offered as EKin 3545.) Three credits. Prerequisite: Open only to students in Kinesiology programs; others by consent of instructor.

Strength and conditioning professionals must have the knowledge of proper resistance exercise techniques, safety spotting techniques, equipment care and maintenance, different types of resistance training equipment, and the evaluation of physical performance capabilities. The understanding of the proper teaching techniques, testing protocols, and evaluation methods is vital to a strength and conditioning program.

**3610. Introduction to Honors Research**

(Formerly offered as EKin 3610.) Three credits. Prerequisite: Open only to Honors Students in Kinesiology programs.

The student will meet with KINS faculty members and attend laboratory/program staff meetings to survey the opportunities available for future Honors Thesis research.

**3615. Honors Literature Review**

(Formerly offered as EKin 3615.) Three credits. Prerequisite: Open only to Honors Students in Kinesiology programs.

The student will identify specific Honors Thesis research questions and will write a library research paper that will serve as the thesis Literature Review.

**3697W. Honors Thesis**

(Formerly offered as EKin 3697W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only to Honors Students in Kinesiology programs.

The student will collect and interpret data and will write the Honors Thesis, completing work begun during KINS 3615.

**4500. Physiological Systems in Human Performance**

(Formerly offered as EKin 4500.) Three credits. Prerequisite: PNB 2264-2265; open only to students in Kinesiology programs. *Armstrong, Lee*

An organ systems approach to optimal human performance including metabolism, energy transfer, nerve transmission, muscle contraction, endocrine control, and cardiopulmonary physiology.

**4510. Mechanisms and Adaptations in Sport and Exercise**

(Formerly offered as EKin 4510.) Three credits. Prerequisite: PNB 2264-2265; open only to students in Kinesiology programs. *Armstrong, Lee*

An applied approach to the physiological mechanisms and adaptations influencing sport and exercise: optimal nutrition, body composition, exercise training, ergogenic aids, aging, cardiovascular health, and environmental factors.

**4510W. Mechanisms and Adaptations in Sport and Exercise**

(Formerly offered as EKin 4510W.) Prerequisite: PNB 2264-2265; ENGL 1010 or 1011 or 2011; open only to students in Kinesiology programs.

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## Korean (KORE)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

### 1101-1102. Elementary Korean Levels I and II

### 1103-1104. Intermediate Korean Levels I and II

1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3298. Variable Topics

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

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## Landscape Architecture (LAND)

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*Head of Department:* Professor Richard McAvoy

*Department Office:* Room 133, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

### 2110. Landscape Architecture: Graphics I - Design Drawing

Four credits. Two class periods and two 2-hour studios. Prerequisite: Open only with consent of instructor. *Schwab*

Knowledge and theory of graphic representation, exploration and development of design form. Introduction to basic design principles. Application of graphic and design theory through free-hand drawing in a studio environment. Abstraction and transformation of form emphasized.

### 2120. Landscape Architecture: Graphics II - Design Communication

Four credits. Three class periods and three 1-hour studios. Prerequisite: LAND 2110; open to Landscape Architecture majors only. *Miniutti*

Knowledge and theory of visual perception and model making. Application of theory in the creation of various graphic products including plan, section, elevation, paraline and perspective drawings. Controlled free hand and computer methods in a studio environment.

### 2210. The Common (Shared) Landscape of the USA: Rights, Responsibilities and Values

Three credits. Three class periods. Prerequisite: Open to sophomores or higher. *Miniutti*

An introduction to the study of vernacular landscapes in the USA with an emphasis on the relationship between societal values and land use patterns. CA 1.

### 2220. Landscape Architecture: Theory II - Design History

Three credits. Three class periods. Prerequisite: LAND 2210. *Alexopoulos*

The development of designed landscapes is followed through time, emphasizing influences on current landscape architecture theory and practice.

### 2410. Landscape Architecture: Design I - Site Analysis

Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 2110 and 2210; open to Landscape Architecture majors only. Field trips are required. *Westa*

Knowledge and theory of site design and site analysis. Dimensional requirements and appropriate relationships of site elements and systems. Collection and analysis of site data including legal, physical and cultural factors. Application in a variety of site design projects.

### 3130. Landscape Architecture: Graphics III - Computer Applications

Four credits. Three class periods and three 1-hour labs. Prerequisite: LAND 2120; open to Landscape Architecture majors only. *Westa*

Knowledge and theory of computer use in landscape architecture. Computer applications for data gathering, analysis and graphic communication. Application of knowledge and theory to a variety of site planning and design projects.

### 3230W. Environmental Planning and Landscape Design

Three credits. Two class periods and one discussion period. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor. *Schwab*

Theories, concepts and methods for sustainable design of the land to balance the needs for conservation and development. Topics include land use planning, ecological design, and cultural and natural landscape assessment at a variety of scales and settings.

### 3310. Landscape Architecture: Construction I - Site Engineering

Four credits. Two class periods and two 2-hour studios. Prerequisite: LAND 2120; open to Landscape Architecture majors only. *Alexopoulos*

Theory and practice in manipulating landform in landscape architecture. Earthwork computation, drainage systems, sedimentation and erosion control, roadway design and low-impact design.

### 3320. Landscape Architecture: Construction II - Materials and Methods

Four credits. Two class periods and two 2-hour studios. Prerequisite: LAND 3310; open to Landscape Architecture majors only. *Westa*

Knowledge and theory of site construction. Characteristics and installation methods of materials including concrete, masonry, wood and metal. Application of knowledge and theory through development of construction drawings and related documents for site construction projects.

### 3330. Landscape Architecture: Construction III - Planting Design

(Formerly offered as LAND 4330.) Four credits. Two class periods and two 2-hour studios. Prerequisite: LAND 3310; open to Landscape Architecture majors only. *Schwab*

Knowledge and theory of the role of plants as visual, spatial, ecological and cultural design elements and systems. Analysis and creation of planting plans that support and develop design concepts and respond to physical site conditions. Application on a variety of project types in a studio environment.

### 3420. Landscape Architecture: Design II - Space, Form and Meaning

Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 2410; open to Landscape Architecture majors only. *Miniutti*

Knowledge and theory of spatial form in architecture, landscape architecture and urban design. Application of theory in the creation of 3-dimensional landscape models in a studio environment. Student attitudes about self-expression, environmental issues and social responsibility will be explored.

### 3430. Landscape Architecture: Design III - Program Development

Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 3420; open to Landscape Architecture majors only. Field trips are required. *Alexopoulos*

Knowledge and theory of site design and planning with a focus on program analysis and development. Design of appropriate form and function through precedent study and research on user and client needs, development regulations and site context. Application of theory to a variety of project types and scales.

### 3510. European Urban Form and Design

Three to six credits. Site visits and team design projects.

Study abroad course in Florence, Italy or other European location. The study of historical gardens, cityscapes, and the critical inquiry of visual form and coherent patterns in cities.

### 4294. Landscape Architecture: Theory V - Seminar

One credit. Prerequisite: Open to Landscape Architecture majors only; open only with instructor consent. Course may be repeated for credit. *Alexopoulos*



Current topics in landscape architecture.

**4340. Landscape Architecture: Theory IV - Professional Practice**

Three credits. Three class periods. Prerequisite: LAND 2220; open to Landscape Architecture majors only. *Westa*

Business, legal and professional dimensions of landscape architecture. Modes of practice, licensure and ethics, and contract development and administration. Emphasis on portfolio development and licensure preparation.

**4440. Landscape Architecture: Design IV - Community Planning**

Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 3430; open to Landscape Architecture majors only. Field trips are required. *Schwab*

Knowledge and theory of design of large scale landscapes such as open space systems, village and town centers and residential subdivisions. Application of theory to a variety of projects including community outreach work.

**4450. Landscape Architecture: Design V - Capstone**

Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 4440; open to Landscape Architecture majors only. Field trips required. *Miniutti*

Knowledge and theory of site planning and design. Application of theory and skills from previous design courses to a single, comprehensive site planning and design project.

**Latino and Latin American Studies (LLAS)**

*El Instituto: Institute of Latina/o, Caribbean and Latin American Studies*

*Director:* Associate Professor Mark Overmyer-Velázquez

*Associate Director:* Anne Gebelein

*Office:* 2006 Hillside Road, Unit 1161

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1000. Introduction to Latina/o Studies**

Three credits.

Interdisciplinary examination of the Latina/o experience and its impact across the United States. Consideration of behavioral, institutional and societal perspectives; national and transnational identity; cultural, legal and educational issues. CA 2. CA 4.

**1009. Latino Literature, Culture, and Society**

(Formerly offered as PRLS 1009.) (Also offered as SPAN 1009.) Three credits. Knowledge of Spanish is not required. Taught in English.

Critical approaches to Latinos/as and cultural representation, production, and agency, as impacted by globalization and local dynamics. Will engage the value and function of race, gender, and sexuality in popular culture, literature, film, music, digital culture, visual arts, and urban culture. CA 1. CA 4.

**1009W. Latino Literature, Culture, and Society**

(Also offered as SPAN 1009W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

Knowledge of Spanish is not required. Taught in English. CA 1. CA 4.

**1190. Introduction to Latin America and the Caribbean**

(Formerly offered as LAMS 1190.) (Also offered as HIST 1600.) Three credits.

Multidisciplinary exploration of the historical development of such aspects of Latin America and the Caribbean as colonization and nation formation; geography and the environment; immigration and migration; race, ethnicity, and gender in society, politics, economy, and culture. CA 1. CA 4-INT.

**1190W. Introduction to Latin America and the Caribbean**

(Formerly offered as LAMS 1190W.) Prerequisite: ENGL 1010 or 1011 or 2011. CA 1. CA 4-INT.

**1193. Foreign Study**

(Formerly offered as LAMS 1193.) Credits and hours by arrangement. Prerequisite: Consent of Director of Latin American and Caribbean Studies required before departure. May be repeated for credit (to a maximum of 15).

Course work undertaken within approved Education Abroad programs, usually focusing on the history, culture, and society of a particular Latin American or Caribbean country or countries.

**1570. Migrant Workers in Connecticut**

(Formerly offered as LAMS 1570 and PRLS 1570.) (Also offered as HIST 1570.) Four credits. Prerequisite: Open only by instructor consent. *Gebelein, Overmyer-Velázquez*

Interdisciplinary honors course on the life and work experiences of contemporary Latin American and Caribbean migrant workers with focus on Connecticut. Integrated service learning component. Field trips required. CA 1. CA 4.

**2001. Latinos, Leadership and Mentoring**

Three credits.

Introduces issues affecting Latinos in higher education. Leadership and mentoring training. Students analyze responsibilities and commitments in context of leadership for the common good and for purposeful change.

**2011W. Introduction to Latino-American Writing and Research**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: 1000-level introductory course on Latino or Latin American Studies.

Transnational academic research and writing on the Latino-American experience. Interdisciplinary approaches, historical background of Latino American studies. CA 4.

**2012. Latinos in Connecticut: Writing for the Community**

Four credits. Prerequisite: Open to sophomores or higher. Recommended preparation: LLAS 2011W.

Students partner with Latino agencies to apply research and writing skills to community needs. Community theory, digital literacy, historical background of Connecticut Latinos, contemporary issues that impact the population. Service learning component.

**2474. Economic Development in Latin America and the Caribbean**

(Also offered as ECON 2474.) Three credits. Prerequisites: ECON 1200 or both ECON 1201 and 1202.

Survey of the economic history of Latin America and the Caribbean. Analysis of present-day development issues in the region, including economic growth, poverty, education, and health.

**2995. Special Topics in Latino and Latin American Studies**

(Formerly offered as LAMS 3995 and PRLS 3295.) With a change in topic, may be repeated for credit.

**3021. Contemporary Latin America**

(Also offered as ANTH 3021.) Three credits.

Survey of anthropological contributions to the study of contemporary Mexico, Central America, South America, and the Hispanic Caribbean. Special focus on the comparative analysis of recent ethnographic case studies and local/regional/national/international linkages.

**3029. The Caribbean**

(Also offered as ANTH 3029.) Three credits.

Comparative perspectives on the cultural formation of Caribbean societies; the region's demographic, economic and political links with the wider world.

**3210. Contemporary Issues in Latino Studies**

(Formerly offered as PRLS 3210.) Three credits.

Topics in socio-demographic patterns, cultural identity claims, community organization, migration and citizenship issues of Latino groups in post-WWII United States. Emphasis on comparative analysis and on policy implications. CA 4.

**3211. Puerto Rican/Latino Studies Research**

(Formerly offered as PRLS 3211.) Three credits.

Students design, execute and write original, library or archival-based research on Latino/a experience using documents, films, literary works, surveys, photographic and newspaper materials.

**3220. History of Latinos/as in the United States**

(Formerly offered as PRLS 3220.) (Also offered as HIST 3674.) Three credits.

Settlement and growth of Hispanic-origin populations in the United States today, from Spanish and Mexican settlement of western United States to the growth of Latino communities. Student oral history project. CA 1. CA 4.

**3221. Latinos/as and Human Rights**

(Formerly offered as PRLS 3221.) (Also offered as HIST 3575 and HRTS 3221.) Three credits.

Latino/a issues related to human, civil and cultural rights, and gender differences.

**3230. Latina Narrative**

(Formerly offered as PRLS 3230.) (Also offered as WGSS 3258.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent.

Feminist topics in contemporary Latina literature and cultural studies.

**3231. Fictions of Latino Masculinity**

(Formerly offered as PRLS 3231.) (Also offered as WGSS 3259.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent.

Topics in Latino literature and cultural studies with an emphasis on masculinity and male authors.

**3232. Latina/o Literature**

(Formerly offered as PRLS 3232.) (Also offered as ENGL 3605.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent; open to juniors or higher.

Extensive readings in Latina/o literature from the late nineteenth century to the present. CA 4.

**3233. Studies in Latina/o Literature**

(Formerly offered as PRLS 3233.) (Also offered as ENGL 3607.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent; open to juniors or higher. May be repeated for credit with a change of topic.

Advanced study of a theme, form, author, or movement in contemporary Latina/o literature.

**3241. Latin American Minorities in the United States**

(Formerly offered as PRLS 3241.) (Also offered as ANTH 3041.) Three credits.

Emphasis on groups of Mexican, Puerto Rican and Cuban origin, including treatment and historical background, social stratification, informal social relations, ethnic perceptions, relations and the concept of Latino identity.

**3250. Latino Health and Health Care**

(Formerly offered as PRLS 3250.) (Also offered as HDFS 3442.) Three credits. Prerequisite: Open to juniors or higher.

Overview of health and health care issues among Latinos in the United States. Particular attention is paid to cultural and social factors associated with health and well-being (e.g. migration, acculturation, SES).

**3251. Latinos: Sexuality and Gender**

(Formerly offered as PRLS 3251.) (Also offered as HDFS 3268.) Three credits. Prerequisite: Open to juniors or higher.

Critical discussion of issues involving gender and sexuality among Latinos, with particular attention to race, class, ethnicity, and acculturation.

**3264. Latinas and Media**

(Formerly offered as PRLS 3264.) (Also offered as WGSS 3260 and COMM 3321.) Three credits. Prerequisite: Open to juniors or higher.

The role of ethnicity and race in women's lives. Special attention to communication research on ethnic and racial minority women. CA 4.

**3265. Literature of Puerto Rico and the Spanish Caribbean**

(Formerly offered as PRLS 3265.) (Also offered as SPAN 3265.) Three credits. Recommended preparation: SPAN 3178 or instructor consent.

Readings and discussions of major authors and works of the Spanish Caribbean with special emphasis on Puerto Rico.

**3270. Latino Political Behavior**

(Formerly offered as PRLS 3270.) (Also offered as POLS 3662.) Three credits. Prerequisite: Open to juniors or higher.

Latino politics in the United States. Political histories of four different Latino populations: Mexican, Puerto Rican, Cuban, and Central American. Different forms of political expressions, ranging from electoral behavior to political art. CA 4.

**3271. Immigration and Transborder Politics**

(Formerly offered as PRLS 3271.) (Also offered as POLS 3834.) Three credits. Prerequisite: Open to juniors or higher.

U.S. immigration policy, trans-border politics, and the impact diasporas and ethnic lobbies have on U.S. foreign policy, with the emphasis on Latino diasporas.

**3293. Foreign Study**

(Formerly offered as LAMS 3293.) Credits (to a maximum of 17) and hours by arrangement. Prerequisite: Consent of Director of Latin American and Caribbean Studies required before departure. May count toward the major with consent of advisor.

Special topics taken in a foreign study program.

**3255. Latino Sociology**

(Also offered as SOCI 3525.) Three credits.

The economic, social, political, and cultural experiences of Latinos in the United States.

**3275. Cinema and Society in Latin America**

(Formerly offered as LAMS 3575.) Variable credit up to a maximum of three credits. Hours by arrangement. With a change in content, this course may be repeated once for credit.

The aesthetic, social, and political significance of Latin American film.

**3279. Latin America**

(Formerly offered as LAMS 3579.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and director of the Center for Latin American and Caribbean Studies. This number covers courses in Latin American Studies taken at other Universities by special arrangement for University of Connecticut credit.

**3267. Latin America in the Colonial Period**

(Formerly offered as LAMS 3607.) (Also offered as HIST 3607.) Three credits. Prerequisite: Open to sophomores or higher.

Pre-Columbian Civilization in America, the epoch of conquest and settlement, together with a study of the Ibero-Indian cultural synthesis which forms the basis of modern Latin American civilization. CA 1. CA 4-INT.

**3269. Latin America in the National Period**

(Formerly offered as LAMS 3609.) (Also offered as HIST 3609.) Three credits. Prerequisite: Open to sophomores or higher.

Representative countries in North, Central, and South America and the Caribbean together with the historic development of inter-American relations and contemporary Latin American problems. CA 1. CA 4-INT.

**3619. History of the Caribbean**

(Also offered as AFRA and HIST 3619.) Three credits.

Encounter experience; slavery, antislavery mobilization, and abolitionism; colonialism; citizenship and nation building; race and gender; political cultures and movements; migration/immigration; cultural production; and political economy; topics will be examined from a historical perspective. CA 1. CA 4-INT.

**3622. History of Gender and Sexuality in Latin America and the Caribbean**

(Also offered as AFRA, HIST, and WGSS 3622.) Three credits.

Topics may include empire and colonialism/anti-colonialism; slavery, science, and the state; cultural practices and institutions; feminisms and masculinities; law and public policies; immigration; forms of labor and political mobilization; sex and reproduction; and human rights from historical perspective.

**3635. History of Modern Mexico**

(Formerly offered as LAMS 3635.) (Also offered as HIST 3635.) Three credits. Recommended preparation: HIST 3607. *Overmyer-Velázquez*

The emergence of modern Mexico from independence to the present with emphasis on the Revolution of 1910. CA 1. CA 4-INT.

**3660W. History of Migration in Las Américas**

(Formerly offered as LAMS 3660W and PRLS 3660W.) (Also offered as HIST 3660W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; instructor consent. Recommended preparation: LLAS 3210, LLAS 1190, ANTH 3042, HIST 3635, HIST 3609, or HIST 3674/LLAS 3220. Spanish useful, but not required. *Overmyer-Velázquez*

Applies broad chronological and spatial analyses of origins of migration in the Americas to the experiences of people of Latin American origin in Connecticut. Addresses a range of topics from the initial settlement of the Americas to 21st century migrations. CA 1. CA 4.

**3667. Puerto Rican Politics and Culture**

(Formerly offered as PRLS 3667.) (Also offered as POLS 3667.) Three credits. Prerequisite: Open to juniors or higher.

Legal and political history of the relationship between Puerto Rico and the United States with an emphasis on the question of United States empire and the politics of cultural resistance.

**3875. Asian Diasporas in the Americas**

(Also offered as AASI 3875 and HIST 3875.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HIST 3607, 3609, 3610, 3635, 3660W, or 3674. Not open to students who have passed HIST 3095 or 3995 when taught as Asian Diasporas in the Americas.

Transnational history of migration and settlement of Chinese, Japanese, Korean, and South Asian diasporas across South, Central, and North America and the Caribbean, colonial through national period. Emphasis on political economy, racial formations, and constructions of national identity.

**3998. Variable Topics in Latino and Latin American Studies**

(Formerly offered as LAMS 3998 and PRLS 3298.) Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

**3999. Independent Study in Latino and Latin American Studies**

(Formerly offered as LAMS 3999 and PRLS 3299.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

**4212. Field Internship in Latino Studies**

(Formerly offered as PRLS 4212.) One to three credits; may be repeated for up to six credits.

Work in cultural community-oriented setting(s).

**4320. Media and Special Audiences**

(Formerly offered as PRLS 4320.) (Also offered as COMM 4320.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 1000, 1300.

Media content and audience responses. Ethnic, racial, and gender issues in mainstream and ethnic media. Special audiences include Latina/os, African Americans, Asian Americans, Women, Gays, and Lesbians.

**4470. Soap Opera/Telenovela**

(Formerly offered as PRLS 4470.) (Also offered as COMM 4470.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 1000, 3300.

Socio-cultural functions of soap operas/telenovelas as mediated serials constructed by commercial organizations and consumed by United States and global audiences.

**4994W. Latin American Studies Research Seminar**

(Formerly offered as LAMS 4994W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; and instructor consent.

Capstone course in which majors and minors in Latin American Studies design, execute and write up original, library-based research on Latin America. Some readings may be in Spanish or Portuguese.

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## Linguistics (LING)

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*Head of Department:* Professor Jonathan Bobaljik

*Department Office:* Room 368, Oak Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1010. Language and Mind**

Three credits.

Discussion of nature-nurture debate with specific reference to language acquisition. Pros and cons of Chomsky's Innateness Hypothesis. CA 1.

**1020. Language and Environment**

Three credits.

Effects of geography, society, and politics on language use and variation (sociolinguistics). The geographical spread, growth and death of languages (language ecology). CA 2. CA 4-INT.

**1030. The Diversity of Languages**

Three credits. Calabrese, van der Hulst

Overview of world languages and language families. Typological classifications of linguistic properties: what can we expect in the structure of a language? Unity and diversity of language systems. Mechanisms of language change and variation. CA 2. CA 4.

**1793. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head or advisor may be required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**1795. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

**2010Q. The Science of Linguistics**

Three credits.

An introduction to the methods and major findings of linguistic research as applied to the sound systems of languages and the structure and meaning of words and sentences. CA 3.

**2850. Introduction to Sociolinguistics of the Deaf Community**

Three credits.

Sociolinguistics, demographics of the Deaf community; study of Deaf subgroups with different sociological, linguistic and cultural backgrounds; sociolinguistic integration of community members with the larger population in their cultural/ethnic community. Knowledge of American Sign Language not required. CA 2. CA 4.

**3000. Introduction to Computational Linguistics**

Three credits. Recommended preparation: At least one course in linguistics or computer science.

Computational methods in linguistic analysis and natural language processing. Topics include the use of text corpora and other sources of linguistic data; morphological analysis, parsing and language modeling; applications in areas such as information retrieval and machine translation.

**3110. Experimental Linguistics**

Three credits. Prerequisite: PSYC 1100 and LING 2010Q; open to juniors or higher. *Lillo-Martin, Snyder*

Research methods and laboratory techniques for the study of language acquisition and/or sentence processing. Students design and conduct a study using a computer database of child speech.

**3310Q. Phonology**

Three credits. Prerequisite: LING 2010Q; open to juniors or higher.

The analysis of sound patterns in language within a generative framework: distinctive features, segmental and prosodic analysis, word formation, the theory of markedness.

**3410Q. Semantics**

Three credits. Prerequisite: LING 2010Q; open to students who have completed LING 3510Q only with permission.

Analysis of the semantics of natural languages in a generative framework: truth conditions, compositionality, quantification.

**3510Q. Syntax and Semantics**

Three credits. Prerequisite: LING 2010Q; open to juniors or higher.

The analysis of form and meaning in natural languages in a Chomskyan framework: surface structures, deep structures, transformational rules, and principles of semantic interpretation.

**3511Q. Syntax**

Three credits. Prerequisite: LING 2010Q; open to students who have completed LING 3510Q only with permission.

Analysis of the syntax of natural languages in a generative framework: phrase structure, movement, syntactic operations and dependencies.

**3610W. Language and Culture**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

The study of language, culture, and their relationship. Topics include the evolution of the human language capacity; the principles of historical language change including reconstruction of Indo-European and Native American language families; writing systems; linguistic forms such as Pidgins and Creoles arising from languages in contact; the interaction between language and political systems, the struggle for human rights, gender, ethnicity, and ethnobiology. CA 2. CA 4-INT.

**3789. Undergraduate Research**

One to three credits. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Individual research-related work directed by a faculty member.

**3790. Field Study**

One to three credits. Prerequisite: Open only with consent of instructor. May be repeated for credit. Students taking this course will be awarded a grade of S (Satisfactory) or U (Unsatisfactory).

Experiential learning at an agency or business.

**3793. Foreign Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with the consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3795. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

**3798. Variable Topics**

Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated for credit.

**3799. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; instructor consent. May be repeated for credit.

**3850. Cultural and Linguistic Variation in the Deaf Community**

Three credits. Prerequisite: LING 2850.

Language and cultural models used in the Deaf community. Critical examination of demographic subgroups of the Deaf community and their linguistic background.

**4500. Advanced Introduction to Syntax**

Three credits. Prerequisites: LING 3511Q or consent of instructor.

Concepts and tools of current syntactic theory. Syntactic features, lexical and functional categories, representation of phrase structure, argument structure, Case, movement, locality.

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## Management (MGMT)

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*Head of Department:* Professor Lucy Gilson

*Department Office:* Room 336, School of Business

For major requirements, see the School of Business section of this Catalog.

Courses in this department are open to juniors and seniors only with the exception of MGMT 1801.

**1801. Contemporary Issues in the World of Management**

Hours and credits by arrangement. Prerequisite: Open to freshmen and sophomores; others with consent of instructor. May not be used to satisfy Junior-Senior level major requirements of the School of Business. May be repeated in different sections in combination with BADM 1801 for up to three credits.

Topics reflecting the complexities, challenges and excitement of today's business world.

**3101. Managerial and Interpersonal Behavior**

Three credits. Prerequisite or corequisite: ACCT 2001 or BADM 2710; ECON 1200 or both 1201 and 1202; ENGL 1010 or 1011 or 2011; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; STAT 1000Q or 1100Q; open only to Business majors of junior or higher status. Not open to students who have passed or are taking BADM 3740.

Topics covered include individual work motivation, interpersonal communications in organizations, team building and group processes, leadership, decision-making, and understanding and managing cultural diversity. Classes will emphasize interpersonal and leadership skill-building through the inclusion of exercises which rely on active participation of class members.

**3225. International Business**

Three credits. Prerequisite: MGMT 3101; open only to Business majors of junior or higher status.

Fundamental concepts and theories of international business and develop an awareness of international political, economic, and cultural issues. Students will examine the opportunities and challenges in the global economy, understand the strategies and behaviors of multinational enterprises, and gain basic knowledge of international trade and investment operations.

**3234. Opportunity Generation, Assessment, and Promotion**

Three credits. Prerequisite: Open only to Business majors of junior or higher status. Not open to students who have passed or are taking BADM 3234. It is highly recommended that students take MGMT 3101 or BADM 3740 and ACCT 2101 or BADM 2710 prior to MGMT 3234.

A hands-on experience in opportunity development, exposing students to three distinct modules. The first, creativity and innovation, stimulates the flow of ideas. The second, feasibility analysis, runs these ideas through a comprehensive assessment framework. The third module, getting the first customer, focuses on the initial sales and marketing process needed to get the idea off the ground.

**3235. Venture Planning, Management, and Growth**

Three credits. Prerequisite: MGMT 3234 or BADM 3234; open only to Business majors of junior or higher status. Not open to students who have passed or are taking BADM 3235. It is highly recommended that students take MGMT 3101 and ACCT 2101 or BADM 2710 prior to MGMT 3235.

An exposure to multiple facets of starting and managing new ventures in a very hands-on fashion. The course involves an integration of business skills that are required for preparing and pitching new business plans.

**3236. Managerial Negotiations**

Three credits. Prerequisite: MGMT 3101; open only to business majors of junior or higher status.

Explores the broad spectrum of negotiation problems faced by businesspeople and complements the technical and diagnostic skills learned in other courses at UConn. Provides an understanding of the theory and processes of successful negotiation in a variety of settings. The manager needs analytic skills as well as interpersonal skills to effectively negotiate; the course develops these skills experientially to provide an understanding of negotiation in useful analytical frameworks. Emphasizes in-class role-playing. Topics include: diagnosing negotiation situations, planning negotiations, dealing with agents, multi-issue negotiations, multi-party negotiations, ethical considerations in negotiation, and global negotiations.

**3237. Managing Human Capital**

Three credits. Prerequisite: MGMT 3101; open only to business majors of junior or higher status.

An introduction to the human resources function and related strategic and tactical elements and activities. The course covers a broad range of employee life cycle topics from the perspectives of the HR professional, manager, employee, and organization. Topics

may include staffing, development, rewards and recognition, employee engagement, performance management and career planning. Students will explore the relationships between human capital management and strategic business outcomes.

**3238. Leading Teams and Organizations**

Three credits. Prerequisite: MGMT 3101; open only to business majors of junior or higher status.

Practical leadership skills to lead high-performing, successful teams and organizations. A combination of theoretical reading and practical application to equip students with cutting-edge management knowledge and theory about self-leadership, team leadership, and the leader's effect on organizational behavior; and provide students with opportunities for in-depth self-examination of skills, attitudes, and behaviors to increase self-awareness of leadership competencies and develop them into more effective leaders. Drawing on key management and leadership theories, students will learn to make effective decisions, motivate and influence others, facilitate team collaboration and teamwork, managing diversity and conflicts, lead for creativity and innovation, and initiate and implement change to help their teams and organizations thrive in today's dynamic, competitive, and global marketplace. Includes cases, video, simulations, discussions, and exercises.

**3239. Managing a Diverse Workforce**

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Examines issues related to managing an increasingly diverse workforce. Diversity in the workplace may result from differences in individual characteristics such as gender, race, ethnicity, national origin, and physical ability/disability. Diversity-related issues with management implications to be examined include personal identity, recruitment and selection, work group interactions, leadership, career development and advancement, sexual harassment, work and family, accommodation of people with disabilities, and organizational strategies for promoting equal opportunity and a positive attitude toward diversity among all employees.

**4271. Venture Consulting**

Three credits. Hours by arrangement. Prerequisite: Open only to Business majors with senior standing.

Application of small business management concepts to a consulting project in an on-going small business in Connecticut. Students will be required to take examinations on course content and submit a report on the consulting project.

**4891. Field Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Consent of instructor and Department Head; open only to Business majors of junior or higher status. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for field work relevant to one or more major areas within the Department. Students will work under the supervision of one or more professionals in the specialty in question. Student performance

will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

#### **4893. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required prior to the student's departure.

Special topics taken in a foreign study program.

#### **4895. Special Topics**

Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to Business majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics in management as announced in advance for each semester.

#### **4899. Independent Study**

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only to Business majors of junior or higher status; open only with consent of instructor.

Individual study of special topics in management as mutually arranged between a student and an instructor.

#### **4900. Strategy, Policy and Planning**

Three credits. Prerequisite or corequisite: ACCT 2101 or BADM 2710; FNCE 3101; OPIM 3103 and 3104 (CSE 1010 or CSE 1100 and MEM 2211 for MEM majors); MGMT 3101; MKTG 3101 or BADM 3750; and either BLAW 3175 or BADM 3720; open only to Business majors with senior standing. Not open to students who have passed or are taking MGMT 4902.

An integrative analysis of the administrative processes of the various functional areas of an enterprise viewed primarily from the upper levels of management. The formulation of goals and objectives and selection of strategies under conditions of uncertainty as they relate to the planning, organizing, directing, controlling and evaluating policies and activities in each of the functional areas separately and jointly to achieve corporate objectives. Developing an integral business perspective is an integral part of the course.

#### **4902. Strategic Analysis**

Three credits. Prerequisite or corequisite: ACCT 2101 or BADM 2710; FNCE 3101; OPIM 3103 and 3104; MGMT 3101; MKTG 3101 or BADM 3750; BLAW 3175 or BADM 3720; open only to Business students with senior class standing. Not open for credit to students who have passed or are taking MGMT 4900. Restricted to regional campus business majors.

Capstone business policy course providing an integrative view of managing the different functional elements and activities of the enterprise. Focuses in particular on strategy formulation and implementation, extending from analysis of the enterprise's current situation, through determination of goals, objectives and direction, to establishment of plans and programs to bring these to fruition. Provides a broad perspective on how firms compete and position themselves in the external marketplace. Examines impact of technology and innovation

on changing industry environments in which these activities take place. Course format includes extensive use of case studies and simulation exercises.

#### **4997. Senior Thesis in Management**

One to three credits; may be repeated for up to four credits. Minimum of three credits required to graduate with Honors. Hours by arrangement. Prerequisite: Open to juniors or higher; open only to Management Department Honors Students with consent of instructor and Department Head.

Preparation of a thesis for one or two credits and the development and presentation of that thesis to the department in the following semester for two or three credits.

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### **Management and Engineering for Manufacturing (MEM)**

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*Co-Director, School of Business:* Associate Professor Robert Day;

*Co-Director, School of Engineering:* Assistant Professor Diane Van Scoter

#### **1151. Introduction to the Management and Engineering for Manufacturing Program**

Three credits.

Introduction to the goals of engineering and management for manufacturing enterprises, including lean concepts in business and engineering. Review of the history of technological development, including its effects on new products and processes. Written and oral communication skills will be developed.

#### **2210. Manufacturing Equipment Lab**

One credit. One and one-half hours of laboratory per week.

Introduction to machine shop equipment, metrology, general safety, and hands on experience in machining and fabrication of metals. Topics include: introduction to instrumentation; knee miller, engine lathe, drill press, grinder, and sander operation; welding; chipping; and grinding.

#### **2211. Introduction to Manufacturing Systems**

Three credits. Prerequisite: STAT 1000Q or 1100Q or 3025Q or 3345Q or 3375Q, or CE 2210 or 2251, or MATH 3160.

Fundamental engineering aspects of manufacturing. Students become familiar with common processes in manufacturing such as cutting, casting, and bending and are introduced to advanced techniques such as additive manufacturing. Overview of manufacturing operations management, production optimization, and the systems used in controlling manufacturing enterprises including the concepts of global competition and manufacturing as a competitive weapon.

#### **2212. Introduction to Manufacturing Systems Lab**

One credit. One 3-hour lab per week. Prerequisite: MEM 2211, which may be taken concurrently. Open only to Management and Engineering for Manufacturing majors.

Introduction to the steps required for manufacturing. Students will move from a part sketch, to an engineering drawing, to a drawing using state-of-the-art CAD software. Students will build both a prototype and an improved final

model of the part, which are required to be of different materials. One or more site visits are included as parts of this laboratory, for students to gain exposure to operational manufacturing facilities.

#### **2221. Principles of Engineering Management**

Three credits. Prerequisite: Open to sophomores or higher; not open to students who have passed or are taking OPIM 3104 or BADM 3761. Will not substitute for OPIM 3104 for students who enter the School of Business. Will not substitute for BADM 3761. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

The fundamentals of engineering management tasks of planning and control; the human element in production, research, and service organizations; the stochastic nature of management systems.

#### **3221. Introduction to Products and Processes**

Three credits. Prerequisite: MEM 2211.

Overview of the factors affecting the design of products and the various processes used in their manufacture. An introduction to manufacturing processes and their capabilities and limitations. Value engineering, methods improvement and simplification techniques will be covered.

#### **3231. Computers in Manufacturing**

Three credits. Prerequisite: MEM 2211, which may be taken concurrently.

The utilization of computers and information systems in manufacturing, with special emphasis placed on Computer Integrated Manufacturing (CIM). The study of actual CIM applications will be incorporated.

#### **3281. Manufacturing Internship**

No credits. Hours by arrangement. Prerequisite: Consent of instructor and MEM program director. May be repeated. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to educate students in the MEM program with the realities of the manufacturing environment and to provide them with the opportunity to exercise problem solving skills while fulfilling a need of the internship sponsor.

#### **3293. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of the specific MEM program co-director from the appropriate school, Business or Engineering, required prior to the student's departure. These credits must be awarded for regularly scheduled course work at a recognized foreign university in a clearly defined technical area of Business or Engineering. Credits used towards the technical elective credits must be approved by the specific MEM program director from the appropriate school, Business or Engineering.

#### **3299. Problems in Management and Engineering for Manufacturing**

Semester and hours by arrangement. Prerequisite: Instructor consent. Credits by arrangement, not to exceed four. May be repeated for credit with a change in topic.

Designed primarily for students who wish to pursue or continue to pursue a special line of study or investigation.

#### 4225. Advanced Products and Processes

Three credits. Prerequisite: MEM 3221.

Introduction to advanced topics relevant to the design and manufacture of products. Special emphasis on the relationship between manufacturing products and processes. Student projects.

#### 4289. Honors Research

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to Honors students; consent of instructor. May be used to convert independent research into course credit that may be applied toward the Honors Program requirements and will count as a technical elective.

Research programs of students' choice in areas of Management and Engineering for Manufacturing. Research work will be directed by an MEM faculty member who serves as the research advisor for the course. Projects will provide significant independent problem solving experience to supplement the classroom experience obtained from traditional coursework.

#### 4971W. Senior Design Project I

Two credits. Three 1-hour classes per week. Prerequisite: ME 3221 and MEM 2211; ENGL 1010 or 1011 or 2011. Not open to students who have passed MEM 4915W.

Part 1 of the capstone design course for the MEM Program. This semester will cover manufacturing and production cases in preparation for the senior design experience. Both written and oral reports are required. Students will also complete the first phase of their two-semester engineering design project focused on product/process creation or improvement, including problem definition, background, and a preliminary proposal. The Business and Engineering faculty will be jointly involved.

#### 4972W. Senior Design Project 2

Two credits. One 2-hour class per week. Prerequisite: MEM 4971W. Not open to students who have passed MEM 4915W.

Part 2 of the capstone design course for the MEM Program. Students will perform the design, fabrication, and testing of their product design; or implementation, testing, and procedure writing for their process design. The proposal from MEM 4971W will guide the fabrication or implementation and testing to meet a detailed specification of engineering requirements. Both written and oral reports will be required. The Business and Engineering faculty will be jointly involved.

#### 4977. Senior Design for Visiting International Students

Three credits. Prerequisites: Open only to visiting international students subject to prior approval of the Management and Engineering for Manufacturing co-directors. Not open to UConn students.

A one-semester version of the capstone design course for the Management and Engineering for Manufacturing Program. Both written and oral reports are required. Students will work

on an engineering design project focused on product/process creation or improvement, including problem definition, background, and proposed solutions, followed by fabrication or implementation and testing to meet a detailed specification of engineering requirements.

### Marine Sciences (MARN)

*Department Head:* Professor James Edson

*Department Office:* Marine Sciences, Avery Point

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### 1001. The Sea Around Us

Three credits. *Ebbin*

The relationship of humans with the marine environment. Exploitation of marine resources, development and use of the coastal zone, and the impact of technology and pollution on marine ecosystems. CA 3.

#### 1002. Introduction to Oceanography

Three credits. A background in secondary school physics, chemistry or biology is recommended. Not open to students who have passed MARN 1003.

Processes governing the geology, circulation, chemistry and biological productivity of the world's oceans. Emphasis is placed on the interactions and interrelationships between physical, chemical, biological and geological processes that contribute to both the stability and the variability of the marine environment. CA 3.

#### 1003. Introduction to Oceanography with Laboratory

First semester (Avery Point). Second semester (Storrs). Four credits. Three hours lecture and one 3-hour laboratory per week. Recommended preparation: A background in secondary school physics, chemistry or biology. Not open to students who have passed MARN 1002.

Processes governing the geology, circulation, chemistry and biological productivity of the world's oceans. Emphasis on the interactions and interrelationships of physical, chemical, biological and geological processes that contribute to both the stability and the variability of the marine environment. Laboratory experiments, hands-on exercises, and field observations including required cruise on research vessel. A fee of \$35 is charged for this course. CA 3-LAB.

#### 1004. Oceanography Laboratory

First semester (Avery Point). Second semester (Storrs). One credit. One 3-hour laboratory per week. Prerequisite: MARN 1002 or equivalent. Not open to students who have passed MARN 1003.

Laboratory experiments, hands-on exercises, and field observations (including required cruise on research vessel) that teach fundamental oceanographic concepts emphasizing physical, chemical, and biological processes and their interaction in the marine environment. A fee of \$35 is charged for this course.

#### 1160. Introduction to Scientific Diving

Two credits. Approved medical questionnaire and liability waiver required. *Godfrey*

Introduction to scuba diving history, physics and physiology of diving, dive planning,

open-circuit diving equipment, and marine environments. Open-water diving certification possible with successful completion of course. A fee of \$75 is charged for this course.

#### 2002. Marine Sciences I

Second semester (Avery Point). Three credits. Prerequisite: MARN 1002 or 1003; MATH 1110Q or 1071Q or 1131Q; BIOL 1107 and 1108; CHEM 1127Q and 1128Q; and PHYS 1201Q or 1401Q.

Biological, chemical, physical, and geological structure and function of coastal systems; a worldwide survey with emphasis on important coastal habitats and processes.

#### 2060. Introduction to Coastal Meteorology

Three credits. Recommended preparation: Introductory calculus and physics. *Lombardo*

Introduction to the structure, circulation, and thermodynamics processes within the Earth's atmosphere. Emphasis on weather phenomena impacting the coastlines, including sea breezes, coastal convection, waterspouts, and hurricanes.

#### 3000. The Hydrosphere and Global Climate

Three credits. *Lund*

Interactions of the physical and chemical components of the global water and energy cycles and how all apply to climate. The science behind climate change predictions reviewed and applied to case studies.

#### 3001. Marine Sciences II

First semester (Avery Point). Four credits. Three hours lecture and three hours laboratory. Prerequisite: MARN 2002; MATH 1110Q or 1071Q or 1132Q; and PHYS 1202Q or 1402Q.

Biological, chemical, physical and geological structure and function of coastal systems, with a special focus on field observations in three important coastal habitats: beaches and rocky shores, marshes, and estuaries.

#### 3003Q. Environmental Reaction and Transport

Four credits. Prerequisite: CHEM 1127Q and one additional semester of CHEM, BIOL or PHYS; one semester of calculus (MATH 1110Q, 1131Q, or 1151Q) or concurrent enrollment in Calculus (1110Q, 1131Q, 1151Q). *Vlahos*

An introduction to the chemical/biological reactions and transport dynamics of environmental systems. Mass balances, elementary fluid mechanics and the coupled dynamics of lakes, rivers, oceans, groundwater and the atmosphere as biogeochemical systems.

#### 3012. Marine Invertebrate Biology

Three credits. Prerequisites: BIOL 1107 and 1108. Recommended preparation: MARN 1002 or 1003 or instructor consent. *Ward*

Comparative examination of major adaptations and functional responses of marine invertebrates to biotic and abiotic factors in the marine environment. Field trips required.

#### 3014. Marine Biology

(Also offered as EEB 3230.) First semester (Storrs) second semester, alternate years (Avery Point). Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of college laboratory biology.

The study of the kinds and distributions of marine organisms. Particular attention is

paid to biotic features of the oceans, organism-habitat and relationships and general ecological concepts influencing marine populations and communities. Field trips are required. A fee of \$10 is charged for this course.

### 3015. Molecular Approaches to Biological Oceanography

Three credits. Two-hour lecture, three-hour lab. Recommended preparation: one of BIOL 1108, MARN 4010, or MCB 3010. *Lin*

Principles and technology in nucleic acid purification and manipulation, DNA fingerprinting, gene cloning and sequencing, phylogenetic analysis, and detection of gene expression (mRNA and protein). Application examples in marine ecological studies.

### 3016. Marine Microbiology

First semester (Avery Point) second semester (Storrs). Three credits. Two lecture-discussion class periods and one 2-hour laboratory period for which field trips may be substituted. Prerequisite: MCB 2610 or instructor consent. *Visscher*

A general survey of the taxonomy, physiology and ecology of marine microorganisms.

### 3017. Plankton Ecology

Three credits. Two 50-minute lectures and one 3-hour lab/recitation period. Prerequisites: MATH 1060Q or 1131Q, PHYS 1201Q or 1401Q, CHEM 1122 or equivalent, BIOL 1107 and 1108. Recommended preparation: MARN 1002. Consent of instructor for graduate students in lieu of requirements. Students who have passed both MARN 5014 and MARN 5016 cannot take this course for credit. *Dam*

Ecology of planktonic organisms (bacteria, protista and metazoa). The evolutionary ecology concept, methods of research, special features of aquatic habitats; adaptations to aquatic environments; population biology; predation, competition, life histories, community structure, and role of plankton in ecosystem metabolism.

### 3030. Coastal Pollution and Bioremediation

Three credits. Two class periods, one 2-hour lab period. Required preparation: BIOL 1107, 1108 and CHEM 1127Q-1128Q or instructor consent. *Visscher*

Overview of processes and compounds leading to pollution in the nearshore marine environment. The impact of pollution on the marine food web and its response is emphasized. Alleviation of pollution through metabolism of organisms, including bacteria, seagrasses, and salt marshes.

### 3060. Coastal Circulation and Sediment Transport

Second semester (Avery Point). Three credits. Prerequisite: MARN 2002 and 3001; MATH 1110Q or 1131Q or 1151Q. *O'Donnell*

Circulation and mixing in estuaries and the inner continental shelf, including surface gravity waves, tides, and buoyancy and wind-driven circulation. Coastal sediments, geomorphology, and processes of sedimentation, erosion and bioturbation. Required field trips.

### 3061. Environmental Fluid Dynamics

Three credits. Recommended preparation: PHYS 1202Q or 1402Q or 1502Q or 1602Q; and MATH 2130Q (may be taken concurrently). *O'Donnell*

Introduction to fluid dynamics with applications to coastal waters, estuaries, rivers, lakes, and ground water flows. Topics include waves, tides turbulence, mixing, drag, lift, effects on organisms, and wind driven circulation.

### 3230. Beaches and Coasts

(Also offered as GSCI 3230.) First semester, alternate even years (Avery Point). Three credits. Prerequisite MARN 1002 or 1003 or GSCI 1050 or 1051 or consent of instructor.

Introduction to the processes that form and modify coasts and beaches, including tectonic setting, sediment supply, coastal composition, energy regimes and sea level change; tools and techniques utilized in marine geologic mapping and reconstruction of submerged coastal features; field trips to selected coastal features.

### 3505. Remote Sensing of Marine Geography

(Also offered as GEOG 3505.) Three credits. Recommended preparation: GEOG 2300 or MARN 1002. *Dierssen*

Introduction to remote sensing applications in oceans and seas. Applications include image analysis of sea surface temperature, winds, altimetry, sea ice, chlorophyll, primary productivity, and bathymetry.

### 3801W. Marine Sciences and Society

Second semester (Avery Point). Three credits. Prerequisite: MARN 2002 and 3001 or instructor consent; ENGL 1010 or 1011 or 2011. *Vaudrey*

Scientific analysis of coastal zone issues and their implications for society. Written analysis and discussion of primary literature.

### 3811. Seminar on Marine Mammals

Joint program with Mystic Marineline Aquarium. Three credits. One 3-hour class period; one field trip. Offered at Mystic Marineline Aquarium. Prerequisite: one year college laboratory biology and permission of instructor.

Instructors from different areas of expertise discuss the natural history, evolution, anatomy, physiology, husbandry, and conservation of marine mammals. Current research is emphasized. (Special registration and fee: Contact Mystic Marineline Aquarium, Mystic, CT 06355. 860-572-5955.)

### 3893. Foreign Study

Credits and hours by arrangement up to a maximum of six credits. Prerequisite: Consent of department head required, preferably prior to the student's departure. With a change in content, may be repeated for credit.

### 3899. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

### 3995. Special Topics

May be repeated for credit with a change in topic.

### 4001. Measurement and Analysis in Coastal Ecosystems

First semester (Avery Point). Four credits. Two 1-hour lectures and two 3-hour laboratories. Required field trips. Prerequisite: Both MARN 2002 and 3001, or instructor consent. *Granger; Koerting*

Examination of oceanographic processes in local coastal systems; collection and analyses

of samples from field trips and lab experiments; data analysis using computers.

### 4002. Science and the Coastal Environment

Second semester (Avery Point). Three credits. Prerequisite: MARN 2002, 3001, and 4001; or at least two (2) of the following: MARN 4030W, 4050, and 4060. *Tobias; Trumbull*

Specific cases of multiple impacts on environmental resources and coastal habitats. Current scientific understanding as a basis for sociopolitical decision-making (e.g., land-use impacts on coastal processes in relation to zoning regulation and water-quality criteria).

### 4010. Biological Oceanography

Three credits. Prerequisite: CHEM 1128Q; MATH 1132Q; PHYS 1202Q or equivalent; BIOL 1107 and 1108; or instructor consent. *McManus*

Structure and function of marine food webs, from primary producers to top trophic levels; interaction of marine organisms with the environment; energy and mass flow in food webs; elemental cycling; coupling between pelagic and benthic environments.

### 4018. Ecology of Fishes

Three credits. Prerequisite: MARN 3014

General concepts in fish ecology such as distribution, feeding, bioenergetics, growth, larval fish ecology, biotic interactions, life history evolution and other contemporary research topics.

### 4030W. Chemical Oceanography

Three credits. Prerequisite: CHEM 1128Q, MATH 1132Q, PHYS 1202 or equivalents; ENGL 1010 or 1011 or 2011. *Vlahos*

Composition, origin and solution chemistry of seawater and the marine biogeochemical cycles of salts, elements and gases. Distributions and transfer in the marine environment through chemical equilibria, rates, redox, partitioning, ocean circulation, biological cycles and crustal exchanges.

### 4050. Geological Oceanography

Three credits. Prerequisite: GSCI 1051 or MARN/GSCI 3230 or instructor consent.

Concepts in geological oceanography, including the role of plate tectonics in the control of the Earth and ocean system, fundamentals of biosphere-geosphere interaction over geologic timescales, and the reconstruction of past climates using marine sediment archives.

### 4060. Physical Oceanography

Three credits. Prerequisite: PHYS 1202Q, 1402Q, 1502Q or 1602Q; MATH 1132Q. *Whitney*

Overview of physical properties and dynamics influencing the oceans and coastal waters. Descriptions of global water property distributions, surface mixed layer, pycnocline, surface heat fluxes, and major ocean currents. Introduction to dynamics of ocean circulation, waves, tides, and coastal circulation.

### 4066. River Influences on the Marine Environment

Three credits. Recommended preparation: Calculus and general physics. *Whitney*

Influences of rivers on estuaries, coastal and open water properties, energy budgets and ecosystems including inputs of buoyant waters,

sediments and pollutants and variability from storms, seasons, human alterations and climate change.

#### 4160. Scientific Diving

Three credits. Recommended preparation: MARN 1160. Scuba certification and approved diving physical required. *Godfrey*

Physics and physiology of scuba diving, federal regulation, consensus standards, dive planning, dive accident management and emergency planning, scientific diving methods, diving modes. Scientific diver certification possible with successful completion of course plus CPR, First Aid and Emergency Oxygen certification. A fee of \$75 is charged for this course.

#### 4891. Internship in Marine Sciences

Variable credits. Prerequisite: Consent of Instructor. Recommended preparation: Nine credits of MARN courses at the junior-senior level. With a change in topic, may be repeated for credit, not to exceed 3 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

An internship under the direction of MARN faculty. Placements stress application of academic training. A journal of activities is required. One credit may be earned for each 42 hours of pre-approved activities in a semester to a maximum of three credits.

#### 4893. Foreign Study

Credits and hours by arrangement up to a maximum of six credits. Prerequisite: Consent of department head required, preferably prior to the student's departure. With a change in content, may be repeated for credit.

#### 4895. Special Topics

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

#### 4896W. Senior Research Thesis

Three credits. Hours by arrangement. Prerequisite: Three credits of MARN 3899, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only with consent of instructor. Recommended preparation; MARN 3801W. Not limited to honors students.

Senior thesis reflecting independent research.

#### 4898. Variable Topics

Variable credits: one to three. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

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## Maritime Studies (MAST)

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*Program Director:* Associate Professor Nathaniel Trumbull

*Office:* Avery Point Campus, Academic Building, First Floor

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### 1200. Introduction to Maritime Culture

Three credits.

A study of history and literature to understand the international maritime culture that links peoples, nations, economies, environments, and cultural aesthetics. CA 1.

#### 1993. International Study

Credits and hours by arrangement. Consent of program coordinator required, normally to be granted before the student's departure. May be repeated for credit.

Coursework completed while abroad.

#### 2100W. Ports of Passage

(Formerly offered as INTD 1660W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

A selection of readings concerning ports around the world. Interdisciplinary readings will explore the cultural and historical significance of the port as a setting of philosophical and commercial exchange. CA 4-INT.

#### 2101. Introduction to Maritime Studies

(Formerly offered as MAST 1101.) Three credits.

An introduction to the interdisciplinary study of maritime-related topics with an examination of the maritime physical environment and maritime cultures, history, literature, and industries.

#### 2210. History of the Ocean

(Also offered as HIST 2210.) Three credits.

Cultural, environmental, and geopolitical history of the ocean from prehistory to the present. Examines the impact of migration, industrialization, modernization, and globalization on the relationships between people and oceans. CA 1.

#### 2467. Economics of the Oceans

(Also offered as ECON 2467.) Three credits. Prerequisite: ECON 1200 or 1201.

Economies of industries that use and manage ocean resources. Applications of industrial organization, law and economics, natural resource theory, and environmental economics.

#### 2993. International Study

Credits and hours by arrangement. Consent of program coordinator required, normally to be granted before the student's departure. May be repeated for credit. May count toward major with consent of advisor and program coordinator.

Coursework completed while abroad.

#### 2995. Special Topics Lecture

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

#### 3531. Maritime Archaeology of the Americas

(Also offered as ANTH 3531 and HIST 3209.) Three credits. Recommended preparation: ANTH 1500, ANTH 2501, ANTH 2510 or HIST 3544.

Archaeological and historical sources to examine the development of seafaring practices, exploration, waterborne trade and economic systems, naval warfare and shipbuilding in the Americas from the fifteenth to the beginning of the twentieth century.

#### 3532. Archaeology of the Age of Sail

(Also offered as ANTH 3532 and HIST 3210.) Three credits. Recommended preparation: ANTH 1500, 2501, or 2510.

Overview of archaeological and historical sources on the development of seafaring and navigation, exploration, waterborne trade and economic systems, colonialism and empire building, naval warfare and shipbuilding in Europe, Asia and Australia from the fifteenth to the beginning of the twentieth century.

#### 3544. Atlantic Voyages

(Also offered as HIST 3544.) Three credits. Prerequisite: Open to juniors or higher.

Seafaring and society since the age of Columbus. Emphasis on the Anglo-American experience.

#### 3832. Maritime Law

(Also offered as POLS 3832.) Three credits. Prerequisite: Open to juniors or higher.

International and domestic legal concepts concerning jurisdiction in a maritime setting.

#### 3991. Supervised Internship in Maritime Studies

Credits, not to exceed 3, and hours by arrangement. Prerequisite: completion of 9 credits of Maritime Studies core courses, and consent of the program coordinator. May be repeated for credit with change in content and program coordinator's consent.

Internship with institutions, businesses, or agencies engaged in areas directly related to Maritime Studies. Maritime Studies faculty supervisor, student, and field supervisor of host organization will jointly define a specific project to advance student's educational program as well as mission of the host institution. Grades will be based on performance of the learning contract and a final academic product.

#### 3993. Foreign Study

Credits and hours by arrangement. Consent of Department Head required, normally to be granted before the student's departure. May be repeated for credit. May count toward major with consent of advisor.

#### 3995. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

#### 3998. Variable Topics

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

#### 4993. Foreign Study

Credits and hours by arrangement. Consent of Department Head required, normally to be granted before the student's departure. May be repeated for credit. May count toward major with consent of advisor.

#### 4994W. Maritime Studies Capstone Seminar

Second semester (Avery Point). Three credits. Prerequisite: MAST 2101, MARN 1001; open only to Maritime Studies majors; ENGL 1010 or 1011 or 2011.

Topical themes related to diverse aspects of society and commerce in coastal and oceanic zones, such as African Americans and the maritime experience; politics and economics of fisheries; or cultural perspectives of Long Island Sound.



**4999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in subject matter.

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## Marketing (MKTG)

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*Head of Department:* Professor Robin Coulter

*Department Office:* Room 349, School of Business

For major requirements, see the School of Business section of this Catalog.

**3101. Introduction to Marketing Management**

Three credits. Prerequisite: ACCT 2001; ECON 1200 or both 1201 and 1202; ENGL 1010 or 1011 or 2011; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; STAT 1000Q or 1100Q; open only to Business majors of junior or higher status. Not open to students who have passed or are taking BADM 3750.

An introduction to the marketing system, its foundations and institutions. Students are exposed to product, promotion, price, distribution decision areas, strategic alliances, relationship marketing, and total marketing quality.

**3208. Consumer Behavior**

Three credits. Prerequisite: MKTG 3101 OR BADM 3750; open only to Business majors of junior or higher status. Not open for credit to students who have passed MKTG 3209.

The analysis of consumer decision processes as they relate to marketing management decision areas. Several models of consumer behavior are studied as are the psychological phenomena of learning, motivation, and attitude development, and the sociological influences of social class, reference groups and culture.

**3260. Marketing Research**

Three credits. Prerequisite: MKTG 3101 OR BADM 3750; open only to Business majors of junior or higher status.

Covers strategies and techniques for obtaining and using market information from consumer and business-to-business markets. Emphasis on: translating managerial problems into research questions, designing research, selecting alternate research methods, and analyzing and interpreting market research data. Students gain hands on, computer based experience in analyzing market data.

**3362. Marketing Planning and Strategy**

Three credits. Prerequisite: MKTG 3101 OR BADM 3750; MKTG 3208, 3260; open only to Business majors with senior standing.

Provides students with a systems approach to strategic market analysis and planning, particularly related to product design, branding, customer management, pricing, promotion, and distribution decisions in the context of a competitive global market. Students will learn the components of and develop a marketing plan.

**3370. Global Marketing Strategy**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to Business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3370.

A study of the marketing concepts and analytical processes used in the development of programs in international markets. The course emphasizes comparative differences in markets, marketing functions, and political considerations. It includes the application of a systems approach to the evaluation of opportunity and to the solution of major global marketing problems. Emphasis is placed on the analysis and synthesis of marketing programs to determine the appropriate marketing mix for various international business enterprises.

**3452. Professional Selling**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3452.

Focuses on the tactical and strategic aspects of the professional selling process with particular emphasis upon managing the complex sale. Topics include account entry strategies, effective investigative techniques, objection prevention, the client decision process, negotiation skills, and account development strategies, and the use of technology to manage a portfolio of sales opportunities. Learning tools will include: participant interaction, role plays, work groups, and case studies.

**3454. Sales Management and Leadership**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3454.

Provides students with concepts and skills to understand and engage in sales force management, and to develop strong sales leadership abilities. Topics include strategic development of a sales force, sales teams, tactical development skills, and the integration with the rest of the organization to fulfill customer needs. Learning tools will include: participant interaction, role plays, work groups, and case studies.

**3625. Integrated Marketing Communications in the Digital Age**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to Business majors of junior or higher status. Not open to students who have passed or are currently enrolled in COMM 4800 or BADM 3625.

Provides students an understanding of the design, coordination, integration, and management of marketing communications. Students develop an integrated marketing communications campaign using traditional, social, and mobile media with an emphasis on the competitive and strategic value of communications in the marketplace.

**3661. Marketing and Digital Analytics**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3661.

Provides students with basic and advanced analytical tools to address strategic marketing concerns, including topics such as consumer

profiling and behavioral targeting, media buying, retail engagement, and search. Students gain hands on computer-based experience in analyzing data.

**3665. Digital Marketing**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3665.

Provides students a framework and tools to develop integrated digital marketing strategies applied to segmentation, targeting, positioning, branding, and the marketing mix in pursuit of long-term marketing objectives.

**3753. Entrepreneurial Marketing**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to Business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3753.

Focuses on the key marketing concepts and practices relevant to entrepreneurial ventures when introducing new products and services. It focuses on the assessment of market potential, marketing strategies and decisions in the context of limited resources and conditions of risk and market uncertainty, and the role of marketing in the commercialization process. Attention is given to product, pricing, promotion, and distribution decisions, and customer relationship management to co-create value with the customer.

**3757. Strategic Brand Management**

Three credits. Prerequisite: MKTG 3101 or BADM 3750; open only to Business majors of junior or higher status. Not open to students who have passed or are currently enrolled in BADM 3757.

Provides students an understanding of customer behavior in relation to marketing strategies in building, leveraging, and enhancing brand equity and formulating strategic brand decisions, such as positioning and designing brands, building and leveraging brand community, measuring brand assets and brand performance, managing global brands, providing brand stewardship, and managing brand extensions. The course provides concepts and perspectives relevant for any market offering (public/private, profit/nonprofit, commercial/noncommercial). Students will conduct a brand assessment project - a brand equity audit or brand marketing plan.

**4891. Professional Practice in Marketing**

One to three credits. Hours by arrangement. Prerequisite: MKTG 3101 or BADM 3750; completion of Freshman - Sophomore level School of Business requirements and consent of instructor and Department Head; open only to Business majors of junior or higher status. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for supervised field work in relevant major areas within the Department. Students will work with one or more professionals in the field of marketing. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

**4892. Practicum in Professional Sales**

Three credits. Hours by arrangement. Prerequisite: MKTG 3101 and consent of instructor; open only to Business students of junior or higher status. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for supervised field work in professional sales. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

**4893. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required, prior to student's departure.

Special topics taken in a foreign study program.

**4895. Special Topics**

Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open only to Business majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

**4899. Independent Study**

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only to Business majors of junior or higher status; open only with consent of instructor and Department Head.

Individual study of special topics as mutually arranged between student and instructor.

**4996. Independent Honors Research**

Three credits. Prerequisite: MKTG 3260; open to juniors or higher; open only to Marketing Department Honors Students with consent of the instructor.

Students are expected to develop their own plan for a research project, conduct the research, and write up this research, consulting periodically with a faculty member.

**4997W. Senior Thesis in Marketing**

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only to Marketing Department Honor students with consent of instructor and Department Head; open to juniors or higher.

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## Materials Science and Engineering (MSE)

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*Head of Department:* Professor S. Pamir Alpay

*Department Office:* Institute of Materials Science (IMS), Room 111

For major requirements, see the School of Engineering section of this Catalog.

**2001. Introduction to Structure, Properties, and Processing of Materials I**

Three credits. Prerequisite: CHEM 1127Q or 1147Q. Not open to students who have passed MSE 2101.

Bonding in materials, the crystal structure of metals and ceramics, and defects in materials will be introduced. Basic principles of phase diagrams and phase transformations will be given with particular emphasis on microstructural evolution

and the effect of microstructure on the mechanical properties of metals and alloys. Introductory level knowledge of mechanical properties, testing methods, strengthening mechanisms, and fracture mechanics will be provided.

**2002. Introduction to Structure, Properties, and Processing of Materials II**

Three credits. Prerequisite: MSE 2001 or 2101.

Structures, properties, and processing of ceramics; structure, properties and processing of polymers and composites; electrical, thermal, magnetic and optical properties of solids; and corrosion.

**2053. Materials Characterization and Processing Laboratory**

One credit. Prerequisite: MSE 2002, which may be taken concurrently. One 3-hour laboratory period.

Principles of materials properties, processing and microstructure will be illustrated by experiments with qualitative and quantitative microscopy, mechanical testing, thermal processing, plastic deformation and corrosion. Materials design and selection criteria will be introduced by studying case histories from industry and reverse engineering analyses.

**2101. Materials Science and Engineering I**

Three credits. Prerequisite: CHEM 1127Q or 1147Q. Not open to students who have passed MSE 2001.

Relation of crystalline structure to chemical, physical, and mechanical properties of metals and alloys. Testing, heat treating, and engineering applications of ferrous and non-ferrous alloys.

**2102. Materials Science and Engineering II**

Three credits. Prerequisite: MSE 2001 or 2101. Not open to students who have passed MSE 2002.

Structures, properties, and processing of ceramics; structure, properties and processing of polymers and composites; electrical, thermal, magnetic and optical properties of solids; and corrosion.

**3001. Applied Thermodynamics of Materials**

Four credits. Prerequisite: MSE 2001 or 2101.

Thermodynamic principles will be applied to the behavior and processing of materials. Topics covered will include thermodynamic properties, solution thermodynamics, phase equilibria, phase diagram prediction, gas-solid reactions and electrochemistry.

**3002. Transport Phenomena in Materials Processing**

Four credits. Prerequisite: MSE 3003 and MATH 2110Q, both of which may be taken concurrently.

Mechanisms and quantitative treatment of mass, energy, and momentum transfer will be applied to design and analysis of materials processing. Increasingly complex and open-ended engineering design projects will be used to illustrate principles of diffusion; heat conduction, convection, and radiation, and fluid flow.

**3003. Phase Transformation Kinetics and Applications**

Three credits. Prerequisite: MSE 2001 or 2101.

Principles and applications of phase transformations to control microstructure and materials properties. In depth, quantitative coverage will include vacancies, solid solutions, phase diagrams, diffusion, solidification of metals, nucleation and growth kinetics, and thermal treatments to control microstructure.

**3004. Mechanical Behavior of Materials**

Three credits. Prerequisite: MSE 2001 or 2101.

Elements of elastic plastic deformation of materials and the role of crystal structure. Strengthening and toughening mechanisms. Fracture; including fatigue, stress corrosion and creep rupture. Test methods.

**3020. Failure Analysis**

Three credits. Prerequisite: MSE 2001 or 2101.

Methods for determining the nature and cause of materials failure in structures and other mechanical devices. Analysis of case histories.

**3029. Ceramic Materials**

Hours by arrangement. Three credits. Prerequisite: MSE 2002 and PHYS 1502. *Kattamis*

Microstructure of crystalline ceramics and glasses and role of thermodynamics and kinetics on its establishment. Effect of process variables on microstructure and ultimately on mechanical, chemical and physical properties.

**3030. Introduction to Composite Materials**

Three credits. Prerequisite: MSE 3004.

Principles and applications of manufacturing and mechanics of polymer-matrix, and ceramic-matrix composites. Processing and properties of fibers. Interface characteristics. Design of components using composite materials.

**3032. Introduction to High Temperature Materials**

Three credits. Prerequisite: MSE 2001 or 2101.

Plastic deformation of metals and other solid materials at elevated temperatures. Dislocation mechanisms; creep processes; oxidation. Strengthening mechanism, including ordering and precipitation hardening.

**3034. Ferrous Alloys**

Three credits. Offered in alternate years. Prerequisites: MSE 3001 and 3003, both of which may be taken concurrently; open to juniors or higher; instructor consent required.

Application of materials science and engineering principles to extraction, refining, processing, phase transformations, heat treatment, properties and applications of iron-based alloys. Alloys covered include: plain-carbon steels, alloy steels (micro-alloyed, high-speed, stainless) and cast irons.

**3036. Non-Ferrous Alloys**

Three credits. Offered in alternate years. Prerequisites: MSE 3001 and 3003, both of which may be taken concurrently; open to juniors or higher; instructor consent required.

Application of materials science and engineering principles to extraction, refining, processing, phase transformations, heat treatment, properties and applications of non-ferrous alloys. Materials covered include alloys of: aluminum, copper, magnesium, nickel, titanium, zinc and refractory metals.

**3055. Materials Processing and Microstructures Laboratory**

One credit. One 3-hour laboratory period. Prerequisite: MSE 2053. Corequisite: MSE 3003.

Illustrative processing, microstructural characterization and control. As-cast, wrought, and solutionized non-ferrous alloys, dendritic, non-dendritic, and eutectic microstructures. Heat-treated ferrous alloys. Composites. Powder metallurgy-processed, and weld microstructures. A fee of \$50 is charged for this course.

**3056. Mechanical Behavior Laboratory**

Two credits. Three hour laboratory. Prerequisite: MSE 3004, which may be taken concurrently.

Characterization of mechanical properties of materials and fundamentals of materials deformation and fracture processes will be experienced through hands-on projects with tensile, rheological, cyclic, and high temperature testing; drawing; forging; extrusion; rolling; and hot pressing.

**3156. Polymeric Materials**

(Also offered as CHEG 3156.) Three credits. Prerequisite: Open only to School of Engineering students. Recommended preparation: CHEM 2444. Not open for credit to students who have passed CHEM 3661.

Structure, properties, and chemistry of high polymers; solution and phase behavior; physical states, viscoelasticity and flow; production and polymer processing; design of polymers for specific applications.

**3700. Biomaterials**

Three credits. Prerequisite: MSE 2001 or MSE 2101. Not open to students who have passed BME 3700.

Introduction to a series of implant materials, including metals, ceramics, glass ceramics, polymers, and composites, including comparison with natural materials. Issues related to mechanical properties, biocompatibility, degradation of materials by biological systems, and biological response to artificial materials will be addressed. Particular attention will be given to the materials for the total hip prosthesis, dental restoration, and implantable medical devices.

**4001. Electrical and Magnetic Properties of Materials**

Three credits. Prerequisite: PHYS 1502Q and MSE 2001; or MSE 2101.

Principles underlying electrical and magnetic behavior will be applied to the selection and design of materials. Topics covered will include: thermoelectricity, photoelectricity, conductors, semiconductors, superconductors, dielectrics, ferroelectrics, piezoelectricity, pyroelectricity, and magnetism. Device applications.

**4003. Materials Characterization**

Three credits. Two class periods and, every other week, a 3-hour laboratory period. Laboratory sections in addition to those initially listed will be arranged. Prerequisite: MSE 2001 or 2101.

Principles and experimental methods of optical, electron, and x-ray examination of engineering materials. Emphasis on use of x-ray analysis, with introduction to electron

microscopy, Auger spectroscopy, scanning electron microscopy, and microanalysis.

**4003W. Materials Characterization**

Prerequisite: MSE 2001 or 2101; ENGL 1010 or 1011 or 2011.

**4004. Thermal/Mechanical Processing of Materials**

Three credits. Prerequisite: MSE 3004, may be taken concurrently.

Fundamental principles of materials processing and their quantitative application to process design will be illustrated for deformation processes: forging, rolling, drawing, extrusion, injection molding, powder compaction and sintering. A fee of \$50 is charged for this course.

**4005. Processing of Materials in the Liquid and Vapor State**

Three credits. Prerequisite: MSE 3001 and 3002.

Fundamental principles of materials processing and their quantitative application to process design will be illustrated for materials processes involving liquids and gasses: crystal growth, zone refining, shape casting, continuous casting, refining, welding, and vapor deposition.

**4021. Materials Joining**

Three credits. Prerequisite: MSE 2001 or 2101. *Kattamis*

Basic materials principles applied to fusion and solid phase welding, brazing and other joining processes. Effects of joining process and process variable values on microstructure, soundness and mechanical properties of as-processed joints. Treatment and properties of joints and joined assemblies. Joining defects and quality control.

**4034. Corrosion and Materials Protection**

Three credits. Prerequisite: MSE 2001 or 2101.

Corrosion and materials protection designed for engineering students. Principles of materials degradation, extensive case histories and practical applications. Selection of metals, alloys, ceramics and polymers for atmospheric, soil, marine and chemical environments. Evaluation methods, protective measures and the techniques of failure analysis.

**4038. Alloy Casting Processes**

Three credits. Prerequisite: MSE 3002 and 3003, both of which may be taken concurrently.

Principles of alloy solidification are discussed and applied in the context of sand, investment, and die casting; continuous and direct chill casting; electroslag and vacuum arc remelting, crystal growth, rapid solidification, and laser coating.

**4040. Material Selection in Mechanical Design**

Three credits. Prerequisite: MSE 3004.

A study of materials and how they are chosen for various mechanical designs. Discussion of a wide range of materials (metal, ceramic, polymer, etc.) and their key properties (modulus, strength, density, etc.). Guidelines for material selection. Design trades will also be discussed.

**4095. Special Topics in Materials Engineering**

Variable (1-3) credits. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit.

**4240. Nanomaterials Synthesis and Design**

Three credits. Prerequisite: MSE 2002.

Introduces synthesis and design of materials in the nanoscale. Typical synthesis strategies of low dimensional materials including nanoparticles, nanowires, nanotubes and hierarchical nanostructures are presented and discussed. The reasons behind growth mechanisms are interpreted and the nanoscale structure-properties relations are described. Design strategies of multifunctional nanomaterials will be addressed as well. Readings from modern scientific literature are assigned weekly for in-class discussions.

**4241. Nanomaterials Characterization and Application**

Three credits. Prerequisite: MSE 2002.

Introduces materials characterization and applications at the nanoscale. Standard and advanced methods in Scanning Probe Microscopy, Electron Microscopy, and Focused Ion Beams are presented. Self-Assembled and Lithographically defined structures are treated. Nanoscale particles, tubes, films, and structures are discussed. Applications for enhanced mechanical, electronic, magnetic, optical, and biological properties are described. Societal implications including performance, costs, environmental impacts, and health issues are addressed. Readings from modern scientific literature are assigned weekly for in-class discussions.

**4701. Advanced Biomaterials**

Three credits. Prerequisite: MSE 3700 or BME 3700. Not open to students who have passed BME 4701.

In-depth coverage of a series of biomaterials for various applications. Topics include calcium phosphates and composites for hard tissue replacement, drug delivery systems, tissue engineering and issues unique to the biomedical field.

**4800. Materials for Advanced Fossil Energy Systems**

Three credits. Prerequisite: MSE 3001 and MSE 3002, or can be taken concurrently.

Will familiarize students with the state of the art in fossil fuel power generation technologies ranging from conventional combustion to emerging technologies such as oxy-fuel combustion; integrated coal gasification (IGCC) and fuel cell (IGFC) systems; and CO<sub>2</sub> separation and sequestration.

**4801. Materials for Alternative, Renewable Energy**

Three credits. Prerequisite: MSE 3001 and MSE 3002, or can be taken concurrently.

Overview of energy conversion and storage systems - centralized and distributed generation to stationary and motive batteries; efficiency calculation and thermodynamics; electrochemistry - primary and secondary batteries; fuels - chemistry, processing, impurities; combustion, gasification and electrochemical systems; materials requirements; bulk and surface properties; metals, ceramics and superalloys; gas - metal interactions; gas - liquid - metal interactions; development trend

- alloying principles, coatings, claddings; alloy processing and coating techniques.

**4901W. Capstone Design Project I**

Three credits. Prerequisite: MSE 3002 and 3004, which may be taken concurrently; ENGL 1010 or 1011 or 2011.

Seniors working in teams with faculty and industry mentors solve open-ended projects in design of materials, materials processes, and materials systems. Oral and written reports are required in each semester. For students with high academic standing the BSE and MS projects may overlap.

**4902W. Capstone Design Project II**

Three credits. Seven hours practicum. Prerequisite: MSE 4901; ENGL 1010 or 1011 or 2011.

Seniors working in teams with faculty and industry mentors solve open-ended projects in design of materials, products, and processes. Oral and written reports are required in each semester. For students with high academic standing the BSE and MS projects may overlap.

**4989. Introduction to Research**

Credits and hours by arrangement. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit.

Methods of research and development. Laboratory investigation. Correlation and interpretation of experimental results. Writing of technical reports.

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**Mathematics (MATH)**

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*Interim Head of Department:* Professor Jeffrey Tollefson

*Department Office:* Room 123, Mathematical Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1011Q. Introductory College Algebra and Mathematical Modeling**

Three credits. Four class periods. Not open for credit to students who have passed any Q course. Strongly recommended as preparation for Q courses for students whose high school algebra needs reinforcement.

Emphasizes two components necessary for success in 1000-level courses which employ mathematics. The first component consists of basic algebraic notions and their manipulations. The second component consists of the practice of solving multi-step problems from other disciplines, called mathematical modeling. The topics include: lines, systems of equations, polynomials, rational expressions, exponential and logarithmic functions. Students will engage in group projects in mathematical modeling.

**1020Q. Problem Solving**

Three credits. Recommended preparation: MATH 1011Q or the equivalent. Not eligible for course credit by examination. Not open for credit to students who have passed any mathematics course other than MATH 1010, 1011Q, 1030Q, 1040Q, 1050Q, 1060Q, or 1070Q. *Vinsonhaler*

An introduction to the techniques used by mathematicians to solve problems. Skills such as Externalization (pictures and charts),

Visualization (associated mental images), Simplification, Trial and Error, and Lateral Thinking learned through the study of mathematical problems. Problems drawn from combinatorics, probability, optimization, cryptology, graph theory, and fractals. Students will be encouraged to work cooperatively and to think independently.

**1030Q. Elementary Discrete Mathematics**

Three credits. Recommended preparation: MATH 1011Q or the equivalent. Not open for credit to students who have passed any mathematics course other than MATH 1010, 1011Q, 1020Q, 1040Q, 1050Q, 1060Q or 1070Q.

Topics chosen from discrete mathematics. May include counting and probability, sequences, graph theory, deductive reasoning, the axiomatic method and finite geometries, number systems, voting methods, apportionment methods, mathematics of finance, number theory.

**1040Q. Elementary Mathematical Modeling**

Three credits. Recommended preparation: MATH 1011Q or the equivalent. Not open to students who have passed any mathematics course other than MATH 1010, 1011Q, 1020Q, 1030, 1050Q, or 1070Q. This course and MATH 1060Q cannot both be taken for credit. This course should not be considered as adequate preparation for MATH 1071Q, 1131Q, or 1151Q.

Use of algebraic and trigonometric functions with technology to analyze quantitative relationships and illustrate the role of mathematics in modern life; graphical numerical and symbolic methods. Most sections require a graphing calculator; some require work with a computer spreadsheet.

**1050Q. Mathematical Modeling in the Environment**

Three credits. Recommended preparation: MATH 1011Q or the equivalent. A solid background and good performance in high school algebra are highly recommended.

An interdisciplinary approach to environmental issues, such as: ground water contamination, air pollution, and hazardous materials handling. Emphasis on mathematical models, social and ethical implications, and physical and chemical principles. Includes a spread sheet program for water and air pollution data; a computer modeling package to analyze hazardous materials emergencies; creative use of the internet and field research. CA 3.

**1060Q. Precalculus**

Three credits. Prerequisite: A qualifying score on the mathematics placement assessment. Not open for credit to students who have passed MATH 1120Q, 1125Q, or 1131Q. Students may not receive credit for this course and MATH 1040Q.

Preparation for calculus. Review of algebra. Functions and their applications; in particular, polynomials, rational functions, exponentials, logarithms, and trigonometric functions.

**1070Q. Mathematics for Business and Economics**

Three credits. Recommended preparation: MATH 1011Q or the equivalent.

Linear equations and inequalities, exponents and logarithms, matrices and determinants, linear programming. Applications.

**1071Q. Calculus for Business and Economics**

Three credits. (One credit for students who have passed MATH 1121Q, 1131Q, or 1151Q.) Recommended preparation: MATH 1011Q or the equivalent, and MATH 1070Q, and a qualifying score on the mathematics placement assessment. Not open for credit to students who have passed MATH 1110.

Derivatives and integrals of algebraic, exponential and logarithmic functions. Functions of several variables. Applications.

**1110Q. A Survey of Calculus with Applications I**

Three credits. Recommended preparation: MATH 1011Q or the equivalent. Not open for credit to students who have passed MATH 1071Q, 1121Q, 1131Q, or 1151Q.

Derivatives and integrals of elementary functions including the exponential and logarithm functions; applications include optimization, marginal functions, exponential growth and decay, compound interest.

**1125Q. Calculus Ia**

Three credits. Recommended preparation: some exposure to the content of MATH 1060Q (Precalculus) or the equivalent. Students cannot receive credit for MATH 1125Q and MATH 1120Q, 1131Q, or 1151Q. Students who have not passed the Calculus Placement Survey take this course rather than MATH 1131Q or 1151Q.

Limits, derivatives, and extreme values of algebraic, trigonometric, exponential and logarithmic functions, with supporting algebraic topics. MATH 1125Q covers the content of approximately the first half of MATH 1131Q.

**1126Q. Calculus Ib**

Three credits. Prerequisite: MATH 1125Q. Recommended preparation: A grade of C- or better in MATH 1125Q. Students cannot receive credit for MATH 1126Q and MATH 1121Q, 1131Q, or 1151Q. Substitutes for MATH 1131Q or 1151Q as a requirement.

A continuation of the differential calculus of algebraic, trigonometric, exponential and logarithmic functions of MATH 1125Q ending with antidifferentiation, the definite integral, some techniques and applications. MATH 1126Q covers the content of approximately the second half of MATH 1131Q.

**1131Q. Calculus I**

Four credits. Prerequisite: A qualifying score on the mathematics placement assessment. Students cannot receive credit for MATH 1131Q and either MATH 1120Q, 1121Q, 1126Q, or 1151Q. (Two credits for students who have passed MATH 1125Q). Suitable for students with some prior calculus experience. Substitutes for MATH 1126Q or 1151Q as a requirement.

Limits, continuity, differentiation, antidifferentiation, definite integral, with applications to the physical and engineering sciences.

**1132Q. Calculus II**

Four credits. Prerequisite: A qualifying score on the mathematics placement assessment, and one of MATH 1121Q, 1126Q, 1131Q, or 1151Q,

or advanced placement credit for calculus (a score of 4 or 5 on the Calculus AB exam or a score of 3 or better on the Calculus BC exam). Recommended preparation: A grade of C- or better in MATH 1126Q or 1131Q. Not open to students who have passed MATH 1122Q or 1152Q. Substitutes for MATH 1122Q as a requirement.

Transcendental functions, formal integration, polar coordinates, infinite sequences and series, vector algebra and geometry, with applications to the physical sciences and engineering.

#### **1151Q. Honors Calculus I**

Four credits. Prerequisite: A qualifying score on the mathematics placement assessment. Students cannot receive credit for MATH 1151Q and either MATH 1121Q, or 1131Q. May be used in place of MATH 1131Q to fulfill any requirement satisfied by MATH 1131Q.

The subject matter of MATH 1131Q in greater depth, with emphasis on the underlying mathematical concepts.

#### **1152Q. Honors Calculus II**

Four credits. Prerequisite: A qualifying score on the mathematics placement assessment, and MATH 1151Q or advanced placement credit for calculus (a score of 4 or 5 on the calculus AB examination or a score of 3 on the Calculus BC examination) or consent of instructor. Students cannot receive credit for MATH 1152Q and either MATH 1122Q, or 1132Q. May be used in place of MATH 1132Q to fulfill any requirement satisfied by MATH 1132Q.

The subject matter of MATH 1132Q in greater depth, with emphasis on the underlying mathematical concepts.

#### **1793. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of the department head or undergraduate coordinator required, normally before the student's departure. May be repeated for credit (to a maximum of 15 for MATH 1793 and 3793 together).

#### **1795Q. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

#### **2010Q-2011Q. Fundamentals of Algebra and Geometry**

Three credits each semester. Prerequisite: PSYC 1100 and three credits of Mathematics; open only to students enrolled in the Elementary Education program in the Neag School of Education or by consent of instructor. May not be counted in any of the major groups described in the Mathematics Departmental listing.

Development of the number system with applications to elementary number theory and analytic geometry.

#### **2110Q. Multivariable Calculus**

Four credits. Four class periods. Prerequisite: MATH 1132Q or 1152Q or a score of 4 or 5 on the Advanced Placement Calculus BC exam. Recommended preparation: A grade of C- or better in MATH 1132Q. Not open for credit to students who have passed MATH 2130Q or 2143Q.

Two- and three-dimensional vector algebra, calculus of functions of several variables, vector differential calculus, line and surface integrals.

#### **2130Q. Honors Multivariable Calculus**

Four credits. Prerequisite: MATH 1152Q or advanced placement credit for one year of calculus (a score of 4 or 5 on the Calculus BC examination) or consent of instructor. Not open to students who have passed MATH 2110Q or 2143Q. May be used in place of MATH 2110Q to fulfill any requirement satisfied by MATH 2110Q.

The subject matter of MATH 2110Q in greater depth, with emphasis on the underlying mathematical concepts.

#### **2141Q-2142Q. Advanced Calculus I, II**

Both semesters. 4 credits each semester. May be taken for honors credit but open to any qualified student. Prerequisite: A year of calculus (that may include high school) and instructor consent. MATH 2141Q may be used in place of MATH 1131Q or 1151Q to fulfill any requirement satisfied by MATH 1131Q or 1151Q. MATH 2142Q may be used in place of MATH 1132Q or 1152Q to fulfill any requirement satisfied by MATH 1132Q or 1152Q to fulfill any requirement satisfied by MATH 1132Q or 2710.

A rigorous treatment of the mathematics underlying the main results of one-variable calculus. Intended for students with strong interest and ability in mathematics who are already familiar with the computational aspects of basic calculus.

#### **2143Q-2144Q. Advanced Calculus III, IV**

Both semesters. 4 credits each semester. May be taken for honors credit but open to any qualified student. Prerequisite: MATH 2142Q or consent of instructor. MATH 2143Q may be used in place of MATH 2110Q to fulfill any requirement satisfied by MATH 2110Q. MATH 2144Q may be used in place of MATH 2410Q, MATH 2420Q, or MATH 2210Q to fulfill any requirement satisfied by MATH 2410Q, MATH 2420Q, or MATH 2210Q.

A rigorous treatment of more advanced topics, including vector spaces and their application to multivariable calculus and first-order, second-order and systems of differential equations.

#### **2210Q. Applied Linear Algebra**

Three credits. Prerequisite: MATH 1132Q, 1152Q or 2142Q. Recommended preparation: A grade of C- or better in MATH 1132Q. Not open for credit to students who have passed MATH 2144Q or 3210.

Systems of equations, matrices, determinants, linear transformations on vector spaces, characteristic values and vectors, from a computational point of view. The course is an introduction to the techniques of linear algebra with elementary applications.

#### **2360Q. Geometry**

Three credits. Prerequisite: MATH 1126Q, 1131Q, 1151Q, or 2142Q. MATH 1126Q may be taken concurrently.

Deductive reasoning and the axiomatic method, Euclidean geometry, parallelism,

hyperbolic and other non-Euclidean geometries, geometric transformations.

#### **2410Q. Elementary Differential Equations**

Three credits. Prerequisite: MATH 1132Q, 1152Q or 2142Q. Recommended preparation: A grade of C- or better in MATH 1132Q; and MATH 2110Q or 2130Q. Not open for credit to students who have passed MATH 2144Q or 2420Q.

Introduction to ordinary differential equations and their applications, linear differential equations, systems of first order linear equations, numerical methods.

#### **2420Q. Honors Differential Equations**

Three credits. Prerequisite: MATH 1152Q or instructor consent. Not open to students who have passed MATH 2410Q or 2144Q. MATH 2420Q satisfies any requirement met by MATH 2410Q, and provides superior preparation for prospective mathematics, science, and engineering majors.

The subject matter of MATH 2410Q in greater depth, with emphasis on the underlying mathematical concepts.

#### **2610. Introduction to Actuarial Science**

Three credits. Prerequisite: Consent of instructor. An introduction to actuarial science, covering many of the topics in the first Foundations of Actuarial Practice module, Role of the Actuary, of the Society of Actuaries. Topics include: what an actuary is and does; external forces that influence actuarial work; and the framework and processes actuaries use to perform actuarial work using Microsoft Excel.

#### **2620. Financial Mathematics I**

(Also offered as MATH 5620.) Three credits. Prerequisite: MATH 1132Q, 1152Q or 2141Q.

Fundamental concepts of financial mathematics, with applications in calculating present and accumulated values for various streams of cash flows as a basis for future use in: reserving, valuation, pricing, duration calculation, asset/liability management, investment income, capital budgeting and valuing contingent cash flows.

#### **2710. Transition to Advanced Mathematics**

Three credits. Prerequisite: MATH 1132Q or 1152Q. Not open for credit to students who have passed MATH 2143Q. Students intending to major in mathematics should ordinarily take MATH 2710 or 2710W during the third or fourth semester.

Basic concepts, principles, and techniques of mathematical proof common to higher mathematics. Logic, set theory, counting principles, mathematical induction, relations, functions. Concepts from abstract algebra and analysis.

#### **2710W. Transition to Advanced Mathematics**

Three credits. Prerequisite: MATH 1132Q or 1152Q; and ENGL 1010 or 1011 or 2011. Not open for credit to students who have passed MATH 2143Q. Only open to Mathematics majors. Students intending to major in mathematics should ordinarily take MATH 2710 or this course during the third or fourth semester.

**2720W. History of Mathematics**

Three credits. Prerequisite: Either (i) MATH 2110Q or 2130Q, and either 2210 or 2410Q, or (ii) 2144Q or 2420Q; and ENGL 1010 or 1011 or 2011. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

A historical study of the growth of the various fields of mathematics.

**2794W. Mathematics Writing Seminar**

Two credits. Prerequisite: MATH 2144Q or one of MATH 2110Q, 2130Q, 2143Q and one of MATH 2210Q, 2410Q, 2420Q; ENGL 1010 or 1011 or 2011.

Current topics in mathematics.

**3094. Undergraduate Seminar**

Three credits. Prerequisite: Open only with consent of instructor. This course, with a change of topic, may be repeated for credit.

**3146. Introduction to Complex Variables**

(Also offered as MATH 5046.) Three credits. Prerequisite: MATH 2110Q and 2410Q, or 2144Q, or 2420Q. Not open for credit to students who have passed MATH 5046.

Functions of a complex variable, integration in the complex plane, conformal mappings.

**3150. Analysis I**

Three credits. Prerequisite: MATH 2144Q or 2410Q or 2420Q; MATH 2110Q or 2130Q or 2143Q; and a grade of C or better in either MATH 2142Q or 2710.

Introduction to the theory of functions of one real variable.

**3151. Analysis II**

Three credits. Prerequisite: MATH 3150.

Introduction to the theory of functions of several real variables.

**3160. Probability**

Three credits. Prerequisite: MATH 2110Q, 2130Q or 2143Q.

Introduction to the theory of probability. Sets and counting, probability axioms, conditional probabilities, random variables, limit theorems.

**3170. Elementary Stochastic Processes**

(Also offered as STAT 3965.) Three credits. Prerequisite: STAT 3025Q or 3345Q or 3375Q or MATH 3160.

Conditional distributions, discrete and continuous time Markov chains, limit theorems for Markov chains, random walks, Poisson processes, compound and marked Poisson processes, and Brownian motion. Selected applications from actuarial science, biology, engineering, or finance.

**3210. Abstract Linear Algebra**

Three credits. Prerequisite: MATH 2144Q or 2210Q; and a grade of C or better in either MATH 2142Q or 2710.

Vector spaces and linear transformations over fields.

**3230. Abstract Algebra I**

Three credits. Prerequisite: A grade of C or better in either MATH 2142Q or 2710. Recommended preparation: MATH 2144Q or 2210Q.

The fundamental topics of modern algebra including elementary number theory, groups, rings, polynomials and fields.

**3231. Abstract Algebra II**

Three credits. Prerequisite: MATH 3230. Recommended preparation: MATH 3210.

Topics from ring theory, Galois theory, linear and multilinear algebra, or algebraic geometry.

**3240. Introduction to Number Theory**

Three credits. Prerequisite: A grade of C or better in either MATH 2142Q or 2710.

Euclid's algorithm, modular arithmetic, Diophantine equations, analogies between integers and polynomials, and quadratic reciprocity, with emphasis on developing both conjectures and their proofs.

**3250. Combinatorics**

Three credits. Prerequisite: A grade of C or better in either MATH 2142Q or 2710.

Analysis of combinatorial problems and solution methods. Topics include: Enumeration, generating functions, bijective proofs, sieve methods, recurrence relations, graphs, partially ordered sets, and extremal combinatorics.

**3260. Introduction to Mathematical Logic**

Three credits. Prerequisite: A grade of C or better in either MATH 2142Q or 2710. Recommended preparation: PHIL 2211.

Formalization of mathematical theories, elementary model theory with applications to algebra, number theory, and non-standard analysis. Additional topics: Elementary recursion theory and axiomatic set theory. Emphasis on the applications of logic to mathematics rather than the philosophical foundations of logic.

**3330. Elements of Topology**

Three credits. Prerequisite: MATH 2110Q or 2130Q or 2143Q; and a grade of C or better in either MATH 2142Q or 2710.

Metric spaces, topological spaces and functions, topological properties, surfaces, elementary topics in geometric topology.

**3370. Differential Geometry**

Three credits. Prerequisite: A grade of C or better in either MATH 2142Q or 2710 and either (i) MATH 2110Q, or 2130Q, and MATH 2410Q or 2420Q, or (ii) MATH 2144Q.

The in-depth study of curves and surfaces in space.

**3410. Differential Equations for Applications**

Three credits. Prerequisite: MATH 2110Q and 2144Q or 2410Q, or 2420Q. Not open for credit to students who have passed MATH 3412.

Series solutions of differential equations, Bessel functions, Fourier series, partial differential equations and boundary value problems, nonlinear differential equations.

**3435. Partial Differential Equations**

Three credits. Prerequisite: MATH 2110Q and one of MATH 2410Q or MATH 2420Q or MATH 2144Q.

Solution of first and second order partial differential equations with applications to engineering and the sciences.

**3510. Numerical Analysis I**

Three credits. Prerequisite: Either (i) MATH 2110Q or 2130Q, 2410Q, and either 2210Q or 3210 or (ii) MATH 2144Q; and knowledge of at least one programming language.

Analysis of numerical methods associated with linear systems, eigenvalues, inverses of matrices, zeros of non-linear functions and polynomials. Roundoff error and computational speed.

**3511. Numerical Analysis II**

Three credits. Prerequisite: MATH 3510.

Approximate integration, difference equations, solution of ordinary and partial differential equations.

**3545. Actuarial Case Studies using SAS™**

One credit. Prerequisites: MATH 2620, MATH 3160, STAT 3375Q, and consent of instructor.

Design, development, testing, and implementation of solutions to problems in actuarial science using SAS™.

**3550. Programming for Actuaries**

Three credits. Prerequisite: Consent of instructor. Design, development, testing and implementation of programs to solve actuarial problems using software such as Microsoft Office Excel with Visual Basic.

**3610. Probability Problems**

One credit. Two class periods. Prerequisite: MATH 2110Q, 2130Q or 2143Q; and MATH 3160.

Preparation through problem solving for the probability actuarial examination, which tests a student's knowledge of the fundamental probability tools for quantitatively assessing risk. Recommended prior knowledge: a thorough command of probability, as well as basic concepts in insurance and risk management.

**3615. Financial Mathematics Problems**

One credit. Two class periods. Prerequisite: MATH 2620.

Preparation for the financial mathematics actuarial examination, which tests a student's knowledge of the theory of interest and financial economics at an introductory level.

**3621. Actuarial Statistics**

Three credits. Prerequisite: MATH 3160 and STAT 3375Q.

Regression and time series applied to actuarial science. Covers the learning objectives established by the Society of Actuaries for Validation by Educational Experience in Applied Statistics.

**3630. Actuarial Mathematics I**

(Also offered as MATH 5630.) Three credits. Prerequisite: MATH 3160 or STAT 3375Q; and MATH 2620. MATH 3630 is not open to students who have passed MATH 5630.

Provides the mathematical foundations of life contingencies and their applications to quantifying risks in other actuarial contexts. Topics include survival and life table models, actuarial present value calculations in annuities and insurances, and premium and reserve calculations based on a single life.

**3631. Actuarial Mathematics II**

(Also offered as MATH 5631.) Three credits. Prerequisite: MATH 3630. MATH 3631 is not open to students who have passed MATH 5631.

A continuation of Actuarial Mathematics I. Topics include calculations of premiums and reserves based on multiple lives, multiple decrement and multiple state models. This course, along with MATH 3630, helps students prepare for the actuarial examination on models for quantifying risk.

**3632. Loss Models**

Three credits. Prerequisite or corequisite: MATH 3630.

Topics from the fourth actuarial examination relating to survival, severity, frequency and aggregate models, and the use of statistical methods to estimate parameters of such models given sample data.

**3634. Actuarial Models**

Three credits. Prerequisite: MATH 3160 or STAT 3025Q or 3375Q; and MATH 2620.

Introduction to the design of computerized simulations for analyzing and interpreting actuarial and financial problems. This course, together with MATH 5637, 5640, and 5641, helps the student prepare for the actuarial examination on the construction and evaluation of risk models.

**3650. Financial Mathematics II**

Three credits. Prerequisite: MATH 2620 and ACCT 2001, which may be taken concurrently. Not open for credit to students who have passed MATH 5621.

The continuation of MATH 2620. Measurement of financial risk, the mathematics of capital budgeting, mathematical analysis of financial decisions and capital structure, and option pricing theory.

**3660. Advanced Financial Mathematics**

Three credits. Prerequisite: MATH 2620 and 3160.

Advanced topics in financial mathematics such as single period, multi-period and continuous time financial models; Black-Scholes formula; interest rate models; and immunization theory.

**3670W. Technical Writing for Actuaries**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; consent of Director of Actuarial Science required.

Students will write a technical report on an advanced topic in actuarial science.

**3710. Introduction to Mathematical Modeling**

Three credits. Prerequisite: MATH 2144Q or 2420Q; or MATH 2210Q and 2410Q. Not open for credit to students who have passed MATH 5530 or 5540, CHEM 305, or PHYS 5350.

Construction of mathematical models in the social, physical, life and management sciences. Linear programming, simplex algorithm, duality. Graphical and probabilistic modeling. Stochastic processes, Markov chains and matrices. Basic differential equations and modeling.

**3790. Field Study Internship**

One to three credits. May be repeated for credit (to a maximum of 6 credits). Prerequisite:

Consent of the Department Head, Director of the Actuarial Program, or the Undergraduate Coordinator required; completion of Freshman - Sophomore level requisite courses in the major. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**3793. Foreign Study**

Credit and hours by arrangement. Prerequisite: Consent of the department head or undergraduate coordinator required, normally before the student's departure. May count toward the major with consent of the advisor and either the department head or undergraduate coordinator. May be repeated for credit (to a maximum of 15 for MATH 1793 and 3793 together).

**3794. Problem Seminar**

One credit. One class period. Prerequisite: MATH 1132 or 1152Q. This course, with a change of topic, may be repeated for credit.

Problem sequences selected from algebra, geometry, calculus, combinatorics, and other branches of mathematics, designed to introduce mathematical concepts and to give experience in problem solving.

**3795. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3796W. Senior Thesis in Mathematics**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only by consent of Department Head or Departmental Honors Committee.

The student should define a general subject area for the thesis before choosing a thesis advisor and seeking consent at the time of registration. The student should submit a written proposal for the senior thesis to the advisor by the end of the semester preceding enrollment for thesis credit.

**3798. Variable Topics**

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**3799. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. This course, with a change of topic, may be repeated for credit.

**4110. Introduction to Modern Analysis**

(Also offered as MATH 5110.) Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 5510.

Metric spaces, sequences and series, continuity, differentiation, the Riemann-Stieltjes integral, functions of several variables.

**4210. Advanced Abstract Algebra**

(Also offered as MATH 5210.) Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 5210.

Group theory, ring theory and modules, and universal mapping properties.

**4310. Introduction to Geometry and Topology**

(Also offered as MATH 5310.) Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 5310.

Topological spaces, connectedness, compactness, separation axioms, Tychonoff theorem, compact-open topology, fundamental group, covering spaces, simplicial complexes, differentiable manifolds, homology theory and the De Rham theory, intrinsic Riemannian geometry of surfaces.

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**Mechanical Engineering (ME)**


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*Interim Department Head:* Professor Mei Wei

*Department Office:* Room 480, United Technologies Engineering Building

For major requirements, see the School of Engineering section of this Catalog.

**2233. Thermodynamic Principles**

Three credits. Prerequisite: CHEM 1127Q or both CHEM 1124Q and 1125Q; PHYS 1501Q; and MATH 2110Q which may be taken concurrently.

Introduction to the First and Second Laws of Thermodynamics. Thermodynamic properties of pure substances and ideal gases. Analysis of ideal and real processes – including turbines, pumps, heat exchangers, and compressors.

**2234. Applied Thermodynamics**

Three credits. Prerequisite: ME 2233 or CHEG 2111.

Thermodynamic first and second law analysis of vapor and gas cycles, property relations for simple pure substances, properties of ideal gas mixtures, psychrometry, fundamentals of combustion thermodynamics, application of thermodynamics in the design of thermal engineering systems.

**3214. Dynamics of Particles and Rigid Bodies**

Three credits. Prerequisite: CE 2120.

Kinematics and dynamics of particles. Motion relative to translating and rotating observers; inertial reference systems; central forces and orbits. Kinematics and dynamics of groups of particles and rigid bodies. Lagrangian description of motion.

**3217. Metal Cutting Principles**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: CE 3110, which may be taken concurrently.

Examination of metal cutting processes including turning, shaping, drilling, grinding. Mechanics of two and three dimensional cutting. Principles and mechanisms of wear. Tool materials. Theoretical prediction of surface finish. Chemistry of cutting fluids. Laboratory period includes operation of machine tools. Experimental determination of cutting energies forces, stresses and strains. The interrelationship between these and practical metal cutting conditions.

**3220. Mechanical Vibrations**

Three credits. Prerequisite: ME 3253; MATH 2110Q, 2410Q; and CE 2120.

Free and forced vibrations, with damping, of linear systems with one and two degrees

of freedom. Transient vibrations. Vibration isolation. Rigid rotor balancing. Elements of Laplace transforms.

### 3221. Manufacturing Automation

Three credits. Prerequisite: Consent of instructor. Not open to students who have passed ME 5440.

Introduction to Computer Integrated Manufacturing (CIM). Fundamentals of automated manufacturing; Computer Numerical Control (CNC); production economics and optimization of production systems.

### 3222. Production Engineering

Three credits. Prerequisite: Consent of instructor. Not open to students who have passed ME 5441.

Introduction to the modern techniques of Production Systems including the Decision-Making Process, Economic Analysis, Demand Forecasting, Production and Process Design and Optimization, Production Scheduling, and Statistical Quality Control.

### 3224. Analysis and Design of Mechanisms

Three credits. Prerequisite: MATH 2110Q and 2410Q and CE 2110.

Application of kinematics in the analysis and synthesis of mechanisms. Type and dimensional design of linkages, cams and gears based on motion requirements and kinetostatic force transmission, in contrast to the strength requirements. Graphical, analytical and computer methods in analysis and design of mechanisms. Design considerations in mechanism synthesis. Design project.

### 3225. Computer-Aided Design, Modeling, and Graphics

Three credits. Prerequisite: CSE 1010 or 1100, CE 3110, MATH 2110Q and instructor consent.

Introduction to computer-aided graphics, modeling and design. Applications of graphics software and hardware with mini- and micro-computer systems. Interactive computer graphic techniques. Extensive laboratory study of wire-frame and raster computer graphics. Static and dynamic graphic presentation methods.

### 3227. Design of Machine Elements

Three credits. Prerequisite: CE 3110.

Application of the fundamentals of engineering mechanics, materials and manufacturing to the design and analysis of machine elements.

### 3228. Introduction to Fatigue in Mechanical Design

Three credits. Prerequisite: CE 3110. Not open to students who have passed ME 5431.

Design calculation methods for fatigue life of engineering components. Crack initiation and crack propagation fatigue lives; introduction to current literature in the field. Emphasis on finite life prediction by strain life methods.

### 3239. Combustion for Energy Conversion

Three credits. Prerequisite: ME 2234.

Introduction to combustion processes and chemical kinetics. Mechanism of the formation of pollutants such as nitrogen oxides, carbon monoxide, soot, and unburned hydrocarbons in stationary and vehicular power plants.

### 3242. Heat Transfer

Three credits. Prerequisite: ME 2233 and 3250.

Fundamentals of conduction, convection and radiation heat transfer. Application of the general laws of heat transfer, and heat exchange to a wide variety of practical problems. The analytical, numerical, and graphical solution of one, two, and three dimensional problems.

### 3250. Fluid Dynamics I

Three credits. Prerequisite: ME 2233, and MATH 2110Q and 2410Q. This course and CE 3120 may not both be taken for credit.

Laws of conservation of mass, momentum, and energy in fluid systems, fluid statics, dimensional analysis, incompressible, inviscid and viscous flows, steady and unsteady flows, internal and external flows.

### 3251. Fluid Dynamics II

Three credits. Prerequisite: ME 3250 or CE 3120.

One-dimensional compressible flow with applications to propulsion systems and gas-dynamic testing devices. Flows with friction and heat addition. Normal and oblique shock waves. Prandtl-Meyer flow. Selected topics in liquid flow.

### 3253. Linear Systems Theory

Three credits. Prerequisite: CE 2120 and MATH 2410Q.

Review of ODE solutions, mathematical modeling of dynamic systems, linearization of nonlinear behavior, Laplace domain representation of dynamics, transfer functions, block diagram algebra, signal-flow graphs, Mason's rule, transient analysis of system response, convolution integral, Duhamel's integral, Green's function, stability of linear systems, Routh-Hurwitz method, root locus, frequency response, Bode and polar representations, introduction to feedback systems.

### 3255. Computational Mechanics

Three credits. Prerequisite: MATH 2410Q and CE 3110.

Topics include elementary numerical analysis, finite differences, initial value problems, ordinary and partial differential equations and finite element techniques. Applications include structural analysis, heat transfer, and fluid flow.

### 3263. Introduction to Sensors and Data Analysis

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ME 2233; PHYS 1502Q; CE 2110.

Introduction to the design and behavior of common sensors, highlighting their proper use and physical limitations. In the lab, each type of sensor is used in a practical engineering problem, with data being taken via data acquisition software. Data analysis techniques, including Gaussian statistics, uncertainty analysis, frequency domain studies, are also covered and used on the acquired data.

### 3264. Applied Measurements Laboratory

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ME 2234 and 3263.

Application of fundamental measurement techniques developed in ME 3263 to various mechanical systems and processes. Hands-on laboratory experiences include measurements in energy conversion, solid mechanics, dynamics,

and fluid and thermal sciences, as well as statistical methods to analysis of experimental data.

### 3265. The Engineering Process for Innovation and Value Creation

Three credits. Prerequisite: Instructor consent.

Prepares engineers to survive in the 21st century business environment, where the worldwide internet communication explosion will drive innovation to new levels. The engineering process of creation of value and innovation will be explored. The concepts and the tools required of engineering quality and engineering productivity will be developed. Guest lectures from people who have been active in innovation and starting new businesses will fill the course with real world examples.

### 3270. Fuel Cells

Three credits. Prerequisite: ME 2233, 3242, 3250.

Advanced course on fuel cells as an alternative energy conversion technology. Subjects covered include: thermodynamics and electrochemistry of fuel cells, operating principles, types of fuel cells, overview of intermediate/high temperature fuel cells, polymer electrolyte fuel cells and direct methanol fuel cells.

### 3275. Introduction to Computational Fluid Dynamics

Three credits. Prerequisite: ME 3242, 3250.

Computational fluid dynamics (CFD) based on pressure-based finite volume methods. Topics covered include: integral derivations of governing equations of fluid flow, finite volume discretization of diffusion and convection equations, pressure-velocity coupling algorithms based on SIMPLE method for flow field solutions and finite volume solutions of unsteady problems. The course also covers iterative and non-iterative solution methods for large systems of linear equations, as well as methods for verification and validation of computational solutions.

### 3279. Honors Research

Three credits. Prerequisite: Open to Honors students; consent of instructor.

May be used to convert independent research into course credit that may be applied toward the Honors Program requirements and will count as a technical elective. As part of the course, students will be involved in research programs of their choice in areas of emerging technologies. Research work will be directed by a Mechanical Engineering faculty member who serves as the research advisor for the course. Will typically involve collaborative efforts with graduate students and other researchers, and will provide significant independent problem solving experience to supplement the classroom experience obtained from traditional coursework.

### 3280. Turbines and Centrifugal Machinery

Three credits. Prerequisite: ME 3250.

Review of fundamental fluids and thermodynamics. Introduction to compressible flow concepts. Theory, design and performance of centrifugal and axial flow machinery including turbines, blowers, fans, compressors, superchargers, pumps, fluid couplings and torque converters. A detailed study of the mechanics of the transfer of energy between a



fluid and a rotor. Preparation for practical design of turbomachinery.

### **3285. Sustainable Energy Sources and Systems**

Three credits. Prerequisite: ME 2234, 3250 or may be taken concurrently.

Topics include current energy sources and usage, environmental pollution from use of fossil fuels, nuclear energy, biomass energy, geothermal energy resources and usage, hydroelectric, solar, wind and tidal energy conversion principles, hydrogen generation and usage in electrochemical devices, energy economics and effects of energy pricing on economically viable energy options.

### **3294. Mechanical Engineering Undergraduate Seminar**

One credit. One class period. Prerequisite: Open only to seniors in mechanical engineering.

Presentation and discussion of advanced topics in mechanical engineering.

### **3295. Special Topics in Mechanical Engineering**

Credits and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course. This course, with a change in topic, may be repeated for credit.

A classroom course on special topics as announced.

### **3299. Problems in Mechanical Engineering**

Hours by arrangement. Credits by arrangement, not to exceed four. Prerequisite: Open only to seniors in mechanical engineering. This course, with a change in topic, may be repeated for credit.

Designed primarily for students who wish to pursue a special line of study or investigation. The program of study is to be approved by the head of the department and by the instructor before registration is completed.

### **4972. Senior Design Project I**

Three credits. Prerequisite: ME 3250; ME 3227, may be taken concurrently.

The first part of the senior design experience. It will cover topics on design process, planning, and costs. Design for manufacture and assembly will be covered. Both oral and written reports are required.

### **4973W. Senior Design Project II**

Three credits. Prerequisites: ME 3263 or 3264, and 4972; ENGL 1010 or 1011 or 2011.

Projects which have started in the previous semester will be completed. The project analysis, design, and manufacture stages will take place. Both written and oral reports will be required.

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## **Medical Laboratory Sciences (MLSC)**

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*Medical Laboratory Sciences Program  
Director: Rosanne Lipcius*

*Program Office: Room 214, Koons Hall*

For major requirements, see the College of Agriculture, Health and Natural Resources, Department of Allied Health Sciences section of this Catalog.

### **3301. Fundamentals of Medical Laboratory Sciences**

(Formerly offered as MT 3301.) Three credits. Prerequisite: Open only to Medical Laboratory Sciences majors; others with consent of the Medical Laboratory Sciences Program Director.

Introduction to the various disciplines of study in laboratory medicine. Principles of laboratory safety, quality assurance and quality control and laboratory mathematics, as well as use of common laboratory equipment. A fee of \$75 is charged for this course.

### **3333. Mycology, Parasitology and Virology**

(Formerly offered as MT 3333.) Three credits. Prerequisite: MCB 2610; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Principles of disease and epidemiology, mechanisms of pathogenicity and laboratory isolation and identification of fungi, parasites and viruses causing human disease. A fee of \$75 is charged for this course.

### **3365. Theory of Phlebotomy**

(Formerly offered as MT 3365.) One credit. Prerequisite: To enroll in the course the student must earn a "C" or better in AH 2001; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Venipuncture and special phlebotomy techniques, safety, ethics, and management of phlebotomy services.

### **4094W. Seminar in Medical Laboratory Sciences**

(Formerly offered as MT 4094W.) Two credits. Prerequisite: To enroll in the course the student must earn a "C" or better in AH 4241; ENGL 1010 or 1011 or 2011; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Examination of case studies integrating all areas of the clinical laboratory in the prevention, diagnosis, and treatment of disease. Design and implementation of a research project or investigation of a topic in Medical Laboratory Sciences. Oral and written presentation of research project or topic.

### **4095. Special Topics**

(Formerly offered as MT 4095.) Credits and hours by arrangement. Prerequisite: The completion of freshman-sophomore requirements in the Medical Laboratory Sciences Program; open only with consent of instructor. May be repeated for credit.

Application of the scientific method of inquiry to plan, implement, evaluate and report a study of a problem in medical technology or investigation of a special topic not covered in undergraduate medical technology courses.

### **4099. Independent Study for Undergraduates**

(Formerly offered as MT 4099.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Designed primarily for students who wish to extend their knowledge in some specialized areas in the field of Medical Laboratory Sciences.

### **4301. Clinical Chemistry and Instrumentation**

(Formerly offered as MT 4301.) Four credits. Prerequisite: MCB 2000; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Manual and automated methods for the biochemical analysis of blood and body fluids; principles of operation, maintenance, and troubleshooting of laboratory instruments. Evaluation of test results in normal and diseased states. A fee of \$75 is charged for this course.

### **4302. Clinical Chemistry Laboratory**

(Formerly offered as MT 4302.) Three credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4301; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4301 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results; instrumentation and quality assurance in the general laboratory environment.

### **4311. Hematology**

(Formerly offered as MT 4311.) Four credits. Prerequisite: Open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Principles of hemostasis, blood cell formation, morphology, function and kinetics; pathophysiology of coagulation and blood cell disorders; principles and procedures used to evaluate coagulation and blood cells in blood and body fluids; laboratory practice in microscopic evaluation. A fee of \$75 is charged for this course.

### **4312. Hematology Laboratory**

(Formerly offered as MT 4312.) Three credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4311; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4311 to the clinical laboratory setting. Understanding work flow, teamwork, instrumentation and quality assurance in the general laboratory environment. Correlation of blood cell morphology and laboratory data in normal and disease states.

### **4321. Clinical Immunology**

(Formerly offered as MT 4321.) Two credits. Prerequisite: To enroll in the course the student must earn a "C" or better in AH 3121; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Methods for detection of antigens and antibodies in blood and body fluids; immunological methods for the diagnosis of infectious diseases and abnormalities of the immune system. A fee of \$75 is charged for this course.

**4322. Clinical Immunology Laboratory**

(Formerly offered as MT 4322.) One credit. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4321; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4321 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation, and quality assurance in the general laboratory environment.

**4341. Clinical Microbiology**

(Formerly offered as MT 4341.) Four credits. Prerequisite: MCB 2610; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Isolation and identification of normal flora and clinically significant bacteria and fungi from clinical specimens, correlation of the organisms isolated to disease states, and susceptibility testing of bacteria. A fee of \$75 is charged for this course.

**4342. Clinical Microbiology Laboratory**

(Formerly offered as MT 4342.) Four credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4341; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 3333 and MLSC 4341 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation, and quality assurance in the general laboratory environment.

**4351. Transfusion Services**

(Formerly offered as MT 4351.) Two credits. Prerequisite: To enroll in the course the student must earn a "C" or better in AH 3121; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Human blood groups, HLA antigens, compatibility testing, donor selection, and their relationship to transfusion and transplantation. Evaluation of laboratory results for selection of blood components for therapy. A fee of \$75 is charged for this course.

**4352. Transfusion Services Laboratory**

(Formerly offered as MT 4352.) Two credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4351; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4351 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation and quality assurance and preparation of blood components in the general laboratory environment.

**4366. Phlebotomy Laboratory**

(Formerly offered as MT 4366.) One credit. Prerequisite or corequisite: MLSC 3365; open

only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Performance of venipuncture and skin puncture techniques. Understanding work flow, scheduling, teamwork, and quality assurance in the general laboratory environment.

**4371. Urinalysis**

(Formerly offered as MT 4371.) One credit. Prerequisite: Open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Renal physiology, chemical and microscopic examination of urine, correlation of results with disease states, chemical analysis of feces. A fee of \$75 is charged for this course.

**4372. Urinalysis Laboratory**

(Formerly offered as MT 4372.) One credit. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4371; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4371 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation and quality assurance in the general laboratory setting environment.

**4500. Laboratory Operations and Professional Practice**

Two credits. Two hours of lecture. Prerequisite: Open to Medical Laboratory Sciences and Diagnostic Genetic Sciences majors, others with consent of instructor.

Professionalism and basic management practice in the clinical laboratory. Human resource management, continuous quality improvement/performance improvement, financial management. Educational methodology and terminology and communication skills.

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## Military Science (MISI)

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*Head of Program:* Lieutenant Colonel Tanya Wahlberg

*Department of Military Science:* William Hall Building

**1101. General Military Science I**

One credit. One class period.

Organization of the Army, basic soldier skills; ropes, knots, and rappelling; individual physical fitness; land navigation; time management; role of regular Army, Reserve and National Guard; M16 rifle.

**1102. General Military Science I**

One credit. One class period.

Organization and equipment of small military units, fundamentals of marksmanship and military instruction techniques. Leadership lab as announced. Army customs and traditions; land navigation; heat and cold survival; tactical communications; military correspondence; leadership/professional ethics; branches of Army; encoding and decoding messages.

**1133. General Military Science: Air Rifle Marksmanship**

One credit. One class period, two hours lecture and laboratory. May be taken only once for credit.

Air Rifle Marksmanship will provide an introduction to the fundamentals of rifle marksmanship, the safe and proper use, and care of the rifle, the elements of competitive shooting, and the psychology of shooting.

**1201. General Military Science II**

One credit. One class period and leadership laboratory.

Map reading, mountaineering, principles of war.

**1202. General Military Science II**

One credit. One class period and leadership laboratory.

Emergency First Aid, leadership, military instruction techniques.

**3301. General Military Science III**

Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: Completion of the basic course in military science, basic training, or a six-week basic summer camp; in all cases, approval of the Professor of Military Science is required.

Leadership principles, techniques, and the responsibilities of command. Military instruction techniques, to include student class presentations.

**3302. General Military Science III**

Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 3301.

Dynamics of small unit tactics, and branches of the Army.

**4401. General Military Science IV**

Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 3302.

Army staff organization, unit administration and management, logistics, military intelligence, leadership seminar, the international system, and strategic doctrine.

**4402. General Military Science IV**

Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise.

Military law, obligations and responsibilities of an officer, contemporary human problems, and a leadership seminar.

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## Modern Greek (MGRK)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

**1101-1102. Elementary Modern Greek Levels I and II****1103-1104. Intermediate Modern Greek Levels I and II**

1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in

this publication. Consult the Program Director in Oak Hall 207 for more information.

### 1193. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

## Molecular and Cell Biology (MCB)

*Head of Department:* Professor Michael Lynes

*Department Office:* Room 104, Biology/Physics Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1401. Honors Core: Computational Molecular Biology

(Also offered as BME 1401, CSE 1401, and PNB 1401.) Three credits.

Introduction to research in computational biology through lectures, computer lab exercises, and mentored research projects. Topics include gene and genome structure, gene regulation, mechanisms of inheritance, biological databases, sequence alignment, motif finding, human genetics, forensic genetics, stem cell development, comparative genomics, early evolution, and modeling complex systems. CA 3.

### 1405. Honors Core: The Genetics Revolution in Contemporary Culture

Three credits. Prerequisite: Open only to freshmen and sophomores in the Honors Program.

Exploration of the use of genetics concepts in popular culture. Topics include genetic analysis, genetic engineering, cloning and DNA forensics as represented in media including news, film, literature and art. Discussion includes influence on society, attitudes towards science, domestic and foreign policy as well as medical practice and law. CA 3.

### 2000. Introduction to Biochemistry

Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CHEM 2241 or 2444. (CHEM 2444 may also be corequisite.) Not open for credit to students who have passed MCB 3010.

The structure, chemistry, and metabolism of carbohydrates, lipids and proteins. Enzyme function and kinetics, energy metabolism, and structure and function of nucleic acids. A survey course for students of agriculture, general biology, medical technology, nursing, and pharmacy. Molecular and Cell Biology majors, biophysics majors, and other students desiring a more intensive introduction or considering advanced course work in biochemistry or molecular biology should take MCB 3010. A fee of \$25 is charged for this course.

### 2210. Cell Biology

Three credits. Prerequisite: BIOL 1107. This course is intended to be taken before MCB 2000 or 3010.

Structural organization of cells and the molecular basis of dynamic cellular processes, with emphasis on eukaryotic cells. Topics include protein targeting, vesicle trafficking, cytoskeleton, cell-cell interactions in tissues, and the molecular basis of related human diseases.

### 2225. Cell Biology Laboratory

Four credits. One 1-hour lecture and two 4-hour laboratories. Prerequisite: BIOL 1107 or equivalent. Open to honors students; open to non-honors students with instructor consent.

A laboratory experience that will prepare students for thesis research in the biological sciences. Experimental design, quantitative analysis and presentation of data. Topics include cell culture, fluorescence and time-lapse microscopy, DNA transfection, image processing, and flow cytometry. Students will also pursue independent research projects. A fee of \$75 is charged for this course.

### 2400. Human Genetics

Three credits. Two lectures and one problem-solving/case-study session. Prerequisite: BIOL 1107. Not open to students who have passed MCB 2410.

Foundational principles of classical genetics and modern genomics with a specific focus on humans. Emphasis on case studies and applications to human genetic diseases.

### 2410. Genetics

Three credits. Two lectures and one discussion session. Not open to students who have passed MCB 2400. Prerequisite: BIOL 1107.

Foundational principles of classical genetics and modern genomics with a specific focus on eukaryotic model genetic organisms. Emphasis on molecular mechanisms underlying heredity. Intended for majors in Molecular and Cell Biology and related disciplines.

### 2610. Fundamentals of Microbiology

Four credits. Three lecture periods and one 2½-hour laboratory period. Prerequisite or corequisite: CHEM 2241 or 2443. Recommended preparation: BIOL 1107 or equivalent.

Biology of microorganisms, especially bacteria. Cellular structure, physiology, genetics, and interactions with higher forms of life. Laboratory familiarizes students with methodology of microbiology and aseptic techniques. A fee of \$30 is charged for this course.

### 3007. Introduction to Biophysical Chemistry

Three credits. Prerequisite: CHEM 2443; MATH 1132Q; PHYS 1202, 1402 or 1602 or instructor consent.

Energetics and kinetics of metabolic reactions. Interactions of electromagnetic radiation and biological macromolecules. Formation and energetics of supramolecular structures. The basis of selected techniques of molecular biology, such as DNA hybridization, radioimmune assays. DNA melting and thermal transitions in polymers, thermodynamics, analysis of reactions, binding theory, cooperative interactions.

### 3010. Biochemistry

Five credits. Four class periods and one 3-hour laboratory. Prerequisite or corequisite: CHEM 2444. Recommended preparation: MCB 2210 or MCB 2610. Not open for credit to students who have passed MCB 2000.

The structure and function of biological macromolecules. The metabolism of carbohydrates, lipids, amino acids, proteins and nucleic acids. The regulation of metabolism and biosynthesis of biological macromolecules. An in-depth introduction intended for students planning to take advanced course work in biochemistry, biophysics, or other areas of molecular biology. A fee of \$75 is charged for this course.

### 3011. Human Metabolism and Disease

Two credits. Prerequisite: MCB 2000 or 3010 or instructor consent.

A thorough analysis of the inter-relationships of metabolic pathways in connection with human health and disease, including inherited metabolic diseases and the role of hormones in metabolic pathways.

### 3022W. Human Disease and the Development of Therapeutic Agents

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: One 2000-level course in MCB.

Molecular basis of human disease and strategies for developing therapeutic treatments. Applications of genetic, cellular, and biochemical information in treating disease states. Especially appropriate for students interested in biomedical research and the health profession.

### 3100. Introduction to Translational Research

Three credits. One 2-hour lecture on Storrs campus and one 4-hour work period in hospital. Prerequisite: BIOL 1107; open to juniors or higher; open to honors students; open to non-honors students with instructor consent. Recommended preparation: MCB 2000, 2210, 2610, or 3010.

Basic science and design of human subject research; participation in clinical, patient-oriented research projects in a hospital setting.

### 3189. Clinical Research Laboratory

Three credits. Prerequisite: MCB 3100. May be repeated for credit.

Participation in a clinical research study at a medical center (transportation to this off-campus site to be arranged by the student.)

**3201. Gene Expression**

(Formerly offered as MCB 2211.) Three credits. Recommended preparation: MCB 2000, 2210, 2400, 2410, or 3010.

Basic mechanisms of genetic information transfer in eukaryotic cells from DNA to folded and assembled proteins. Regulation of transcription, translation, DNA replication, and the cell cycle.

**3210. Molecular Endocrinology**

(Also offered as PNB 3270.) Three credits. Prerequisite: BIOL 1107; open to juniors and seniors only. Recommended preparation: PNB 3262.

Molecular mechanism(s) of hormone action in vertebrates and invertebrates. Molecular and genetic characterization of hormones, receptors, and signal transduction, and hormone actions at the molecular, cellular, and organismal levels. Includes student presentations on selected papers.

**3211. Cancer Cell Biology and Genetics**

Three credits. Prerequisite: MCB 2210. Recommended preparation: MCB 2400 or 2410.

Genetics and epigenetics of cancer cells. Cellular signaling and growth control. The role of oncogenes and tumor suppressor genes in regulating cancer cell proliferation and death. DNA damage and repair mechanisms. Carcinogen activation detoxification. General and targeted approaches to cancer therapy.

**3219. Developmental and Regenerative Biology**

(Formerly offered as MCB 4219.) Three credits. Prerequisite: BIOL 1107. Recommended preparation: MCB 2210 and 2400 or 2410, which may be taken concurrently.

Fundamental principles that govern animal embryonic development and regeneration with emphasis on the cellular and molecular basis of pattern formation and cell differentiation in a variety of model organisms. Relevance to human development and disease and therapeutic applications will be discussed.

**3246. Virology**

Three credits. Prerequisite: MCB 2610 and MCB 2210. Recommended preparation: MCB 3201 or 3010.

Biological, biochemical, physical, and genetic characteristics of viruses, with an emphasis on molecular and quantitative aspects of virus-cell interactions.

**3412. Genetic Engineering and Functional Genomics**

Three credits. Prerequisite: MCB 2400 or 2410. Recommended preparation: MCB 2000 or 3010.

Methods and applications of genetic engineering, including gene manipulation and transfer techniques in prokaryotes and eukaryotes. Emphasis on applications of recombinant DNA technology in the elucidation of gene function. Consideration of recent technological developments in molecular genetics, such as cloning, gene therapy, the patenting and release of genetically engineered organisms, and societal issues related to these developments.

**3413. Concepts of Genetic Analysis**

Four credits. Two class periods and 3-hour laboratory. Prerequisite: MCB 2410 or 2400.

Survey of genetic theory and applications of genetic analysis to model organisms including animals, plants, and microbes. A fee of \$50 is charged for this course.

**3421. Introduction to Molecular Evolution and Bioinformatics**

Three credits. Recommended preparation: At least one 2000-level course in MCB.

Evolution of biomolecules, and application to molecular data analysis and the design of new molecules. Topics include prebiotic chemistry, origin of cells, selfish genes, molecular innovations, data bank searches, alignment of sequence and 3-D protein structures. Course includes lectures, discussions and computer lab exercises.

**3602W. Introduction to Bioinformatic Tools for Microbial Genome Annotation**

One credit. One 2-hour computer lab period. Prerequisite: MCB 2000 OR 2610 OR 3010; ENGL 1010 or 1011 or 2011.

Analysis of microbial genome sequences using computational tools to examine metabolic pathways and genetic features as they relate to an organism's lifestyle. Writing assignments utilize information gathered from the relevant scientific literature and students' analyses of genome-derived information.

**3617. Molecular Biology and Genetics of Prokaryotes**

Four credits. Three lecture periods and one 2-hour discussion. Prerequisite: MCB 2610.

Molecular genetics of bacteria, archaeobacteria, and their viruses. Transcription and replication of DNA, transformation, transduction, conjugation, genetic mapping, mutagenesis, regulation of gene expression, and genome organization.

**3633. Pathogenic Microbiology**

Four credits. Two class periods and one 2-hour, 45 minute laboratory period. Prerequisite: MCB 2610.

Descriptions of infectious diseases caused by bacteria, viruses, and protozoans in relation to the affected human organ systems and discussions of the underlying virulence factors, molecular mechanisms, and epidemiological data. Modern techniques are used in the laboratory to identify and characterize pathogenic bacteria. A fee of \$75 is charged for this course.

**3841W. Research Literature in Molecular and Cell Biology**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor. Recommended preparation: one 2000-level course in MCB. With a change in content, may be repeated for credit.

Discussion of current research in molecular and cell biology.

**3895. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3898. Variable Topics**

Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**3899. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with change in topic.

Designed for the advanced undergraduate student who is pursuing a special problem as an introduction to independent investigation.

**3989. Introduction to Research**

Credits and hours by arrangement. Prerequisite: Open with consent of instructor. May be repeated for credit with change in topic.

Laboratory research project carried on by the student under the guidance of a faculty member. The student is required to submit a brief report on the research findings at the end of the semester.

**3996W. Research Thesis in Molecular and Cell Biology**

Three credits. Hours by arrangement. Prerequisite: At least three credits of MCB 3989 or 4989, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open with consent of instructor.

Writing of a thesis based upon the student's independent laboratory research project.

**4008. Techniques of Biophysical Chemistry**

Three credits. Prerequisite: MCB 3007, or CHEM 3563 or instructor consent.

Theory and applications of biophysical methods for the analysis of the size, shape and interactions of proteins and nucleic acids. Topics include analytical ultracentrifugation, light scattering, X-ray scattering, calorimetry, surface plasmon resonance and single molecule approaches.

**4009. Structure and Function of Biological Macromolecules**

Three credits. Prerequisite or corequisite: MCB 2000 or 3010 or instructor consent.

Fundamentals of protein structure and the forces that stabilize structure. Topics include recurrent structural motifs, molecular ancestry/homology, evolution of protein structure, structure-function correlations, and the structural basis of regulation. Discussion of the techniques used to investigate structure, including X-ray diffraction, NMR, TEM, AFM, structure prediction, and computational simulations. Advanced topics may include chaperones, structural genomics and the roles of misfolded proteins in disease.

**4026W. Advanced Biochemistry Laboratory**

Four credits. One 1-hour lecture and two 4-hour laboratories. Prerequisite: Either MCB 3010 or MCB 2000 with instructor consent; ENGL 1010 or 1011 or 2011.

Theory and application of modern techniques for separation and characterization of biological macromolecules, including several types of liquid chromatography, liquid scintillation spectrophotometry, and SDS polyacrylamide gel electrophoresis. Instruction in writing a scientific paper. A fee of \$75 is charged for this course.

**4211. Basic Immunology**

(Formerly offered as MCB 3212.) Three credits. Prerequisite: BIOL 1107. Recommended preparation: MCB 2210.

An introduction to the genetic, biochemical, and cellular mechanisms of the immune system. Addresses basic aspects of immune function, and will examine abnormal immune function associated with cancer, autoimmune disease, AIDS, and other immunological abnormalities.

**4416. Forensic Application of DNA Science**

(Formerly offered as MCB 3416.) Three credits. Prerequisite: MCB 2400 or 2410.

DNA analysis in forensic science, with emphasis on molecular genetic technology in criminal investigations and issues surrounding the use of DNA evidence. Team-taught with forensic practitioners.

**4601. Physiology of Archaea and Bacteria**

(Formerly offered as MCB 3601.) Three credits. Prerequisite: MCB 2000, 2610 or 3010.

Examination of biochemical energy generation, regulation of metabolism, and cellular structures of archaea and bacteria. Physiological processes as they occur in nature and biotechnology industries.

**4624. Experiments in Bacterial Genetics**

Three credits. Two 3½-hour laboratory/lecture periods. Prerequisite: MCB 2610; open only with instructor consent. Recommended preparation: MCB 3617.

Experiments in bacterial genetics, emphasizing genetic manipulations and analyses using modern biological techniques including transposon mutagenesis, DNA isolation, PCR, DNA sequencing and phenotypic analysis. A fee of \$75 is charged for this course.

**4894. Undergraduate Seminar**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic.

**4989. Introduction to Honors Research**

Credits and hours by arrangement. Prerequisite: Open only to honors students with consent of instructor. May be repeated for credit with change in topic.

Laboratory research project carried on by the student under the guidance of a faculty member. The student is required to submit a brief report on the research findings at the end of the semester.

**4997W. Honors Research Thesis in Molecular and Cell Biology**

Three credits. Hours by arrangement. Prerequisite: At least three credits of MCB 3989 or 4989, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only to honors students; open only with instructor consent.

Writing of a thesis based upon a student's independent laboratory research project.

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## Music (MUSI)

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*Head of Department:* Eric Rice

*Department Office:* Room 229, Music Building

For major requirements, see the School of Fine Arts section of this Catalog.

**1001. Music Appreciation**

Three credits. No previous training required. Not appropriate for students who have previously passed MUSI 1021 or 1022. Intended primarily for students who are not music majors.

An approach toward intelligent listening, illustrated by recordings. CA 1.

**1002. Sing and Shout! The History of America in Song**

Three credits. Lecture with discussion groups. *Junda*

Develop an understanding of American people, history and culture through the study and singing of American folk songs. CA 1. CA 4.

**1003. Popular Music and Diversity in American Society**

Three credits. Two lecture hours and one discussion hour per week. No prior musical training or knowledge required.

An introduction to popular music and diversity in America: jazz, blues, Top-40 pop, rock, hip-hop and other genres. Musicians and their music studied in the context of twentieth-century and contemporary American society, emphasizing issues of race, gender, class, and resistance. CA 1. CA 4.

**1004. Non-Western Music**

Three credits. Not open for credit to students who have passed MUSI 3421W. Intended primarily for students who are not music majors. *Stephens*

Folk, popular, and classical musics of selected non-Western cultures, with an emphasis on the distinctive characteristics of each culture. CA 1. CA 4-INT.

**1005. Honors Core: Music and Nature, Music and the Environment**

Three credits. No previous musical training required. *Stanley*

An exploration of how 1) musicians have drawn upon nature as a source of inspiration, and 2) music has been used, in the recent past and continuing today, to call attention to the dangers facing the environment. CA 1.

**1006. Earthtones: Vocal Ensemble**

(Also offered as FINA 1001.) One credit. One laboratory period. May be repeated for credit with a change of topic for a maximum of 8 credits.

World music vocal ensemble that brings to life the songs of specific cultures as a means to gain knowledge and understanding of communities, culture, spirituality and social justice. A fee of \$25 is charged for this course. CA 1.

**1011. Music Fundamentals and Ear Training I**

Three credits.

Basic skills in note reading, rhythm, meter, pitch symbols, scales, key-signatures, intervals, triads, sight singing, and dictation. No previous training is required.

**1012. Music Fundamentals and Ear Training II**

Three credits. Prerequisite: MUSI 1011.

Further development of skills in music reading, sight singing, and dictation.

**1021. Introduction to Music History I**

Three credits. Not intended for music majors.

Music history in relation to other arts from the early Christian era to J.S. Bach (1750). Some background in music fundamentals or performance is highly recommended. CA 1.

**1022. Introduction to Music History II**

Three credits. Not intended for music majors.

Music history in relation to other arts from the mid-18th Century to the present. Some background in music fundamentals or performance is highly recommended. CA 1.

**1101. Convocation, Concert and Recital Repertoire**

Required of all music majors every semester of residence. No credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**1103. Introduction to University-Level Musical Study**

Zero credits. Required of all music majors during the first fall semester of residence. Students taking this course will be assigned a grade of S (satisfactory) or U (unsatisfactory).

Study, rehearsal, audience and technology skills.

**1107. Steel Pan Ensemble**

One credit two-hour rehearsal and one sectional weekly.

Performance of a repertoire that varies from the traditional calypso and soca styles of Trinidad and Tobago to today's pop music. No previous musical experience required.

**1108. Marching Band**

One credit. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. *McNeill, Mills*

Repertoire, rehearsal techniques, preparation and presentation of marching band shows.

**1109. Varsity Band**

One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. *McNeill, Mills*

Repertory, rehearsal techniques, preparation and presentation of performances in support of the University community.

**1110. Band**

One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Wind Ensemble, Symphony Band, Concert Band. *McNeill, Mills, Renshaw*

Repertoire, rehearsal technique, preparation and presentation of concerts.

**1111. Chorus**

One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Concert Choir, Chamber Singers, University Chorale.

Choral repertoire from all periods, concentration on vocal and choral techniques as related to musical styles, preparation and presentation of concerts.

**1112. University Symphony Orchestra**

One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Standard symphonic repertoire, technique of orchestral routine, preparation and presentation of concerts. CA 1.

### 1113. Chamber Ensemble

One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. As a requirement for credit, the student must participate in MUSI 1110, 1111, or 1112.

Chamber music for various combinations of voices, string, woodwind, brass, percussion and keyboard instruments. Preparation and presentation of concerts.

### 1114. Voices of Freedom Gospel Choir

One credit. One 2-hour laboratory period. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Preparation and presentation of concerts. Gospel and spiritual music of the Black experience.

### 1115. Jazz Ensemble

One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Jazz repertoire, rehearsal techniques, preparation and presentation of concerts.

### 1116. Small Ensemble

One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. As a requirement for credit, the student must participate in MUSI 1110, 1111, or 1112.

Small ensemble music under the direction of a conductor. Preparation and presentation of concerts.

### 1117. Women's Choir

One credit. Two 1½-hour laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Choral repertoire from all styles, concentration on vocal and choral techniques as related to musical styles, preparation and presentation of concerts.

### 1118. Collegium Musicum

One credit per semester. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. *Rice*

Performance practices, iconography, notation, instrumentation in vocal and instrumental music before 1700. Preparation and participation in historically authentic performance.

### 1119. Opera Workshop

One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Performance practices. Preparation and participation in scenes from operatic repertoire.

### 1193. Foreign Study.

Credits and hours by arrangement. Prerequisite: Consent of department head required, normally before the student's departure to study abroad. May be repeated for credit with a change in course content.

Specific topics taken in a foreign study program.

### 1221. Secondary Applied Music

One credit each semester. Prerequisite: Open only with consent of instructor and department head. May be repeated for credit. Ensemble required with conditions stated under MUSI 1222.

Basic performance techniques. Elementary and intermediate repertoire. Primarily for students majoring in another applied area.

### 1222. Applied Music

Bn (Bassoon), Co (Cello), Ct (Clarinet), Em (Euphonium), Fe (Flute), Fn (French Horn), Gr (Guitar), Hp (Harp), Oe (Oboe), On (Organ), Pn (Percussion), Po (Piano), Se (Saxophone), Ss (String Bass), Te (Trombone), Tt (Trumpet), Ta (Tuba), Va (Viola), Vn (Violin), Ve (Voice). One to three credits each semester. May be repeated for credit. Participation in an appropriate ensemble, MUSI 1110, 1111, or 1112, is required each semester for students registered in MUSI 1222 unless exception is made by the department head.

Open to qualified students. Before registering for the course, students must obtain an audition with the department and obtain the consent of the department head. Open only with consent of instructor.

### 1231. Class Instruction in Piano

One credit each semester. Two class periods and required practice. Prerequisite: Open only with consent of instructor. May be repeated for credit.

*Clark*

### 1241. Applied Accompanying

One credit per semester. One class period per week by arrangement. Prerequisite: Open only with consent of instructor. Intended for students whose area of emphasis is keyboard. An audition is required for all other students. May be repeated for credit.

Performance class in accompanying skills.

### 1251. Introduction to Diction for Singers

One credit. Two 1-hour laboratory periods. Prerequisite: concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.

An introduction to the International Phonetic Association (IPA) symbols with special application to the study of English diction for singers.

### 1252. Italian Diction for Singers

One credit. Two 1-hour laboratory periods. Prerequisite: MUSI 1251 and concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.

A continuing study of the IPA symbols with their special application to the study of Italian diction for singers.

### 1311. Ear Training and Musicianship I

One credit. Two 1-hour class periods. Prerequisite: Open only with consent of instructor.

Devoted to the development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation, and aural comprehension of musical structure.

### 1312. Ear Training and Musicianship II

One credit. Two 1-hour class periods. Prerequisite: MUSI 1311.

Devoted to the continuing development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation, and aural comprehension of musical structure.

### 1313. Harmony I

Three credits. Three 1-hour class periods. Prerequisite: Open only with consent of instructor. Not open for credit to students who have passed MUSI 135. *Squibbs*

Writing and analysis of tonal harmony; relation to melody and counterpoint.

### 1314. Harmony II

Three credits. Three 1-hour class periods. Prerequisite: MUSI 1313. Not open for credit to students who have passed MUSI 136. *Squibbs*

Continuation of MUSI 1313.

### 1501. Applied Music Techniques

Bs (Brass), Pn (Percussion), Sg (String), Ve (Voice), Wd (Woodwind). One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Performance and teaching techniques.

### 1601. Introduction to Improvisation

One credit. One laboratory period. Prerequisite: Open only with consent of instructor. May be repeated once for credit.

Basic jazz theory and the elements of improvisation.

### 1701. Introduction to Music Education.

One credit. Two class periods per week.

Overview of music education and the total music program, K-12 for music pre-teaching students. Demonstration and discussion of relevant approaches to the teaching of music at all levels. Explores career opportunities in music education and related fields. Includes class observations.

### 1995. Special Topics Lecture

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### 2253. German Diction for Singers

One credit. Two 1-hour laboratory periods. Prerequisite: MUSI 1251 and concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.

A continuing study of the IPA symbols with their special application to the study of German diction for singers.

### 2254. French Diction for Singers

One credit. Two 1-hour laboratory periods. Prerequisite: MUSI 1251 and concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.

A continuing study of the IPA symbols with their special application to the study of French diction for singers.

### 3222. Applied Music, Advanced Course

Credits and hours by arrangement. Ensemble required with conditions stated under MUSI 1222. Prerequisite: Advanced standing in performance as recommended by a faculty jury, recommendation by an instructor in this department, and consent of the Department

Head; open to juniors or higher. May be repeated for credit.

A continuation of MUSI 1222 for students with proven ability.

### 3231. Vocal Pedagogy

Two credits. Two class periods. Prerequisite: MUSI 3222 and consent of instructor; open to juniors or higher.

Vocabulary, methodology and practical application of pedagogical techniques.

### 3232. Instrumental Pedagogy and Literature

One credit. One or two instrumental hours per week. Prerequisite: Open to juniors or higher; open only with consent of instructor. Corequisite: MUSI 3222 (Junior-Senior level).

### 3241. Orchestral Techniques

One credit. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.

The art of practice, preparation, and performance of orchestral literature.

### 3311. Ear Training and Musicianship III

One credit. Two 1-hour class periods. Prerequisite: MUSI 1312.

Devoted to the continuing development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation focusing on chromaticism, and aural comprehension of musical structure.

### 3312. Ear Training and Musicianship IV

One credit. Two 1-hour class periods. Prerequisite: MUSI 3311.

Devoted to the continuing development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation focusing on chromaticism, and aural comprehension of musical structure.

### 3313. Harmony III

Three credits. Three 1-hour class periods. Prerequisite: MUSI 1314.

Continuation of MUSI 1314.

### 3314. Harmony IV

Three credits. Three 1-hour class periods. Prerequisite: MUSI 3313.

Continuation of MUSI 3313.

### 3321. Form and Analysis I

Three credits. Prerequisite: MUSI 3314; open only with consent of instructor.

Aspects of musical structure and style in works from the 17th through the 19th centuries. Application of a variety of approaches to analysis.

### 3322W. Form and Analysis II

Prerequisite: MUSI 3321; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Continuation of MUSI 3321. Emphasis on the larger works of the 19th-century and 20th-century styles.

### 3331. Composition I

Three credits. Prerequisite: MUSI 3314; open to juniors or higher. *Fuchs*

Creative writing in the smaller forms. Extensive analysis and discussion.

### 3332. Composition II

Two credits. Prerequisite: MUSI 3331 and consent of instructor; open to juniors or higher. *Fuchs*

### 3341. Introduction to Electronic Composition

Three credits. Prerequisite: Open to juniors or higher.

Composition by synthesizer and computer.

### 3342. Arranging for Music Educators

Two credits. Two class periods. Prerequisite: MUSI 3312 and 3314. *Fuchs*

Through in-class instrument presentations and score study, students will be exposed to concepts and techniques of adapting and scoring music for small and large instrumental and vocal ensembles.

### 3351. Orchestration I

Three credits. Prerequisite: MUSI 3313 and consent of instructor; open to juniors or higher.

Range, tone quality, and characteristics of the various orchestral and band instruments. Elementary scoring problems.

### 3361. Counterpoint I

Three credits. Prerequisite: MUSI 3314; open to juniors or higher.

Two- and three-voiced textures in the principal 16th-century styles: Josquin, Lassus, Palestrina.

### 3371Q. Twentieth Century Theory and Analysis

Three credits. Prerequisite: MUSI 3314 and MUSI 3321; open to juniors or higher. With consent of instructor, MUSI 3321 may be taken concurrently. Recommended preparation: A mathematics course.

Analytical techniques appropriate to selected styles of twentieth century music. Problems in twentieth century counterpoint and composition.

### 3401. Music History to 1750

(Formerly offered as MUSI 287.) Three credits. Prerequisite: MUSI 1314; open only to Music majors.

Medieval, Renaissance, to High Baroque periods. Score study, development of notation, and relation to other artistic traditions.

### 3402. Music History and Literature 1700-1830

Three credits. Prerequisite: MUSI 3401.

Leading composers, genres, elements of style, form and harmony, musical institutions and aesthetics in the High Baroque, Pre-classic, and Classic periods.

### 3403. Music History and Literature 1830 to Present

Three credits. Prerequisite: MUSI 3402.

The romantic period and the Twentieth Century.

### 3405. Music History from 1750 to the New Millennium

Four credits. Prerequisite: MUSI 3401. Two 75-minute lectures per week plus one 50-minute discussion section.

Leading composers, genres, elements of style, form and harmony, musical institutions and aesthetics from 1750 through the New Millennium.

### 3409. Masterpieces of Western Music in Historical Context, 1700-1930

Two credits. Prerequisite: MUSI 1313, 1314, 3313, 3314, 3401 and 3405.

An analytical and stylistic study of selected masterpieces of Western music in their musical and broad historical contexts — cultural, social, political, critical, and interpretive.

### 3410W. Music, History, and Ideas

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.

Relationships of musical styles to cultural and intellectual backgrounds.

### 3421W. Music in World Cultures

Three credits. Not open for credit to students who have passed MUSI 1004. Prerequisite: MUSI 3403 and consent of instructor; ENGL 1010 or 1011 or 2011; open to juniors or higher. Stephens.

Comparison of musical concepts, styles, and performance practice in the social context of various cultures. CA 4-INT.

### 3571. Seminar in Music Education

One or two credits. One or two class periods. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change of content, may be repeated for credit.

Theories and procedures for the organization of musical instruction.

### 3601. Jazz Improvisation and Performance

One credit. One laboratory period. Prerequisite: MUSI 1601; open to juniors or higher. May be repeated for credit.

Advanced jazz theory, styles, and ensemble techniques.

### 3631. Jazz Arranging I

Two credits. Two class periods. Prerequisite: MUSI 1314 or equivalent and consent of instructor; open to juniors or higher. *MacDonald*

Arranging and composition of chamber jazz ensembles and big band.

### 3632. Jazz Arranging II

Two credits. Two class periods. Prerequisite: MUSI 3631 and consent of instructor; open to juniors or higher. *MacDonald*

Continuation of MUSI 3631.

### 3721. Vocal Literature I

Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

Songs and arias of the Renaissance and Baroque Periods: Oratorio Literature.

### 3722. Vocal Literature II

Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

Classical Period Songs; German Lied.

**3723. Vocal Literature III**

Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

French melodie; Songs of Nationalistic origin.

**3724. Vocal Literature IV**

Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

British and American Songs; The Modern Period.

**3777. Introduction to Audio and Recording**

Three credits. One 3-hour class period. Prerequisite: Open only with instructor consent.

Audio theory and recording in the digital domain for musicians, performers, composers and digital media specialists.

**3801. Acoustics and the Perception of Music**

Three credits. Prerequisite: Open to juniors or higher.

Science of Music, using basic quantitative techniques.

**3851. Music Technology for Music Teachers**

Two credits. Laboratory. Prerequisite: Open only to students in the Music Education Degree program; open to juniors or higher.

Current approaches to the application of music technology to the task of teaching music in elementary and secondary schools.

**3982. Practicum in Music**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**3993. Foreign Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of department head required. May be repeated with a change in course content.

Special topics taken in a foreign study program.

**4333. Composition III**

Two credits. Hours by arrangement. Prerequisite: MUSI 3332 and instructor consent; open to juniors or higher. May be repeated for credit.

Individual instruction in musical composition.

**4339. Composition Forum**

One credit each semester. One 1-hour class period per week. Prerequisite: Acceptance into composition emphasis; instructor consent. May be repeated to a maximum of 8 credits.

Weekly forum for students enrolled in the composition emphasis to discuss with each other, faculty, and visiting artist's topics relevant to the professional development of composers. Topics include various aspects of the business of music, media technology, and score study.

**4371. Theory Review**

Three credits. Prerequisite: Open to juniors or higher.

An overview of traditional undergraduate theory. Intended for graduate students in Music.

**4471. Seminar: The Life and Works of Individual Composers**

Three credits. Prerequisite: MUSI 3403 and one MUSI 2000 or higher level W course; open to juniors or higher; open only with consent of instructor. With a change in content, may be repeated once for credit.

**4473. Seminar: History of Musical Forms**

Three credits. Prerequisites: MUSI 3403 and one 2000 or higher level W course; open to juniors or higher; open only with consent of instructor. With a change of content, may be repeated once for credit.

Sonata, concerto, madrigal, motet, or other musical forms.

**4489. Procedures in Historical Research**

Three credits. Prerequisite: MUSI 3403 and one MUSI 2000 or higher level W course; open to juniors or higher; open only with consent of instructor.

A project-oriented approach to bibliographic tools and research methods applicable to the historical study of music.

**4731. Conducting I**

Two credits. Prerequisite: MUSI 1314; open to juniors or higher. *Renshaw*

Physical aspects of conducting, reading of full and condensed scores.

**4732. Conducting II: Choral**

Two credits. Prerequisite: MUSI 4731; open to juniors or higher.

**4733. Conducting II: Instrumental**

Two credits. Prerequisite: MUSI 4731; open to juniors or higher. *Renshaw*

**4979. Senior Recital**

Required of all Bachelor of Music performance majors. No credit. Prerequisite: Open to juniors or higher. Students completing this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**4995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.

Classroom course in a special topic as announced in advance for each semester.

**4999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of head of department. May be repeated for credit.

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## Natural Resources and the Environment (NRE)

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*Head of Department:* Professor John Volin

*Department Office:* Room 227D, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

**1000. Environmental Science**

(Formerly offered as NRME 1000.) Three credits. *Ortega, Rudnicki*

An introduction to basic concepts and areas of environmental concern and how these problems can be effectively addressed. Topics include human population; ecological principles; conservation of biological resources; biodiversity; croplands, rangelands, forestlands; soil and water conservation; pollution and water management; and wildlife and fisheries conservation. CA 3.

**1235. Environmental Conservation**

(Formerly offered as NRME 1235.) Three credits. Lecture and discussion. *Vokoun*

Overview of the history of natural resource use and environmental conservation policy development from prehistoric to present times. Examination of the emergence of the 20th century conservation movement in North America and the transition to the environmental movement is used to highlight recurring environmental issue themes such as: private ownership vs. public trust doctrine; commercial trade in natural resources; development vs. protection; sustainability; and the role of society and governments in regulation. Through selected readings and case studies, students are challenged to begin development of their personal ethics regarding the development, conservation and protection of the environment. CA 1.

**2000. Introduction to Geomatics**

(Formerly offered as NRME 2000.) Four credits. Three lecture periods and one laboratory period. *Civco, Meyer*

Principles and applications of geographic information systems (GIS), global positioning system (GPS), and remote sensing. Students will be provided with the scientific knowledge and technical skills needed to collect and use spatial data effectively in a GIS.

**2010. Natural Resources Measurements**

(Formerly offered as NRME 2010.) Three credits. Two class periods and one 2-hour laboratory. Prerequisite: Open only to Natural Resources majors, Environmental Science majors with a Natural Resources concentration, or by instructor consent. Field trips required. *Clausen*

Principles and instrumentation used in the measurement of environmental conditions and processes.

**2215. Introduction to Water Resources**

(Formerly offered as NRE 3218 and as NRME 3218.) Three credits. Three class periods and two field trips (two virtual field trips if taken online). Prerequisite: Open to sophomores or higher. Recommended preparation: NRE 1000 and GSCI 1050. *Robbins*

Introduction to surface and ground water resource assessment, development and management. Integration of scientific, legal, environmental and human factors that enter into developing and maintaining sustainable water resources. Examines current and future plight of water shortages and water quality issues here and abroad.

**2345. Introduction to Fisheries and Wildlife**

Three credits. *Ortega, Vokoun*

An introduction to the basic principles used in the management of wildlife and fish populations,



their habitats and ecosystems, and their human stewards. Students will be introduced to the fundamental concepts, topics, and skill sets that are commonly needed in the wildlife and fisheries profession.

#### **2415. Dendrology**

(Formerly offered as NRME 2415.) Three credits. Two class periods and one 3-hour laboratory period. Recommended preparation: BIOL 1108 or 1110. *Worthley*

The taxonomy, silvics, and distribution of trees and shrubs of the United States with emphasis upon Northeastern species. Field trips will be required.

#### **2455. Forest Ecology**

(Formerly offered as NRE 4455 and NRME 4455.) Three credits. Two class periods and one 3-hour laboratory. Recommended preparation: NRE 2415, which may be taken concurrently. *Rudnicki*

Forest structure and functional processes and their relation to physical environment (light, temperature, water, soil); the influence of time (succession, disturbance, stand dynamics) and space (landscape ecology, ecosystem management). Laboratory will be in the field or computer lab.

#### **2600. Global Sustainable Natural Resources**

Three credits. *Helton, Rittenhouse*

Sustainable management of natural resources across cultural, political, and ecological boundaries. Topics include marine and freshwaters, forests, food production and urban development. CA 4-INT.

#### **3000. Human Dimensions of Natural Resources**

(Formerly offered as NRE 3246.) Three credits. Prerequisite: Open to juniors or higher; open only with consent of instructor. *Morzillo*

Understanding the diverse perspectives of stakeholder groups involved in natural resources management. Analysis of decision-making behaviors based on social, psychological, and motivational factors; communication tools for working with stakeholder groups; and conflict resolution will be covered.

#### **3105. Wetlands Biology and Conservation**

(Formerly offered as NRME 3105.) Three credits. Three class periods and one weekend field trip. Prerequisite: Open to juniors or higher. Recommended preparation: BIOL 1107 and 1108. *Clausen*

Principal wetland habitats of North America are surveyed, and the relationship of wildlife associations to biological and physical features of wetlands is reviewed. Emphasis is placed on issues relating to wetlands conservation and management.

#### **3115. Air Pollution**

(Formerly offered as NRME 3115.) Three credits. Open to juniors or higher. Recommended preparation: NRE 3145 or 3146. *Anyah*

The atmospheric effects and controls of air pollution and air quality, air pollution emissions and assessments, and impacts of atmospheric air pollutants.

#### **3125. Watershed Hydrology**

(Formerly offered as NRME 3125.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 2010. *Warner*

Fundamental hydrologic processes, water balances, precipitation analyses, infiltration, soil water, evapotranspiration, open channel flow, discharge measurements, and analysis, flow frequencies, ground water-surface water interactions, runoff processes and prediction. Problem oriented course requiring use of computer spreadsheets.

#### **3145. Meteorology**

(Formerly offered as NRME 3145.) Three credits. Prerequisite: Open to juniors or higher. *Yang*

A survey course in meteorology at the introductory level covering weather and climate processes.

#### **3146. Climatology**

Three credits. *Yang*

Fundamentals of climatology: elements, processes, and mechanisms that govern or affect the climate and climate change, climatological theories and observations, climate across spatial and temporal scales, scientific methods for climatic analysis and applications.

#### **3155. Water Quality Management**

(Formerly offered as NRME 3155.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 3125 or NRE 4165. *Clausen*

An introduction to all aspects of water quality problems relating to the many beneficial uses of water, including the physical, chemical, and biological properties.

#### **3201. Conservation Law Enforcement**

(Formerly offered as NRME 3201.) Three credits.

Basic pre-professional course for majors in natural resource conservation and related disciplines. Recommended for persons considering a career in wildlife, fisheries, law enforcement, or other natural resource conservation and management disciplines.

#### **3205. Stream Ecology**

(Formerly offered as NRME 3205.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: BIOL 1108 or equivalent. *Vokoun*

A broad overview of stream ecology will be presented. Emphasis will be placed on types of lotic habitats and the diversity and community patterns of organisms which inhabit them. Adaptations to life in running water and energy flow in stream ecosystems will also be discussed. Efforts targeted at the conservation of streams will be integrated throughout the semester. One or more field trips required.

#### **3245. Environmental Law**

(Formerly offered as NRME 3245.) Three credits. Prerequisite: Open to juniors or higher.

An overview of environmental law including the common law principles of nuisance, negligence, and trespass. Students will become acquainted with legal research techniques; emphasis will be on federal, state, and municipal programs addressing clear air, clean water,

hazardous waste, inland wetlands, coastal zone management, and prime agricultural farm land and aquifer protection.

#### **3265. Sustainable Urban Ecosystems**

Three credits. Recommended preparation: prior coursework in environmental conservation. *Morzillo*

Natural resources in urban systems from the perspectives of natural science and social science. Managing ecosystems in and in relation to urban environments.

#### **3305. African Field Ecology and Renewable Resources Management**

(Formerly offered as NRME 3305.) (Also offered as EEB 3307 and EEB 5307.) Four credits. One class period during the semester, followed by three weeks in the field in South Africa. Prerequisite: Instructor consent required. Recommended preparation: EEB 2244. *Ortega*

An intensive, field oriented methods course conducted primarily in South Africa at the Basil Kent Field Station, Great Fish River Reserve in collaboration with the University of Fort Hare. An introduction to South African culture and history, ecology, and natural resources is provided in weekly meetings during the semester. This is followed by approximately three weeks in the field in South Africa (a required part of the course). Topics covered include vegetation and faunal surveys, data collection and analysis, biodiversity monitoring, and conservation management, and other selected themes. A research paper relating to an independent project conducted by the student in the field is required. CA 4-INT.

#### **3335. Wildlife Management**

(Formerly offered as NRME 3335.) Three credits. Prerequisite: NRE 2345. Recommended preparation: Prior course work in ecology. *Ortega*

Brief review of wildlife conservation and ecological principles; management of wetlands, farmlands, rangelands, and forest lands for wildlife; programs dealing with exotic, urban, nongame, and endangered wildlife; contemporary economic, administrative, and policy aspects of management.

#### **3345. Wildlife Management Techniques**

(Formerly offered as NRME 3345.) Four credits. Three class periods and one 3-hour laboratory. Prerequisite: NRE 2345; open to junior or higher Natural Resources majors, others by instructor consent. Recommended preparation: STAT 1100Q; MATH 1060Q and MATH 1110Q or higher; and EEB 2244. One or more field trips will be required.

Design and implementation of projects for wildlife research and monitoring that address conservation and management issues. Topics include capture and handling of animals, population estimation, wildlife-habitat relationships, resource selection, and space use. This course is designed for pre-professional students and meets professional certification requirements.

#### **3345W. Wildlife Management Techniques**

Prerequisite: NRE 2345; ENGL 1010 or 1011 or 2011; open to junior or higher Natural Resources majors, others by instructor consent.

Recommended preparation: STAT 1100Q, MATH 1060Q and MATH 1110Q or higher; and EEB 2244. One or more field trips will be required.

### 3365. Private Lands Wildlife Management

(Formerly offered as NRME 3365.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: One 2000-level or above course in ecology or wildlife management; open to juniors or higher.

Companion course for Public Lands Wildlife Management (NRE 3355). Provides practical experience and acquaintance with persons or groups managing wildlife resources on private properties such as nature preserves, land trusts, non-governmental organizations, farms, recreational clubs, commercial shooting preserves and propagation facilities. Appreciation for private land management options, economic realities and other challenges, plus ability to assess resource potentials on private land, are stressed. Field trips required.

### 3500. Exurban Silviculture

Four credits. Lecture and laboratory. Prerequisite: NRE 2415. Recommended preparation: NRE 2455. *Rudnicki*

Application of ecological principles in controlling forest establishment, composition, health and growth. Study of cultural treatments that maintain and enhance desired benefits from the forest on a sustainable basis, with an emphasis on the diverse needs and values of landowners and society within the exurban forest.

### 3535. Remote Sensing of the Environment

(Formerly offered as NRME 3535.) Three credits. Three class periods. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 2000 or equivalent. *Civco*

The principles of the interpretation of remote sensing imagery acquired from aircraft and satellite platforms will be studied. Applications of remote sensing to natural resources and the environment will be discussed.

### 3674. Introduction to Environmental and Natural Resources of China

One credit. *Yang*

Basics about the environmental and natural resources of China, including geography, climate, agriculture, history and culture.

### 3675. Environmental and Natural Resources of China

Three credits. Prerequisite: Open to juniors or higher; advanced sophomores (above 50 credits) may be considered. Recommended preparation: NRE 3674. *Yang*

Introduction to the environment of China, focusing on the management and sustainability of natural resources and environmental systems. A field trip to China is required.

### 3690. Field Study Internship

(Formerly offered as NRME 3690.) One to six credits. Hours by arrangement. Prerequisite: Open to juniors or higher with consent of advisor and department head. This course may be repeated provided that the sum total of credits earned does not exceed six. Students taking

this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to acquaint students through actual work experience with research and management activities not available on campus. Students will work with professionals in an area of concentration. Student evaluation will be based upon the recommendation of the field supervisor and a detailed written report submitted by the student.

### 3693. Foreign Studies in Natural Resources

Variable (1-6) credits. Hours by arrangement. May be repeated for credit; may count up to 6 credits toward major with consent of advisor and Department Head. Prerequisite: Department Head consent required prior to study abroad. Students may only count a maximum combined credit total of 6 credits toward the Natural Resource major of foreign study, Independent Study and Internship credits.

Courses taken in Natural Resources and related areas as part of an approved Education Abroad Program.

### 3699. Independent Study

(Formerly offered as NRME 3699.) Credits and hours by arrangement. May be repeated for credit. Prerequisite: Open to juniors or higher; open only with consent of instructor.

### 4000W. Natural Resources Planning and Management

(Formerly offered as NRME 4000W.) Three credits. Prerequisite: Open only to Natural Resources and Environmental Science majors, or by instructor consent; senior standing; ENGL 1010 or 1011 or 2011.

Concepts and methods of planning for the allocation, management, and utilization of terrestrial and aquatic ecosystems. Techniques and methods of managerial decision making. Written technical reports required.

### 4094. Seminar

(Formerly offered as NRME 4094.) One credit. May be repeated for credit. Prerequisite: Open to juniors or higher; open only with consent of instructor. *Volin*

### 4135. Introduction to Ground-Water Hydrology

(Formerly offered as NRME 4135C.) (Also offered as GSCI 4735.) Four credits. Three class periods and one 3-hour laboratory for which occasional field trips will be substituted. Prerequisite: GSCI 1050; or GSCI 1051 and 1052; or instructor consent; open to juniors or higher. *Robbins*

Basic hydrologic principles with emphasis on ground water flow and quality, geologic relationships, quantitative analysis and field methods.

### 4165. Soil and Water Management and Engineering

(Formerly offered as NRME 4165.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 3125 or ENVE 4820. *Warner*

Floodplain management, erosion and erosion control, reservoir management, storm water control, watershed management, and on-site sewage treatment systems. Written technical

reports, use of spreadsheets and field work required. Some field trips required.

### 4170. Climate-Human-Ecosystem Interactions

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: introductory courses in climate and environmental science. *Anyah*

Understanding pathways of interactions among climate change, ecological processes, and human activities through time are studied. Feedbacks that either reinforce or limit such interactions will also be discussed.

### 4335. Fisheries Management

(Formerly offered as NRME 4335.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: STAT 1000Q or higher; open to juniors or higher. *Vokoun*

Introduction to fisheries management principles with application to the biotic, habitat, and human components of fisheries. Selected topics include sampling gears, harvest regulations, stocking, population dynamics, and habitat management practices in ponds, lake, reservoir, river, and stream fisheries.

### 4340. Environmental Toxicology

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: A course in statistics. *Bosker*

Understanding impacts of contaminants on the environment. Topics include uptake, bioaccumulation and elimination of contaminants, use of laboratory and field tools to measure impacts, responses in organisms, and existing and emerging areas of ecotoxicology (pesticides, nutrients, and pharmaceuticals). Labs are focused around further exploring toxicant fate and effects in ecosystems.

### 4370. Population Dynamics

Three credits. Prerequisite: Open to juniors or higher; advanced sophomores (above 50 credits) may be considered. Recommended preparation: STAT 1100Q, MATH 1060Q, and MATH 1110Q or higher, and NRE 3345. *Rittenhouse*

How population dynamics models are used in science and in the management of fish and wildlife populations, factors influencing population dynamics. Design, evaluation, and use of a population model.

### 4475. Forest Management

(Formerly offered as NRE 3475 and as NRME 3475.) Four credits. Two 1½-hour lectures and one 4-hour laboratory period. Prerequisite: NRE 2415; open to juniors or higher. Recommended preparation: NRE 3500.

Application of forest mensuration, ecology, and silviculture in sustainable forest management. Field trips required.

### 4535. Remote Sensing Image Processing

(Formerly offered as NRME 4535C.) Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: NRE 2000 or 3535; open to juniors or higher; open only with consent of instructor. *Civco*

The principles of quantitative remote sensing, image processing and pattern recognition will be studied. Computer-assisted data analysis techniques will be used.

**4544. Application of Surveying for Natural Resources**

Three credits. Two class periods and one 2-hour laboratory period. Fieldwork required. *Meyer*

Use of optomechanical instruments (spirit levels and total stations) for high-accuracy land measurement, with applications to common problems in natural resource management such as transect layout. Students will learn to perform control surveys and to create detailed maps from the control surveys.

**4545. Geodesy**

(Formerly offered as NRME 4545.) Three credits. Three lecture class periods. Prerequisite: NRE 2000. Recommended preparation: NRE 4544. *Meyer*

Horizontal and vertical geodetic datums, proper integration of spatial information collected in disparate datums, distortions created by cartographic projections, and proper use of standard cartographic coordinate systems. Integration of observations from optomechanical instruments (such as total stations) with Global Navigation Satellite System observations.

**4575. Natural Resource Applications of Geographic Information Systems**

(Formerly offered as NRME 4575.) Four credits. Three class periods and one 2-hour laboratory. Prerequisite: Open to juniors or higher. *Civco*

Principles and applications of computer-assisted spatial data analysis in natural resources management. Hypothetical and actual case studies of the use of geographic information systems (GIS) to solve natural resource problems will be discussed. Raster-and vector-oriented, microcomputer-based GIS software will be applied.

**4601. Current Topics in Environmental and Natural Resources - Honors**

Three credits. Prerequisite: Open only to juniors or higher; open only to Honors students. Not open to students who have completed NRE 4600. *Volin*

An exploration of a diverse set of environmental and natural resource topics that will be examined using a continuum of applied-to-theoretical approaches. Each week, readings will introduce and familiarize students with a guest lecturer's research and allow students to engage in an in-depth discussion with each lecturer prior to attending their seminar. Honors students will meet for an hour after each seminar and will include student-led discussion and presentations on the seminar research topic.

**4665. Natural Resources Modeling**

(Formerly offered as NRME 4665.) Three credits. Prerequisite: MATH 1120Q or higher; open to juniors or higher; open only to natural resource majors except by consent. *Clausen, Warner*

Applications of conservation of mass, energy and momentum in modeling natural resources systems. Defining systems; determining flows and storages; interactions and feedback mechanisms within systems. Problem oriented course including computer solutions using spreadsheets or modeling programs.

**4689. Undergraduate Research in Natural Resources**

(Formerly offered as NRME 4689.) Credits and hours by arrangement. May be repeated for credit for maximum of six credits. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Field or laboratory research performed by the advanced undergraduate student in an area of natural resources under the supervision of a NRE faculty member. A report and/or an oral presentation will be required at the end of the semester.

**4695. Special Topics**

(Formerly offered as NRME 4695.) Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

**4697W. Undergraduate Research Thesis in Natural Resources**

(Formerly offered as NRME 4697W.) Three credits. Hours by arrangement. Prerequisite: Three credits of either NRE 3699 or 4689, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.

Writing of a formal thesis based on independent research conducted by the student. Thesis proposal and final thesis must follow guidelines developed by the Department; and be submitted to, and approved by, a department review committee.

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## Nursing (NURS)

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*Dean:* Professor Regina M. Cusson

*Office:* Room 201, Storrs Hall

For major requirements, see the School of Nursing section of this Catalog.

**1110. Introduction to Health and the Discipline of Nursing**

Three credits.

An introduction to the internal and external factors that influence health while simultaneously introducing students to the discipline and profession of nursing. Leading causes of illness, injury and death are discussed with emphasis on the role of the nurse in promoting health and disease prevention. Avenues for responsible participation in socio-political action to influence the health of all communities are explored.

**1130. Health Care Delivery System**

Three credits.

An historical and contemporary exploration of the American health care delivery system: its evolution and development, legal and regulatory perspectives, roles of all providers and finances. A comparison with socialized health care will be made.

**1175W. The End of Life: A Multicultural Interdisciplinary Experience**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

An examination of experiences at the end of life to enhance student awareness of related issues through a societal, personal, multicultural, and interdisciplinary lens. CA 4.

**2175. Global Politics of Childbearing and Reproduction**

Three credits. One lecture per week.

Maternal health and reproductive issues on a global scale. Focused and sustained examination of the social, cultural, and political forces which organize childbirth and reproductive experiences. CA 1. CA 4-INT.

**3075. Spanish for Health Care Professionals**

Three credits. Prerequisite: Open only to Nursing majors.

Beginner-level Spanish course. Healthcare-related conversational skills within the cultural perspective of Latinos in the United States.

**3100. Clinical Science I**

Three credits. Two class periods. Prerequisite: PNB 2264, may be taken concurrently; open only to Nursing majors; open to sophomores.

Critical examination of concepts from pathophysiology, pharmacology and nutrition as they apply to preventive health care of adults. Introduction of knowledge, skill and attitude of basic mathematics competency for medication administration.

**3110. Clinical Science II**

Three credits. Two class periods. Prerequisite: CHEM 1122; NURS 3100; PNB 2264, PNB 2265; open only to Nursing majors; open to sophomores. PNB 2265 may be taken concurrently.

Concepts from microbiology, pharmacology and complex medication administration as they apply to health care of individuals throughout the lifespan.

**3120. Health Assessment throughout the Lifespan**

Three credits. Prerequisite: NURS 3100; PNB 2264; PNB 2265 concurrent; open only to Nursing majors.

Students will acquire the knowledge, skills, and values needed for assessing individuals through the lifespan. Supervised laboratory sessions will provide opportunity to practice newly acquired skills. A fee of \$75 is charged for this course.

**3130. Public Health Nursing**

Three credits. Prerequisite: NURS 1130; open only to Nursing majors.

Theories from nursing and public health are examined within the context of aggregate/population based care. Primary, secondary and tertiary approaches are used to promote the health of selected population/community.

**3205. Nursing Research and Evidence-Based Practice**

Three credits. Prerequisite: STAT 1000Q or 1100Q; ENGL 1010 or 1011 or 2011.

Introduction to qualitative and quantitative research and application to evidence-based nursing practice. Focus placed on developing the ability to understand, interpret, critically appraise, and apply research for nursing practice.

**3215. Nursing Research**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in STAT 1000Q or 1100Q; open only to Nursing majors. Not open to students who have passed NURS 3215W.

An introduction to qualitative and quantitative research. A variety of processes and resources is used to identify scholarly writing, critique research, and apply research findings to nursing.

**3220. Clinical Science for Sub-Acute and Chronically Ill Adults**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 1110, 1130, 3100, 3110, 3120 and 3130; open only to Nursing majors.

Critical examination of concepts of pharmacology, microbiology, nutrition and pathophysiology as they relate to nursing care of adults with sub-acute and chronic health problems and their families.

**3225. Ethical Ways of Knowing**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3292 or RN license; open only to Nursing majors.

An exploration of the ethical way of knowing in nursing. Selected models and theories illustrating an ethical approach will be analyzed.

**3230. Nursing Science for Adults with Sub-Acute or Chronic Health Issues**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 1110, 1130, 3100, 3110, 3120, and 3130; open only to Nursing majors.

Critical examination of theory, research and expert clinical practice supportive of nursing with adults experiencing sub-acute and chronic health problems and their families. A fee of \$75 is charged for this course.

**3234. Theory and Nursing Practice for Adults with Sub-Acute or Chronic Problems**

Nine credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 1110, 1130, 3100, 3110, 3120, and 3130; open only to Nursing majors.

Critical examination of theory, research and expert clinical practice supportive of nursing with adults experiencing sub-acute and chronic health problems and their families. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to individuals with sub-acute or chronic health care problems. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of \$75 is charged for this course.

**3292. Practicum with Sub-Acute and Chronically Ill Individuals**

Six credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 1110, 1130, 3100, 3110, 3120, and 3130; open only to Nursing majors.

Nursing and interdisciplinary care of the person and family with sub-acute and chronic health issues. A fee of \$75 is charged for this course.

**3295. Special Topics in Nursing**

Credits and hours by arrangement. Prerequisite: open only with consent of instructor. With a change in content, this course may be repeated for credit.

**3330. Clinical and Nursing Science: Nursing Care of the Childbearing Family**

Four credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3215, 3220, 3230, and 3292; open only to Nursing majors.

Builds on students' understanding of microbiology, pharmacology, nutrition and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration.

**3334. Theory and Nursing Practice for Perinatal and Women's Health**

Seven credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Builds on students' understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to perinatal and women's health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of \$75 is charged for this course.

**3392. Practicum with Childbearing Families**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3215, 3220, 3230, and 3292; NURS 3330 must be taken concurrently; open only to Nursing majors.

Provides experience in the application of principles of nursing used in the care of childbearing families. Clinical placements will be settings such as day care centers, childbirth education classes, schools, clinics, group homes, women's health centers and agencies providing acute and chronic care. A fee of \$75 is charged for this course.

**3444. Theory and Nursing Practice for Child Health**

Seven credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Builds on students' understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childrearing families. Emphasis is on development of clinical decision making skills related to nursing care of childrearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation

learning environments for the application of theory from nursing and related disciplines to child health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of \$75 is charged for this course.

**3450. Clinical and Nursing Science for Nursing Care of Childrearing Families**

Four credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3215, 3220, 3230, 3292; NURS 3330 must be taken concurrently; open only to Nursing majors.

Builds on students' understanding of microbiology, pharmacology, nutrition and pathophysiology as these sciences relate to childrearing families. Emphasis is on development of clinical decision making skills related to nursing care of childrearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration.

**3492. Practicum with Childrearing Families**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3215, 3220, 3230, 3292; NURS 3450 must be taken concurrently; open only to Nursing majors.

Provides experience in the application of principles of nursing used in the care of infants, children, adolescents and their families. Clinical placements will be settings such as day care centers, schools, clinics, group homes, women's health centers and agencies providing acute and chronic care.

**3554. Theory and Nursing Practice for Behavioral Health**

Seven credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Major theoretical perspectives regarding etiology and treatment of psychiatric illness are described and discussed including biological, psychological, sociological and environmental factors. The evolving role of the nurse with regard to promoting mental health, patient advocacy, and preventing and/or minimizing adverse sequelae to psychiatric illness are explored, including use of therapeutic communication, critical thinking and application of the nursing process to assist individuals and families with a variety of behavioral health problems. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to behavioral health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of \$75 is charged for this course.

**3560. Clinical and Nursing Science for Psychiatric and Mental Health Nursing**

Four credits. Prerequisite: To enroll in this course a student must have earned a grade of "C" or higher in NURS 3215, 3220, 3230, and 3292; open to Nursing majors only. Not open to students who have completed NURS 262, 263.

Major theoretical perspectives regarding etiology and treatment of psychiatric illness are described and discussed including biological, psychological, sociological and environmental factors. The evolving role of the nurse with regard to promoting mental health, patient advocacy,

and preventing and/or minimizing adverse sequelae to psychiatric illness are explored, including use of therapeutic communication, critical thinking and application of the nursing process to assist individuals and families with a variety of behavioral health problems.

#### **3592. Practicum for Psychiatric and Mental Health Nursing**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3215, 3220, 3230, 3292; NURS 3560, must be taken concurrently; open only to Nursing majors.

Provides experience in the clinical application of theory from nursing and related disciplines to mental health and illness (behavioral health). The focus is on psychiatric illness, critical thinking, communication skills, and the nursing process in persons with a primary or secondary/adjunctive illness. The target of nursing care is the individual, family, group or community. A fee of \$75 is charged for this course.

#### **3664. Theory and Nursing Practice for Acutely Ill Adults**

Seven credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Critical examination of pharmacology, microbiology, nutrition, genetics, and pathophysiology as they relate to nursing care of adults experiencing acute and/or life threatening problems. Critical examination of theory, research, and expert clinical practice supportive of nursing care with adults experiencing acute and/or life threatening problems. Includes experience in clinical and simulation environments for the application of theory from nursing and related disciplines to the care of acutely ill adults. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of \$75 is charged for this course.

#### **3670. Clinical and Nursing Science for Acutely Ill Adults**

Four credits. Prerequisite: To enroll in this course a student must have earned a grade of "C" or higher in NURS 3215, 3220, 3230, and 3292; open to Nursing majors only. Not open to students who have completed NURS 272, 273.

Critical examination of pharmacology, microbiology, nutrition, and pathophysiology as they relate to nursing care of adults experiencing acute and/or life threatening problems. Critical examination of theory, research, and expert clinical practice supportive of nursing care with adults experiencing acute and/or life threatening problems.

#### **3692. Practicum with Acutely Ill Adults**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3215, 3220, 3230, 3292; NURS 3670 must be taken concurrently; open only to Nursing majors.

Nursing and interdisciplinary care of acutely ill persons and their families.

#### **3715W. Nursing Leadership**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; to enroll in this course, a student must

have earned a "C" or better in NURS 3234; open only to Nursing majors.

An in-depth analysis of the components that facilitate new nursing graduates to become leaders at the patient bedside, within interdisciplinary groups, and in the community. Emphasis is on written and oral communication, leadership, social disclosure and social justice to benefit the client and the discipline.

#### **4235. The Aesthetic Way of Knowing in Nursing**

Three credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 3234 or RN license; open only to Nursing majors.

An exploration of the aesthetic way of knowing in nursing.

#### **4265. Nursing's Past as Prologue**

Three credits. Prerequisites: Students must have earned a "C" or higher in NURS 3234 or RN license; open to Nursing Majors Only. Not open to students who have completed NURS 111.

Beginning with Florence Nightingale, the impact of events and the contributions of individuals will be examined in light of present day concerns in the profession of nursing. Issues such as race, class, gender and other social, political and economic factors will be analyzed. Internal and external forces that shape the substance of nursing education, practice, and research will be analyzed.

#### **4292. Capstone Practicum**

Variable credits. Recommended preparation: To enroll in this course, a student must have earned a "C" or better in all nursing courses through first semester, senior year; open only to Nursing majors. Undergraduate students should register for 6 credits.

Synthesis of knowledge, skills, and values from all prior learning to provide professional nursing care as a beginning practitioner. A fee of \$75 is charged for this course.

#### **4299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor.

Primarily for qualified students who wish to extend their knowledge by investigating special problems in nursing. With a change in content, this course may be repeated for credit.

#### **4301. Introduction to the Discipline and Foundations of Nursing**

Three credits. Students must be accepted into the CEIN/BS program. Students must earn at least a grade of "C" in this course to progress.

The nurse's role in the context of health care delivery systems, inter-professional and collaborative teams, and legal and ethical issues in providing care. Nursing history, patterns of knowing, theory, and concepts of evidence-based practice as the foundation of nursing praxis.

#### **4304. Health Assessment and Fundamentals of Nursing Praxis**

Variable credits, 1 through 12. Student must be accepted into Basic Nursing (CEIN/B.S.) Certificate Program.

Utilizes a combination of didactic and laboratory methods to explore all realms of health assessment (inspection, palpation, percussion, and auscultation) and introduces

learners to the technological skills necessary for safe nursing practice: vital signs, activities of daily living, medication administration, wound healing and dressing changes, tubes and lines, safety and isolation precautions, and routine monitoring. Patient populations are adults in sub-acute and chronic settings. Addresses the nursing science, clinical science and disease science as appropriate to the assessment and skills. Students must earn at least a grade of "C" in this course to progress.

#### **4414. Theory and Nursing Practice for Behavioral Health**

Four credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 4304; student must be accepted into Basic Nursing (CEIN/B.S.) Certificate Program.

Major theoretical perspectives regarding etiology and treatment of psychiatric illness are described and discussed including biological, psychological, sociological and environmental factors. The evolving role of the nurse with regard to promoting mental health, patient advocacy, and preventing and/or minimizing adverse sequelae to psychiatric illness are explored, including use of therapeutic communication, critical thinking and application of the nursing process to assist individuals and families with a variety of behavioral health problems. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to behavioral health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

#### **4424. Theory and Nursing Practice for Perinatal and Women's Health**

Four credits. Prerequisite: NURS 4304; student must be accepted into Basic Nursing (CEIN/B.S.) Certificate Program. Students must earn at least a grade of "C" in this course to progress.

Builds on students' understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to perinatal and women's health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

#### **4434. Theory and Nursing Practice for Child Health**

Four credits. Prerequisite: NURS 4304; student must be accepted into Basic Nursing (CEIN/B.S.) Certificate Program. Students must earn at least a grade of "C" in this course to progress.

Builds on students' understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childrearing families. Emphasis is on development of clinical decision making skills related to nursing care of childrearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation

learning environments for the application of theory from nursing and related disciplines to child health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

#### **4544. Theory and Nursing Practice for Community Health**

Four credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 4414, 4424 and 4434; student must be accepted into Basic Nursing (CEIN/B.S.) Certificate Program.

Builds on students' understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to community health. Principles of epidemiology will be introduced. Emphasis is on development of clinical decision making skills related to nursing care of individuals, families, and populations living in the community. Major concepts of wellness, prevention, and chronicity will be explored. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to community health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

#### **4554. Theory and Nursing Practice for Adult Acute Care**

Eight credits. Prerequisite: To enroll in this course, a student must have earned a "C" or better in NURS 4414, 4424 and 4434; student must be accepted into Basic Nursing (CEIN/B.S.) Certificate Program.

Critical examination of pharmacology, microbiology, nutrition, and pathophysiology as they relate to nursing care of adults experiencing acute and/or life threatening problems. Critical examination of theory, research, and expert clinical practice supportive of nursing care with adults experiencing acute and/or life threatening problems. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to the care of acutely ill adults. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

#### **4597W. Senior Thesis in Nursing**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; at least 9 credits of NURS 4299; open only to Honors students; open only by instructor consent.

Writing a thesis based upon a student's independent research project.

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### **Nutritional Sciences (NUSC)**

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*Undergraduate Program Coordinator:*  
Professor Hedley Freake

*Department Office:* Room 214, Roy E. Jones Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

#### **1030. Interdisciplinary Approach to Obesity Prevention**

(Also offered as AH 1030.) Three credits. Prerequisite: Open to freshmen and sophomores in the Honors Program.

Explores the biology of obesity including genetic predispositions and behaviors that increase obesity risk (dietary, physical activity, social, psychological), the obesigenic environment, including how communities are physically built, as well as the economic relationship to obesity risk, and policy and ethical implications for obesity prevention. Multi-level obesity prevention approaches that involve the individual, family, organization, community, and policy. CA 3.

#### **1161. Husky Reads: Introducing Food and Nutrition to Children through Reading**

(Also offered as EDLR 1161.) One credit. This course may be repeated with change of activity and/or skill level; not to exceed 3 credits towards the major for students in Nutritional Sciences.

Supervised field work and experiential learning in nutritional literacy for preschoolers and young children, geared to individual, dual, and team activities. Readings and reflections.

#### **1165. Fundamentals of Nutrition**

Three credits.

An introduction to the principles and concepts of nutrition with emphasis on the nature and function of carbohydrates, fats, proteins, minerals and vitamins, and their application to the human organism. CA 3.

#### **1166. Honors Colloquium in Nutrition**

One credit. One class period and one 2-hour discussion/laboratory every other week. Concurrent enrollment in NUSC 1165 required.

Lectures, discussions, and laboratory exercises to complement topics from NUSC 1165. Primarily for, but not restricted to, honors students.

#### **1167. Food, Culture and Society**

Three credits.

Social, cultural, and economic factors affecting food intake and nutritional status. Includes contemporary topics such as world food problems, hunger in the United States, dieting and eating disorders, health foods and vegetarianism. CA 4-INT.

#### **1195. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

#### **1245. Introduction to Dietetics**

One credit. Prerequisite: Open only to CAHNR students, others with consent. Not open for credit to students who have passed NUSC 2245 or 3245.

Introduction to the profession of dietetics, including clinical, community, and food service management. Dietetic internship application preparation.

#### **1645. The Science of Food**

(Also offered as ANSC 1645.) Three credits.

An introductory level course for students interested in the application of science to food. Nutritional and functional attributes of various food constituents are discussed. Issues concerning food processing and food safety are covered. CA 3.

#### **2200. Nutrition and Human Development**

Three credits. Prerequisite: NUSC 1165.

Nutritional needs and consequences of nutritional deficiencies throughout the life cycle: preconception, pregnancy, lactation, infancy, childhood, adolescence, adulthood, and aging. Maternal and child public health issues.

#### **2241. Nutritional Assessment**

One credit. One class period and one 2-hour laboratory, every other week. Prerequisite: NUSC 1165. Recommended preparation: MCB 2000 or 3010, PNB 2250 or 2265. Enrollment restricted to Nutritional Sciences and Kinesiology majors.

Anthropometry, clinical, and biochemical techniques for assessment of human nutritional status.

#### **3150. Medical Nutrition Therapy I**

(Also offered as DIET 3150.) Three credits. Prerequisite: MCB 2000; PNB 2264, 2265; NUSC 1165; open only to Dietetics majors and NUSC Didactic Program students; open to juniors or higher.

Introduction to the nutrition care process, nutrition assessment, planning of special diets, and applications of medical nutrition therapy to selected disease states and conditions.

#### **3171. Husky Nutrition I**

Three credits. Prerequisite: NUSC 1165; instructor consent.

Lecture and experiential learning in pre-schools where students conduct learning activities about reducing sweetened beverage consumption. Lecture, applied learning laboratory, supervised field work with community nutrition education and problem-solving. Readings, discussion and reflections.

#### **3172. Husky Nutrition II**

Three credits. Prerequisite: NUSC 1165; instructor consent.

Lecture and learning laboratory, with supervised field work in providing healthy nutrition education in community settings. Readings, quizzes, discussions, reflections and a term paper.

#### **3180. Experience in Community Nutrition**

One to six credits. Prerequisite: NUSC 1165; consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major.

Supervised field work with community nutrition education or problem-solving. Readings and reports.

#### **3230. Community Nutrition**

(Also offered as DIET 3230). Three credits. Prerequisite: NUSC 2200; open to Dietetic majors, NUSC majors, and AHS majors; juniors or higher, others by consent. Not open to students who have passed NUSC 3267.

Role of community structure, agencies, and resources in community health relating to nutrition.

#### **3233. Food Composition and Preparation**

Three credits. Prerequisite: NUSC 1165. Recommended preparation: CHEM 2241 or 2443.

Study of the composition of food and the physical and chemical changes that occur during preparation and/or processing that affect taste, palatability, shelf-life, and nutrient content.

### **3234. Food Composition and Preparation Laboratory**

One credit. One 3-hour laboratory period. Prerequisite: NUSC 1165, CHEM 2241 or 2443 and concurrent registration in NUSC 3233. Enrollment restricted to Nutritional Sciences and Allied Health Dietetic majors. Open to others by consent if space is available.

Laboratory techniques related to composition of foods, and the physical and chemical changes that occur during preparation. A fee of \$50 is charged for this course.

### **3245. Profession of Dietetics**

One credit. Prerequisite: NUSC 1245; open only to Nutritional Sciences Didactic Program students; others with consent. Not open for credit to students who have passed NUSC 2245.

Overview of dietetic internships and application process. Resume writing, job placement, ethics and dietetics.

### **3250. Medical Nutrition Therapy II**

(Also offered as DIET 3250.) Three credits. Prerequisite: DIET 3150 or NUSC 3150; open only to Dietetics majors and Nutritional Sciences Didactic Program students; juniors or higher.

Continuation of Medical Nutrition Therapy I. Further investigation of the interrelationships of physiology and biochemistry of disease and dietary intervention.

### **3271. Food Services Systems Management Laboratory/Discussion**

Two credits. Two 2-hour laboratory/discussion periods. Prerequisite: NUSC 3233 and 3234; open only to Nutritional Sciences students enrolled in NUSC 3272.

Laboratory/discussion of quantity food preparation, recipe modification, cost analysis, recipe nutrient analysis and application of food sanitation. A fee of \$50 is charged for this course.

### **3272. Food Service Systems Management I**

(Also offered as DIET 3272.) Two credits. Two class periods. Recommended preparation: NUSC 3233, 3234. Not open to students who have passed NUSC 3270.

Quantity food procurement, preparation and distribution; recipe standardization and menu development; sanitation and safety; portion and quality control; systems approach and delivery systems.

### **3291. Nutritional Sciences Internship**

Variable credits (1-3). Hours by arrangement. Prerequisite: NUSC 1165 and 2200; open to juniors or higher; open to Nutritional Science majors with consent. May be repeated for credit up to a total of 6 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory)

### **3693. International Studies in Nutritional Sciences**

Variable credits. Hours by arrangement. Prerequisite: Open only with consent of department; open to sophomores or higher. May be repeated for credit up to a total of 15 credits.

Variable topics. Coursework undertaken within approved study abroad programs.

### **3782. Experience in Food Service Systems Management**

One to six credits. Prerequisite: Consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major.

Application of principles of food service management. Supervised placement.

### **3823. Experience in Medical Nutrition Therapy**

One to three credits. Prerequisite: NUSC 3150; consent of instructor required. No more than six credits of experience or independent study may apply toward the major. *Rodriguez*

Mentored experiences in Medical Nutrition Therapy that include traditional (e.g., hospitals, long term care centers) and contemporary (e.g., wellness clinics, sports nutrition practice) placement with registered dietitians/nutritionists.

### **4236. Metabolism and Functions of Nutrients**

Four credits. Prerequisite: NUSC 1165 and MCB 2000 or 3010.

Metabolism and functions of carbohydrates, proteins, fats, minerals, and vitamins.

### **4237W. Writing in Nutritional Sciences**

One credit. Prerequisite: ENGL 1010 or 1011 or 2011; open only by consent of instructor; NUSC 4236 must be taken concurrently.

A writing-intensive class that emphasizes both style and content consistent with the discipline of Nutritional Science.

### **4250. Nutrition for Exercise and Sport**

Three credits. Prerequisite: NUSC 1165 and PNB 2250 or 2265.

Basic nutrition principles. Physical activity, exercise, sport performance and consequences of nutritional ergogenic aids.

### **4260. Dietary Supplements and Functional Foods**

Three credits. Prerequisite: NUSC 1165; CHEM 2241 or 2443 or concurrent registration.

Efficacy, safety, and regulations of dietary supplements and health-promoting foods.

### **4272. Food Service Systems Management II**

(Also offered as DIET 4272.) Two credits. Two class periods. Prerequisite: DIET/NUSC 3272. Not open to students who have passed NUSC 4270.

Institutional menu development; cost and budgeting; equipment layout and design; personnel management; marketing and merchandising; purchasing and inventory control.

### **4294. Seminar**

One credit. One class period. Prerequisite: NUSC 2200. May be taken twice.

Review, evaluation, and oral and written presentation of contemporary nutrition issues.

### **4295. Special Topics**

Credits and hours by arrangement. Prerequisite: Consent of instructor required. May be repeated for credit with a change of topic.

Topics and credits to be published prior to the registration period preceding the semester offerings.

### **4296W. Senior Thesis in Nutrition**

Three credits. Hours by arrangement. Prerequisite: Open only by consent of honors advisor and department head; enrollment limited to Nutritional Sciences honors students; ENGL 1010 or 1011 or 2011.

### **4299. Independent Study**

One to three credits. Prerequisite: Consent of instructor and department head required. No more than six credits of experience or independent study may apply toward the major.

Individual study and research with faculty. Written report.

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## **Occupational Safety and Health (OSH)**

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*Interim Head of Department:* Professor Nancy Bull

*Department Office:* Room 227-A, Koons Hall

### **3295. Special Topics**

Variable credits. Prerequisites, required preparation, and recommended preparation vary. With a change in topic, may be repeated for credit.

### **3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

### **4291. OSH Internship**

(Also offered as AH 4291.) Variable (1-6) credits. Hours by arrangement. Prerequisite: Open only to BGS students and Allied Health Sciences OEHS concentration majors juniors or higher with consent of advisor and OEHS program coordinator. May be repeated for credit to a maximum of 6 credits applied to the major. Students taking this course will be assigned a final grade of S (satisfactory) and U (unsatisfactory).

Application of the principles and concepts of hazard assessment and safety management to an actual workplace under the supervision of an approved onsite supervisor.

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## **Operations and Information Management (OPIM)**

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*Head of Department:* Professor Ram Gopal

*Department Office:* Room 372, School of Business

For major requirements, see the School of Business section of this Catalog.

Courses in this department numbered at the 3000 and 4000-level are open to juniors and seniors only.

### **1195. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### **2001. MIS in Business: A Hands-On Introduction**

Three credits. Cannot be used toward fulfilling MIS major requirements. Not open to Business majors who have passed or are currently enrolled in OPIM 3103. A laptop (Windows or

Mac operating system) that can connect to the Internet is required.

A hands-on introduction to latest information technology concepts and tools as applicable to business, such as spreadsheets for business analysis, business programming and database management, technology project management, electronic commerce, emerging technologies for online marketing, emerging social media, information security and privacy, and intellectual property. Executives from industry will be guest speakers.

### 3103. Business Information Systems

Three credits. Prerequisite: Open only to Business majors of sophomore or higher status; others with the consent of the Operations and Information Management Department Head.

Information needs of managers, the structure of the information systems required to fill these needs, systems development, business computing technology, and management applications within major business functional subsystems.

### 3104. Operations Management

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Introduction to concepts, models, and information systems applicable to the planning, design, operation and control of systems which produce goods and services. Topics include process design, facility locations, aggregate planning, inventory control, and scheduling.

### 3211. Systems Analysis and Design

Three credits. Prerequisite: OPIM 3103, 3220, 3221, 3222; open only to MIS majors of junior or higher status.

System development methodologies for business information systems. Project management concepts, hardware and software technology, and organizational considerations are explored. Students participate in a system development project.

### 3212. Advanced Information Technologies

Three credits. Prerequisite: OPIM 3103, 3220, 3221, 3222; open only to MIS majors of junior or higher status.

Deepens knowledge of application development tools for the design of decision oriented information systems. Emphasis will be placed on emerging tools and techniques relevant for modern organizational information needs.

### 3220. Business Software Development

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

The development of computer software for business information processing. Topics include flowcharting, pseudocode, programming with a business oriented computer language, file processing concepts, and on-line and batch processing.

### 3221. Business Database Systems

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Introduces market-leading techniques for transaction processes as well as decision making and business intelligence that help to identify and manage key data from business processes.

Provides the essential tools required for further data mining applications. Combines lecture, class discussion and hands-on computer work in a business-oriented environment.

### 3222. Network Design and Applications

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Principles and applications of business telecommunications emphasized. Covers important network systems as well as crucial techniques in building these systems. Students participate in network design and implementation project.

### 3223. Advanced Business Application Development

Three credits. Prerequisite: OPIM 3103; open only to MIS majors of junior or higher status.

Covers structured and object-oriented programming methodologies for developing business applications. Program design techniques and logic emphasized. Students participate in a business application design and implementation project.

### 3224. Web Business Application Development

Three credits. Prerequisite: OPIM 3220 and 3221 (or equivalent programming and database coursework); open only to MIS majors of junior or higher status; others with instructor's permission. Each student is required to bring a laptop with hardware and software as per School of Business specifications that can connect to the internet and handle required software.

Covers structured and object-oriented programming methodologies for developing database supported business applications on platforms such as the worldwide web. Program design techniques and logic are emphasized. Students participate in a team based business application design and implementation project.

### 3505. Business Database Management

Three credits. Prerequisite: OPIM 3103 or equivalent; open only to Business majors of junior or higher status; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Introduction to the development and implementation of database applications. Topics covered include costs and benefits of database approach, database design lifecycle, the relational data model, Structured Query Language, database applications development and data warehousing. Students will learn the relational database concept and participate in the hands-on design and implementation of a database using the relational architecture and a database management system.

### 3506. Business Application Programming

Three credits. Prerequisite: OPIM 3103 or equivalent; open only to Business Administration, Business Data Analytics, and Financial Management majors of junior or higher status; others with the consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at the Hartford, Waterbury, and Stamford Regional Campus locations.

Development of business application software using structured and object oriented programming techniques. The emphasis is on programming logic, rapid application development techniques and personal productivity tools. Topics include program design techniques, programming constructs, interface development techniques, event driven programming, file and database processing, and object linking and embedding.

### 3507. Internet Technologies and Electronic Commerce

Three credits. Prerequisite or corequisite: OPIM 3505, OPIM 3506; open only to Business Administration, Business Data Analytics, and Financial Management majors of junior or higher status; others with the consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at the Hartford, Waterbury, and Stamford Regional Campus locations.

Introduces Internet technology and tools from the perspective of business users. The focus is on providing knowledge base and functional tools for students as workers in the 21st Century. The specific technologies covered in the class will depend upon state-of-the-art at the time of class offering. However, some of the general concepts include: HTML, client side programming such as Javascript or VBscript, dynamic content creation and management, electronic business process management, security concerns and solutions, and regulatory/public policy issues. A significant part of the course will involve hands-on training.

### 3510. Business Data Analytics I

Three credits. Prerequisite: OPIM 3103 or equivalent; open only to Business majors of junior or higher status; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Presents essential data analytics topics. Covers basic programming logic and techniques necessary for developing preprocessing and data cleaning with a light introduction to data mining and visualization techniques.

### 3511. Business Data Analytics II

Three credits. Prerequisite: OPIM 3510 or equivalent; open only to Business majors of junior or higher status; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Presents data analytics principles and state-of-the-art data mining software, with an emphasis placed on applications in business. Provides an introduction to a variety of statistical techniques and algorithmic principles used in data mining. Various data mining procedures will be discussed and subsequently implemented using state-of-the-art analytics toolsets.

### 3512. Project Management for Business Data Analytics

Three credits. Prerequisite: OPIM 3505 and OPIM 3510; corequisite: OPIM 3511; open



only to Business majors of junior or higher status; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Introduction to the concepts necessary for both project managers and project team members to deliver successful data analytics projects on time, on budget and in scope. The phases and knowledge areas of project management, as defined by the Project Management Institute (PMI), are covered as well as the tools and techniques in each area for successful project management. Introduction to appropriate project management will also be covered. Students will be divided into teams, with each team responsible for satisfactory management and completion of a data analytics project.

### **3652. Industrial Quality Control**

Three credits. Prerequisite: STAT 1000 or 1100, and OPIM 3104 or MEM 2211; open only to Business majors of junior or higher status.

The economic control and assurance of quality and reliability with emphasis on management of the quality function. Included are: a conceptual treatment of statistical methods in quality control; control of quality during manufacture and at delivery of finished goods; planning for quality control and reliability; quality management, to include organization, economics, systems and procedures.

### **3777. IT Security, Governance and Audit**

Three credits. Prerequisite: OPIM 3103 or instructor consent; open only to Business majors of junior or higher status. Not open to students who have passed OPIM 4895 when the topic name was the same as this course.

Introduces the basic principles of information security, its role in reducing information risk exposure and tools and solutions that can be used to prevent information loss and business interruption. Discusses appropriate laws and industry standards for IT Governance. Presents the process of information systems audit, discusses tools of IT audit and its role in detection and prevention of fraud and other data anomalies. An introduction to risk management software and methodologies will also be covered.

### **3801. Principles of Project Management**

Three credits. Prerequisite: Open only to Business majors of junior or higher status.

Provides an introduction to the concepts necessary for both project managers and project team members to deliver successful projects on time, on budget and in scope. The phases and knowledge areas of project management, as defined by the Project Management Institute (PMI), are covered as well as the tools and techniques in each area for successful project management. An introduction to Microsoft Project software will also be covered.

### **3802. Data and Text Mining**

Three credits. Prerequisite: STAT 1000Q, 1100Q, or equivalent; open only to Business majors of junior or higher status, others with permission of Department Head. Each student is required to bring a laptop (with Windows or Mac OS) that

can connect to the internet and handle required software (see School of Business specifications).

Introduction to the concepts of data and text mining and positions students to structure and successfully complete information analytics projects. Various concepts and approaches are analyzed and subsequently implemented using state-of-the-art analytic toolsets.

### **3803. Spreadsheet Modeling for Business Analysis**

Three credits. Prerequisite: OPIM 3103 or instructor's consent; open only to Business majors of junior or higher status; others with permission of Department Head. Each student is required to bring a laptop installed with Microsoft Excel that can connect to the internet.

Introduction to business decision and data analysis with electronic spreadsheets in Excel, the primary quantitative analysis software in business environments. Modeling and decision techniques are covered in combination with Excel functions and tools. Applications in different business functional areas are also covered.

### **4891. Field Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Completion of freshman-sophomore School of Business Requirements and consent of instructor and Department Head; open only to Business majors of junior or higher status. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for field work relevant to one or more major areas within the Department. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

### **4893. Foreign Study**

Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: open to juniors or higher; consent of Department Head required, prior to the student's departure. These credits must be awarded for regularly scheduled course work at a recognized foreign university in the field of information systems or in the student's Applications Area; if in the Applications Area the consent of both the Department Head and the Head of the Applications Area is required. Prior to taking the course the student must sign up for the course in advance as a course in that Applications Area. No credits can be counted toward required courses in the MIS major.

Special topics taken in a foreign study program.

### **4895. Special Topics**

Credits and hours by arrangement. Prerequisite: OPIM 3103 and others as announced separately for each offering; open only to Business majors of junior or higher status. With a change in content, may be repeated for credit.

Classroom course in special topics in operations management, operations research and information management as announced in advance for each semester.

### **4899. Independent Study**

Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only with consent of instructor and Department Head; open only to Business majors of junior or higher status.

Individual study of special topics in operations management, operations research and information management as mutually arranged between a student and an instructor.

### **4996. Independent Honors Research**

Three credits. Open to juniors or higher; open only to OPIM Department Honors students with consent of the instructor.

Students develop their own plan for a research project, and conduct and write up the research, consulting periodically with a faculty member.

### **4997. Senior Thesis in Operations and Information Management**

Three credits. Hours by arrangement. Prerequisite: OPIM 4996. Open only by consent of instructor and department head; open only to OPIM Department Honors students; open to juniors or higher.

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## **Pathobiology and Veterinary Science (PVS)**

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*Head of Department:* Professor Steven J. Geary

*Department Office:* Room105, Atwater Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

### **1000. Biomedical Issues in Pathobiology**

Two credits. *Bushmich*

This introductory course focuses on current global issues of health and disease to describe fundamental topics in pathobiology. Global biomedical concerns regarding infectious diseases, population, cancer, biotechnology and environmental health will be addressed. Course content will provide examples of the impact of veterinary and human pathology on world health issues.

### **2095. Special Topics Lecture**

Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### **2100. Anatomy and Physiology of Animals**

Four credits. Prerequisite: BIOL 1107 or equivalent. Three class periods and one 2-hour discussion/laboratory period. *Smyth*

A study of the anatomy and physiology of animals with reference to pathological changes of the component parts of the body. A fee of \$50 is charged for this course.

### **2301. Health and Disease Management of Animals**

Three credits. Prerequisite: PVS 2100. *Bushmich*

Designed for students who plan to own and work with domestic animals. Its purpose is to develop student competence in disease management and to foster an intelligent working relationship with their veterinarian. The course will cover a systematic study of infectious and

noninfectious diseases of domestic animals from the standpoint of economy and public health.

### 3093. Foreign Studies in Pathobiology

Credits and hours by arrangement, up to 15 credits. Prerequisite: open only with instructor consent. May be repeated for credit.

Special topics taken in a foreign study program.

### 3094W. Seminar

Two credits. One class period. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor. Majors may take this course in each semester of the senior year. May be repeated for credit. *Khan*

### 3095. Special Topics

Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

### 3099. Independent Study

Credits and laboratory periods by arrangement. May be repeated for credit.

Special problems in connection with departmental research programs and diagnostic procedures for diseases of animals. Some suggested topics are histopathologic laboratory procedures, clinical hematology, diagnostic bacteriology, and diagnostic parasitology.

### 3100. Histologic Structure and Function

Four credits. Three class periods and one 2-hour laboratory. Prerequisite: Open to juniors or higher; open only with consent of instructor. Recommended preparation: PVS 2100 or PNB 2264-2265 or PNB 2274-2275 or an equivalent course in vertebrate anatomy and physiology. *Burns*

Designed for students in biologic, paramedical and animal sciences, its purpose is to integrate histologic and cellular structure with function, utilizing human tissues and those from other vertebrates.

### 3201. Principles of Animal Virology

Three credits. Prerequisite: Open to juniors or higher. *Garmendia*

Structure and classification of viruses, cultivation and multiplication, pathogenesis and epidemiology of viral infections, host response, oncogenic viruses, immunization against, and laboratory diagnosis of viral diseases.

### 3201W. Principles of Animal Virology

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

### 3341. Pathobiology of the Avian Species

Three credits. Prerequisite: Open to juniors or higher. *Khan*

A systematic study of metabolic, nutritional, genetic, and infectious diseases of commercial poultry, avian wildlife, and caged pet birds. Emphasis is placed upon diagnosis and disease prevention. For each system of the body, pertinent anatomy, physiology, histology, pathology, and histopathology will be discussed.

### 3501. Diagnostic Techniques for the Biomedical Sciences

Two credits. One 1-hour lecture and one 3-hour laboratory. Prerequisite: Open to juniors or higher; instructor consent required; open only to students who have declared the Agricultural Biotechnology minor and passed MCB 3414. Recommended preparation: MCB 2000. *Risatti*

Theoretical basis and practical exposure to modern laboratory methods used in the biomedical sciences for disease diagnosis.

### 3700. Emerging Infectious Diseases

Three credits. Prerequisite or corequisite: MCB 2610. *Szczepanek*

Mechanisms of emergence that different pathogens have used to cause disease in new hosts.

### 4203. Principles of Antibacterial Development

Three credits. Prerequisite: MCB 2610, or an equivalent course in general microbiology or bacteriology with consent of the instructor. Open to juniors or higher. *Zhou*

Designed to cover important concepts and pioneering strategies currently being used to develop novel antibacterials.

### 4300. Principles of Pathobiology

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: PVS 2100 or PNB 2264-2265 or PNB 2274-2275 or an equivalent course in vertebrate anatomy and physiology; PVS 3100 or equivalent course in histology. *Frasca*

The body's response to chemical, physical, and microbial injuries including the functional and morphologic alterations in disease of the major organ systems are discussed.

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## Pharmacy (PHAR)

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Dean: James R. Halpert, Ph.D.

Associate Dean for Academic Affairs: Lauren Schlesselman, Pharmacy/Biology Building, Room 435

Associate Dean for Admissions and Student Services: Philip Hritcko, Pharmacy/Biology Building, Room 351

For major requirements, see the School of Pharmacy section of this Catalog.

### 1000. Drugs: Actions and Impact on Health and Society

Three credits. Two 1½-hour class periods. Not open to pharmacy students in the Professional Program. Not open to students who have completed PHAR 2000 when taken as Drugs: Actions and Impact on Health and Society. *Gerald*

Introductory survey of common drugs used medically and nonmedically. Biological emphasis with historical, cultural, social implications. General Concepts: mechanisms of action, modification drug response, and new drug development. CA 3.

### 1001. Toxic Chemicals and Health

Three credits. Not open to pharmacy students in the Professional Program

An elementary service course which will provide an understanding of the issues and

problems associated with evaluating human health risks from voluntary and involuntary exposure to toxic chemicals. An appreciation of toxic chemical risks as compared to other societal health risks, the processes of scientific risk assessment, and social management of toxic chemical risks will be gained. CA 3.

### 1005. Molecules in the Media

Three credits. Three 1-hour lecture periods. Not open to pharmacy students in the Professional Program.

Introduction to the fundamental concepts of chemistry and biology within the context of common molecules discussed in the media. Major topics include the structure and function of essential biological macromolecules, the mechanisms through which various molecules regulate natural processes, and the design and development of synthetic small molecules as therapeutic agents. CA 3.

### 2000. Special Topics Lecture

Credits and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

### 3012. Pharmacy Research Seminar

One credit. One class period. A cumulative grade point of 2.3 or above is normally required for enrollment. May be repeated up to two times for credit. *Anderson*

A seminar series providing an overview of current research areas and contemporary issues in pharmacy practice and the pharmaceutical sciences.

### 3087W. Honors Thesis in Pharmacy

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only to honors students within the School of Pharmacy with consent of the instructor and Associate Dean.

### 3095. Special Topics

Credits by arrangement. Prerequisite: Open only with consent of instructor; open only to Pharmacy students. This course may be repeated for credit. *Hubbard*

### 3099. Undergraduate Research

Credits by arrangement. Prerequisite: Open only with consent of instructor and Associate Dean. This course may be repeated for credit. *Hubbard*

Designed primarily for qualified students who wish to extend their knowledge in the various fields represented in the School of Pharmacy. A cumulative grade point average of 2.8 or above is normally required for enrollment. A written summary of work performed is required at the end of each semester.

### 4000. Pharmacogenomics

Three credits. Prerequisite: BIOL 1107; open to juniors or higher; open only with instructor consent.

Overview of personalized medicine. Discussion of individual response to treatment based on genetics, adaptation of treatment plans and medicines, phenotypes, genetics and environment, life style changes, and genomes.

## Pharmacy (PHRX)

*Dean:* James R. Halpert, Ph.D.

*Associate Dean for Academic Affairs:* Lauren Schlesselman, Pharmacy/Biology Building, Room 435

*Associate Dean for Admissions and Student Services:* Philip Hritcko, Pharmacy/Biology Building, Room 351

For major requirements, see the School of Pharmacy section of this Catalog.

The following courses are open only to students enrolled in the School of Pharmacy.

### 3000. Cellular Biology

Two credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Introduction to basic principles in cell biology, intracellular signaling, gene expression and biotechnology in the pharmaceutical sciences.

### 3001. Immunology

Two credits. Prerequisite: PHRX 3000.

Principles of immunology underlying disease processes.

### 3002. Foundations in Bioorganic Chemistry

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Fundamental knowledge of medicinal and natural products chemistry, metabolic biotransformation, and drug design.

### 3003. Nutrition

Two credits. Prerequisite: PHRX 3000, 3002.

Principles of enteral and parenteral nutrition related to prescription and non-prescription medication effects. Classification of nutrition status, and nutrition assessment. Identification of drug-nutrient deficiencies/interactions and preparation of disease-specific nutritional care plans. Evaluation, resources, and classification of complementary and alternative medicine (CAM).

### 3006. Drug Information I

One credit. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

An introduction into identification, analysis and reporting of information from textbooks, online resources and journal articles designed to familiarize students with medical literature. Concepts of primary, secondary, and tertiary literature, peer review, drug information databases and medical literature databases.

### 3007. Drug Information II

Two credits. Prerequisite: PHRX 3006.

Development of skills to identify and use information from primary literature in clinical or research practice and to assess research methodology, biostatistics, epidemiology in drug information literature.

### 3008. Pharmacy Communications

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Basic principles of interpersonal communication, including effective questioning, empathic listening, reflective responding, and adherence techniques. Development of skills to

achieve effective communication with patients and with other health care professionals. Students will have the opportunity to practice their patient counseling and interprofessional communication skills in a simulated environment.

### 3009. Principles of Drug Action

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Fundamental mechanisms of drug actions and effects with emphasis on interactions with cellular macromolecules and resulting downstream signaling events. Autonomic drugs and nomenclature.

### 3011. Correlated Pharmacy Problem Solving I

One credit. Prerequisite: PHRX 3008.

Small-group discussions to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

### 3020. Pharmacy Practice Experience I

One credit. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Development of patient care skills to include but not limited to self-care products, taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; some activities (Introductory Pharmacy Practice Experiences) at selected community pharmacy practice sites.

### 3021. Pharmacy Practice Experience II

Two credits. Prerequisite: PHRX 3020.

Development of patient care skills to include but not limited to self-care products, taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; activities (Introductory Pharmacy Practice Experiences) at selected community pharmacy practice sites.

### 3030. Pharmacokinetics/Biopharmaceutics

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Principles of pharmacokinetics and biopharmaceutics in the design of both dosage forms and dosing regimens.

### 3031. Foundations in Pharmaceutics I

Four credits. Prerequisite: PHRX 3030.

Principles underlying the formulation, dissolution, stability and release of drug products for optimum delivery. Dosage forms discussed include colloids, suspensions, emulsions, suppositories, aerosols, ointments and transdermals.

### 3032. Dosage Forms Preparation Laboratory I

One credit. Prerequisite: PHRX 3030.

Preparation of sterile and non-sterile dosage forms, with attention to solutions, solids and dispersed systems. A fee of \$20 is charged for this course.

### 3040. Neurology Module

Four credits. Prerequisite: PHRX 3000, 3002, 3009.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to neurologic drug therapy management.

### 3050. Public Health and Healthcare Policy

Three credits. Prerequisite: Must have satisfied the pre pharmacy prerequisites.

Provides students with: 1) an understanding of the core management principles used across pharmacy settings; 2) exposure to practical experiences on practice-specific management topics; and 3) application of pharmacy practice management principles to "real-world" management challenges.

### 3052. Hospital Pharmacy Practice

One credit. Prerequisite: PHRX 3006; instructor consent.

Overview of the practice of hospital pharmacy. Medication management in the hospital, informatics and technology impact on hospital pharmacy practice, regulations and evidence based medicine on practice and improvements in patient care through clinical pharmacy.

### 3053. Evidence-Based Pharmacy

Two credits. Prerequisite: Instructor consent; open only to students in pharmacy program. *Coleman, White*

Designed to facilitate student's understanding of the need for and value of evidence-based practice, to describe steps and processes involved in conducting a systemic review and meta-analysis and to teach students how to critically assess the validity of systemic reviews and meta-analyses and their roles in shaping clinical practice.

### 3054. Drugs and Society

Two credits. Prerequisite: Instructor consent; open only to students in pharmacy program.

Examination of the broad impact of drugs on society including health, athletic competition, lifestyle and appearance, literature, movies, reproduction and sexual behavior, drug abuse and advertising.

### 3055. Quantitative Pharmacy

Two credits. Prerequisite: Instructor consent; open only to students in the pharmacy program.

Predominantly online course using hands-on patient case scenarios to refresh and strengthen confidence using mathematical calculations commonly utilized in pharmacy practice.

### 3056. Medication Safety

Two credits. Prerequisite: Instructor consent; open only to students enrolled in pharmacy program. *Wheeler*

Exposes students to the principles and processes involved with improving safety within medication use systems.

### 3057. Discover the Leader Within

One credit. Prerequisite: Open only to students enrolled in the School of Pharmacy. With a change in content, may be repeated for credit.

Students will read a popular leadership book and participate in activities focused on its content. Discussion posts, study guides

and participation in in-class discussions. Applications to fundamental principles to pharmacy practice. Culminates with a discussion with the author or other leadership expert.

#### 3058. Future Pharmacy Leaders

One credit. Open to first year Pharmacy students.

A broad overview of leadership development, appreciation of personal strengths, and professional development. Run in collaboration with the University's Office of Leadership Programs, with the school's Phi Lambda Sigma members serving as mentors.

#### 3095. Special Topics

Credits by arrangement. Prerequisite: Open only to Pharmacy students. May be repeated for credit.

#### 4000. Pharmacoeconomics

One credit. Prerequisite: ECON 1201; PHRX 4050.

Application of pharmacoeconomic principles to formulary management, health-related quality of life, cost-benefit analysis, and pharmacoeconomic literature analysis.

#### 4001W. Current Topics in Pharmacy

Three credits. Prerequisite: PHRX 3006, 3007, 3008; ENGL 1010 or 1011 or 2011.

Presentation of a specific sub area of pharmacy with focus on biological, chemical, clinical/therapeutic, sociological or legal/ethical aspects of drugs, dosage forms or health care systems to improve the student's writing, presentation, and discussion skills.

#### 4010. Correlated Pharmacy Problem Solving II

One credit. Prerequisite: PHRX 3011.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

#### 4011. Correlated Pharmacy Problem Solving III

One credit. Prerequisite: PHRX 4010.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

#### 4020. Pharmacy Practice Experience III

One credit. Prerequisite: PHRX 3021.

Development of patient care skills to include taking medication histories, assessing patient medication regimens relating to hypertension and taking blood pressure measurements. Emphasis on proper blood pressure monitoring techniques and issues in treating hypertension, interpersonal communication; some activities (Introductory Pharmacy Practice Experiences) at selected institutional (hospital) pharmacy practice sites.

#### 4021. Pharmacy Practice Experience IV

Two credits. Prerequisite: PHRX 4020.

Development of patient care skills to include but not limited to self-care products, taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking.

Emphasis on interpersonal communication; activities (Introductory Pharmacy Practice Experiences) at selected institutional (hospital) pharmacy practice sites.

#### 4030. Foundations in Pharmaceutics II

Three credits. Prerequisite: PHRX 3031, 3032.

Principles and factors affecting performance of dosage forms classified as dispersed systems: suspensions, emulsions, suppositories, aerosols, ointments and transdermals.

#### 4031. Dosage Forms Preparation Laboratory II

One credit. Prerequisite: PHRX 3031, 3032.

Dosage forms preparation and basic techniques for compounding sterile and non-sterile dosage forms. A fee of \$20 is charged for this course.

#### 4040. Psychiatry Module

Five credits. Prerequisite: PHRX 3040.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to psychiatric drug therapy management.

#### 4041. Immunology Module

Two credits. Prerequisite: PHRX 3001, 3040.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to immunologic drug therapy management.

#### 4042. Gastroenterology Module

Two credits. Prerequisite: PHRX 4040, 4041.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to gastroenterological drug therapy management.

#### 4043. Endocrine Module

Three credits. Prerequisite: PHRX 4040, 4041.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to endocrinologic drug therapy management.

#### 4044. Dermatology Module

One credit. Prerequisite: PHRX 4041.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics, and pharmacotherapy (including both prescription and non-prescription medications) as they apply to dermatologic drug therapy management.

#### 4050. Pharmacy Practice Management

Two credits. Prerequisite: PHRX 3008, 3050.

Community pharmacy planning and operations including pharmacy financial management (institutional/community/long-term care), human resources, marketing and operations of chain and independent community pharmacy.

#### 4051. Pharmacy Law and Ethics

Two credits. Prerequisite: PHRX 3050.

A study of federal and state pharmacy practice laws with regards to ethical principles of patient care.

#### 4052. Advanced Compounding

Two credits. Prerequisite: PHRX 4031.

Advanced techniques and knowledge in prescription compounding will be applied to the preparation of extemporaneously prepared dosage forms that meet the needs of individual patients. A fee of \$10 is charged for this course.

#### 4053. All About E-Health

Two credits. Prerequisite: PHRX 3006, 3007; instructor consent. *Smith*

Use of health information technology (electronic health records, e-prescribing, online health and drug information, remote disease monitoring, medication therapy management, medication safety) in patient care. A holistic view of these topics is examined from the consumer/patient, health care professional, payor and health system perspectives.

#### 4054. Urban Service Track

One credit per semester. Prerequisite: Open to UConn Urban Health Scholars only. This course may be repeated for credit. *Dang*

An interprofessional program designed to develop future health professionals dedicated to caring for urban underserved populations and working in interprofessional teams.

#### 4055. Advanced Clinical Concepts in Pain Management

Two credits. Prerequisite: PHRX 3040; instructor consent. *Fitzgerald, Pham*

Emphasis is placed on evaluation of the pain patient, the pharmacology of analgesics, adjuvant agents and interventional techniques for the treatment of pain such as patient controlled analgesia, nerve blocks, intrathecal pumps, and alternative therapies (relaxation, Reiki therapy, hypnosis, acupuncture). The role of the pharmacist in acute and chronic pain management, palliative care and special populations (pediatrics, geriatrics) will be addressed. Regulatory issues and "hot topics" such as addiction issues in pain management, health disparities in pain care, and pain contracts will also be discussed.

#### 4056. A Bar and Grill Approach to Outpatient Pharmacy Practice

(Formerly offered as PHRX 5053.) Two credits. Prerequisite: PHRX 3021.

Emphasis on developing skills and knowledge necessary to the practice of pharmaceutical care in an outpatient setting. Value to students seeking careers in ambulatory or community pharmacy.

#### 4057. Developing Pharmacy Leaders

Two credits. Prerequisite: PHRX 3021.

Provides training and experience in leadership skills to include identifying personal strengths, envisioning change, team building and advocacy in the field of pharmacy.

#### 4058. Pharmacy LEADERS Track

Two credits. Prerequisite: Enrollment in Pharmacy LEADERS Track.

Designed to supplement and support the Pharmacy LEADERS Track by developing knowledge, attitudes, and behaviors essential

for leaders through leadership-related curricular and co-curricular activities, documentation of leadership experiences, self-reflection on leadership experiences, and presentation skills.

**5010. Correlated Pharmacy Problem Solving IV**

One credit. Prerequisite: PHRX 4011.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

**5011. Correlated Pharmacy Problem Solving V**

One credit. Prerequisite: PHRX 5010.

Small-group discussion to integrate the knowledge and principles learned in pharmacy law and ethics, pathophysiology, pharmacology, medicinal chemistry, pharmaceuticals, and pharmacotherapy of both prescription and non-prescription medications.

**5020. Pharmacy Practice Experience V**

One credit. Prerequisite: PHRX 4021.

Development of patient care skills to include but not limited to taking medication histories, assessing patient medication regimens, engaging in pharmacy drug-distribution and professional networking. Emphasis on interpersonal communication; activities (Introductory Pharmacy Practice Experiences) at selected pharmacy practice sites.

**5021. Pharmacy Practice Experience VI**

Two credits. Prerequisite: PHRX 5020.

Service Learning course designed to challenge students to gain a greater appreciation for the profession of pharmacy as it relates to their communities and the societal needs. Students will have the opportunity to work in an interprofessional environment with other health profession students and providers to assist the student in developing professional attitudes, judgment and skills needed to function as a team. Emphasis on interpersonal communication; activities at selected health related practice sites.

**5040. Cardiovascular Module**

Four credits. Prerequisite: PHRX 4042, 4043.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to cardiovascular drug therapy management.

**5041. Renal Module**

Two credits. Prerequisite: PHRX 4042, 4043.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to renal disorders drug therapy management.

**5042. Respiratory Module**

Two credits. Prerequisite: PHRX 4042, 4043.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to respiratory drug therapy management.

**5043. Infectious Disease Module**

Four credits. Prerequisite: PHRX 5040, 5041, 5042.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to infectious disease drug therapy management.

**5044. Hematology/Oncology Module**

Three credits. Prerequisite: PHRX 5040, 5041, 5042.

Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to hematologic/oncologic disorders drug therapy management.

**5045. Special Populations**

Four credits. Prerequisite: PHRX 3030, 3040, 4040, 4041, 4042, 4043, 4044, 5040, 5041, 5042.

Development of knowledge and skills necessary to make appropriate, patient-population specific, pharmacotherapeutic contributions to patient care.

**5046. Clinical Toxicology**

Two credits. Prerequisite: PHRX 3040, 4040, 4041, 4042, 4043, 4044.

Introduction to acute toxicity in humans to common drugs, chemicals and household products. Physical and laboratory assessment of common poisonings including the development of clinical management plans for common poisonings and the prevention of poisoning.

**5047. Pharmacy Practice Laboratory**

Three credits. Prerequisite: PHRX 3006, 3007, 3008, 3040, 3050, 4040, 4041, 4042, 4043, 4044, 4050, 4051.

Skills to provide pharmacist care in drug delivery and drug-distribution systems, the use of medication delivery and monitoring devices and the use of pharmacy references to drug information requests. Introduction to wellness screenings, vaccinations, patient education, collaborative practice agreements, and medication therapy management services. A fee of \$95 is charged for this course.

**5048. Patient Assessment**

Two credits. Prerequisite: PHRX 3003, 3006, 3007, 3040, 4040, 4041, 4042, 4043, 4044, 4050.

Completion of a "Pharmacist's Work-up of Drug Therapy" using the Helper/Strand concept of identifying and resolving drug-related-problems; patient assessment skills essential in the provision of pharmaceutical care to patients.

**5050. Pediatric Pharmacotherapy**

Two credits. Prerequisite: B.S. in Pharmacy Studies. *Girotto*

Extended therapeutic knowledge of common pediatric disease states and an understanding of some of the specific pharmacologic concerns in the pediatric population.

**5051. Careers in Pharmacy**

One credit. One class period. Prerequisite: B.S. in Pharmacy Studies.

Survey of career options available to Pharm.D. graduates and the broad role of

pharmacy graduates in healthcare. Exploration and self-examination of critical professional and personal factors that will contribute to greater career satisfaction.

**5052. Pharmacotherapy of Diabetes Mellitus**

Two credits. Prerequisite: PHRX 4043.

To enhance students' perception of diabetes mellitus as a multi-organ disease and to provide the necessary skills to recognize challenges to management, analyze laboratory data, and apply evidence-based medicine to real-world practicalities when developing a therapeutic plan.

**5055. Hot Topics in Infectious Diseases**

Two credits.

Introduces aspiring clinicians to how knowledge of basic microbiology, familiarity with the evolution of bacteria, and pharmacologic principles can be used to guide therapy in patients. Provides an overview of diseases and conditions caused by microorganisms not present in the ID module of the Doctor of Pharmacy curriculum.

**5070. Continuous Registration**

Zero credits. Prerequisite: B.S. in Pharmacy Studies and instructor consent. *Schlesselman*

Allows continuous registration in the professional pharmacy program while enrolled in the dual degree programs of Pharm.D/MBA and Pharm.D/MPH.

**5100. Professional Experience in Community Pharmacy**

Four credits. Hours by arrangement. Prerequisite: PHRX 5047, 5048.

The student will apply drug therapy knowledge and communication skills to the provision of pharmaceutical care in a community pharmacy. Emphasis is on further development of skills in patient assessment and patient education in optimizing response to pharmacotherapy. Introduction to the administrative aspects of the provision of pharmaceutical care in the community pharmacy is provided.

**5101. Professional Experience in Institutional Pharmacy I**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in an institutional setting. Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

**5102. Professional Experience in Ambulatory Care Pharmacy**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of disease therapeutics and communication skills to the provision of pharmaceutical care in the ambulatory setting. Emphasis is on optimizing medication-related outcomes in patients through medication assessment, multidisciplinary treatment planning, efficacy and safety assessment, and patient education. Direct patient contact.

**5103. Professional Experience in General Medicine**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of general medical disorders to the provision of pharmaceutical care to general medicine inpatients. Emphasis is on rational selection and use of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5104. Professional Experience in Cardiology**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of cardiovascular disorders to the provision of pharmaceutical care in cardiology patients. Emphasis is on optimization of medication-related outcomes in critically-ill cardiac patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5105. Professional Experience in Infectious Disease**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of infectious disease to the provision of pharmaceutical care to infectious disease inpatients. Emphasis is on optimization of medication-related outcomes in patients with serious infectious diseases through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5106. Professional Experience in Oncology**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of adult neoplastic disorders to the provision of pharmaceutical care to oncology patients. Emphasis is on rational drug selection of curative or palliative medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5107. Professional Experience in Psychiatry**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of the therapeutics of psychiatric disorders and communication skills to the provision of pharmaceutical care to psychiatric inpatients. Emphasis is on the optimization of medication-related outcomes in psychiatric patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5108. Professional Experience in Pediatrics**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of the therapeutics of pediatric disorders to the provision of pharmaceutical care to pediatric inpatients. Emphasis is on the optimization

of medication-related outcomes in pediatric patients through medication assessment multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5109. Professional Experience in Geriatrics**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of chronic and acute disorders in the elderly to the provision of medication therapy management for this special population. Emphasis is on rational selection of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes in geriatric patients is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5110. Professional Experience in Community Practice II**

Four credits. Prerequisite: PHRX 5047, 5048.

A continuation of PHRX 5100, the student will expand the application of drug therapy knowledge and communication skills to the provision of patient centered care in a community pharmacy. Emphasis is on continued development of patient assessment and patient education skills in optimizing response to medications.

**5111. Professional Experience in Critical Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of major medical disorders and of post-surgical drug therapy to the provision of pharmaceutical care to critical care patients in medical, surgical, and specialized intensive care units. Emphasis is on optimization of medication-related outcomes in seriously ill patients through medication assessment, multidisciplinary treatment planning, and efficacy and safety monitoring. Direct patient contact.

**5114. Professional Experience in Emergency Medicine**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of medical, surgical, toxicologic, and psychiatric emergencies to the provision of pharmaceutical care for adults and children treated in the emergency department. Emphasis is on optimization of medication-related outcomes in patients in need of emergency treatment, including medication assessment, efficacy and safety monitoring, and patient education. Direct patient contact.

**5115. Professional Experience in Home Health Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacy practice and skills in patient interaction to the provision of pharmaceutical care to patients in their homes. Emphasis is on optimization of medication-related outcomes in patients with common medical disorders served by home health care pharmacists, including medication assessment, efficacy and safety monitoring, and patient education.

**5116. Professional Experience in Institutional Pharmacy II**

Four credits. Prerequisite: PHRX 5047, 5048, 5101.

A continuation of PHRX 5101, the student will expand application of pharmacy knowledge and skills to the provision of pharmacy services in an institutional setting. Emphasis is on problem-solving project activity related to the provision of pharmaceutical care by the Department of Pharmacy.

**5117. Professional Experience in Industry**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacy and pharmaceutical science to the practice of pharmacy in the pharmaceutical industry. Emphasis is on development of skills needed in basic pharmaceutical science, information dissemination, drug development, and product marketing.

**5118. Professional Experience in Managed Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and communication skills to the practice of managed care pharmacy. Emphasis is on the development of strategies that optimize pharmacotherapy of major medical diseases, surgical procedures, and psychiatric disorders within the economic constraints of a managed care health care delivery system.

**5119. Professional Experience in Nuclear Pharmacy**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmaceutical science knowledge and communication skills to the provision of pharmaceutical care in nuclear pharmacy. Emphasis is on optimization of therapeutic outcomes related to diagnostic and therapeutic use of radioisotopes, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5120. Professional Experience in Nutrition**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of nutritional disorders to the provision of pharmaceutical care to patients with these disorders. Emphasis is on optimization of medication-related outcomes in nutrition disorder patients through current and past medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5122. Professional Experience in a Skilled Care Nursing Facility**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of medical diseases and psychiatric disorders and communication skills to patients in a skilled care nursing facility. Emphasis is on optimization of medication-related outcomes in skilled care nursing facility patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5123. Professional Experience in Surgery**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy to pre-surgical, surgical, and post-surgical use of drugs. Emphasis is on the optimization of medication-related outcomes in the surgical patient, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5124. Professional Experience in General Medicine II**

Four credits. Prerequisite: PHRX 5047, 5048. May be taken concurrently with PHRX 5103.

A continuation of PHRX 5103, the student will expand, in depth and in breadth, the application of pharmacotherapy principles to the provision of pharmaceutical care to general medicine inpatients. Emphasis is on continued development of the process of rational drug selection that encompassed the use of medications in an effective, appropriate, safe, and cost effective manner. Direct patient contact.

**5125. Professional Experience in Ambulatory Care Pharmacy II**

Four credits. Prerequisite: PHRX 5047, 5048. May be taken concurrently with PHRX 5102.

A continuation of PHRX 5102, the student will expand, in depth and in breadth, the application of pharmacotherapy principles to the provision of pharmaceutical care to general medicine outpatients. Emphasis is on continued development of the process of rational drug selection that encompassed the use of medications in an effective, appropriate, safe, and cost effective manner. Direct patient contact.

**5126. Professional Experience in Pharmacist - Directed Anticoagulation Service**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of acute and chronic thrombotic disorders to the provision of pharmaceutical care to patients requiring anticoagulation therapy. Emphasis is on the optimization of medication-related outcome in anticoagulated patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5128. Professional Experience in Hospice Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of the final stage of terminal disorders to the provision of pharmaceutical care to hospice patients requiring palliative therapy. Emphasis is on the optimization of medication-related outcome in hospice patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and family education. Direct patient contact.

**5129. Professional Experience in Subacute Care and Chronic Disease and Rehabilitative Medicine**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of chronic and subacute disorders to the provision of pharmaceutical care to patients undergoing physical rehabilitation in a skilled nursing facility. Emphasis is on the optimization of medication-related outcome in rehabilitation

patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5130. Professional Experience in HIV Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy of HIV disease to the provision of pharmaceutical care to patients with HIV. Emphasis is on optimization of medication-related outcomes in patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5131. Professional Experience in Public Health**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy to the provision of pharmaceutical care to patients of diverse populations with various diseases. Emphasis is on optimization of medication-related outcomes in patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient/caregiver education. Direct patient contact.

**5132. Professional Experience in Diabetes Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of diabetes disorders to the provision of pharmaceutical care in diabetic patients. Emphasis is on optimization of medication-related outcomes in a spectrum of diabetic patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5133. Professional Experience in Clinical Toxicology Pharmacy**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of services to patients and caregivers of patients requesting assistance in addressing both acute and chronic toxicity situations in a variety of home, clinic and hospital settings in collaboration with other health professionals. Students will also participate in didactic sessions designed to increase their knowledge of toxic substances.

**5134. Professional Experience in Population Kinetics**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the application of pharmacokinetic parameters for use in individual patients based on estimates from a larger population.

**5135. Professional Experience in Investigational Drugs**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmaceutical science knowledge and communication skills to the use of investigational drugs in pharmacy practice. Emphasis is on the process of randomization, patient selection and documentation of study procedures.

**5136. Professional Experience in Drug Information**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of drug information services in a variety of settings. Students will learn to follow site policies and procedures with respect to providing information subsequent to inquiries from preceptor site stakeholders.

**5137. Professional Experience in Pediatrics II**

Four credits. Prerequisite: PHRX 5047, 5048, 5108.

Building upon the experience gained from PHRX 5108, the student will apply knowledge of the therapeutics of pediatric disorders to the provision of pharmaceutical care to pediatric inpatients. Emphasis is on the optimization of medication-related outcomes in pediatric patients through medication assessment multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5138. Professional Experience in Industry II**

Four credits. Prerequisite: PHRX 5047, 5048, 5117.

Building upon the experience gained from PHRX 5117, the student will apply knowledge of pharmacy and pharmaceutical science to the practice of pharmacy in the pharmaceutical industry. Emphasis is on development of skills needed in basic pharmaceutical science, information dissemination, drug development, and product marketing.

**5139. Professional Experience in Pharmacy Association**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply their knowledge of the practice and profession of pharmacy to the provision of advocacy, organization and support for practicing pharmacist association members. Emphasis is on the communication of pharmacy's contribution and value to health care of society.

**5140. Professional Experience at the FDA**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills in a variety of settings within the Food and Drug Administration while learning about the regulatory process involved in drug development and marketing.

**5141. Professional Experience in Oncology II**

Four credits. Prerequisite: PHRX 5047, 5048, 5106.

Building upon the experience gained from PHRX 5106, the student will apply knowledge of therapeutics of adult neoplastic disorders to the provision of pharmaceutical care to oncology patients. Emphasis is on rational drug selection of curative or palliative medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5142. Professional Experience in Diabetes Care II**

Four credits. Prerequisite: PHRX 5047, 5048, 5132.

Building upon the experience gained from PHRX 5132, the student will apply knowledge of therapeutics of diabetes disorders to the

provision of pharmaceutical care in diabetic patients. Emphasis is on optimization of medication-related outcomes in a spectrum of diabetic patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5143. Professional Experience in Psychiatry II**

Four credits. Prerequisite: PHRX 5047, 5048, 5107.

Building upon the experience gained from PHRX 5107, the student will apply knowledge of the therapeutics of psychiatric disorders and communication skills to the provision of pharmaceutical care to psychiatric inpatients. Emphasis is on the optimization of medication-related outcomes in psychiatric patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5144. Professional Experience in Geriatrics II**

Four credits. Prerequisite: PHRX 5047, 5048, 5109.

Building upon the experience gained from PHRX 5109, the student will apply knowledge of therapeutics of chronic and acute disorders in the elderly to the provision of pharmaceutical care in a skilled nursing facility. Emphasis is on rational selection of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes in geriatric patients is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5145. Professional Experience in a Skilled Care Nursing Facility II**

Four credits. Prerequisite: PHRX 5047, 5048, 5122.

Building upon the experience gained from PHRX 5122, the student will apply knowledge of pharmacotherapy of medical diseases and psychiatric disorders and communication skills to patients in a skilled care nursing facility. Emphasis is on optimization of medication-related outcomes in skilled care nursing facility patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**5146. Professional Experience in Managed Care II**

Four credits. Prerequisite: PHRX 5047, 5048, 5118.

Building upon the experience gained from PHRX 5118, the student will apply pharmacy knowledge and communication skills to the practice of managed care pharmacy. Emphasis is on the development of strategies that optimize pharmacotherapy of major medical diseases, surgical procedures, and psychiatric disorders within the economic constraints of a managed care health care delivery system.

**5147. Professional Experience in International Pharmacy Practice**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in a variety of pharmacy practice settings outside the USA.

Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

**5148. Professional Experience in Nephrology**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of renal disorders to the provision of pharmaceutical care in patients with compromised renal function. Emphasis is on optimization of medication-related outcomes in renal patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5149. Professional Experience in Critical Care II**

Four credits. Prerequisite: PHRX 5047, 5048, 5111.

Building upon the experience gained from PHRX 5111, the student will apply knowledge of pharmacotherapy of major medical disorders and of post-surgical drug therapy to the provision of pharmaceutical care to critical care patients in medical, surgical, and specialized intensive care units. Emphasis is on optimization of medication-related outcomes in seriously ill patients through medication assessment, multidisciplinary treatment planning, and efficacy and safety monitoring. Direct patient contact.

**5150. Professional Experience in Pain Management**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of services to patients and caregivers of patients requesting assistance in addressing both acute and chronic pain as comorbidity with various other diseases. Students will work in collaboration with other health professionals. Direct patient contact.

**5151. Professional Experience in Management/Drug Information**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the provision of drug information services in a variety of settings. Students will learn to follow site policies and procedures with respect to providing information subsequent to inquiries from preceptor site stakeholders. Students will also experience management issues embedded in contemporary pharmacy practice.

**5152. Professional Experience in Medication Safety**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to practice principles and processes involved with improving safety in medication use systems. Students will prepare to take part in key health setting committee meetings related to safety.

**5153. Professional Experience in Academia**

Four credits. Prerequisite: PHRX 5047, 5048.

This rotation is designed to provide students who are interested in a career in academia the opportunity to develop their skills in teaching in various settings. Students will have extensive

exposure to the development of learning modules, lecture and small group discussions. In addition, opportunity exists for an introduction to ACPE accreditation of Continuing Pharmacy Education and students may be involved in the planning and design of various continuing education activities as well as scholarship activities surrounding continuing education to develop a sense of the importance of continuing professional development.

**5154. Professional Experience in Organ Transplantation**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of the therapeutics of organ transplantation and communication skills to the provision of pharmaceutical care to transplant inpatients. Emphasis is on the optimization of medication-related outcomes in transplant patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5155. Professional Experience in International Pharmacy Practice II**

Four credits. Prerequisite: PHRX 5047, 5048, 5147.

Building upon the experience gained from PHRX 5147, the student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in a variety of pharmacy practice settings outside the USA. Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

**5156. Professional Experience in Nephrology II**

Four credits. Prerequisite: PHRX 5047, 5048, 5148.

Building upon the experience gained from PHRX 5148, the student will apply knowledge of therapeutics of renal disorders to the provision of pharmaceutical care in patients with compromised renal function. Emphasis is on optimization of medication-related outcomes in renal patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

**5157. Professional Experience in Community Practice III**

Four credits. Prerequisite: PHRX 5047, 5048, 5100, 5110.

Building upon the experience gained from PHRX 5100 and 5110, the student will expand the application of drug therapy knowledge and communication skills to the provision of pharmaceutical care in a community pharmacy. Emphasis is on continued development of patient assessment and patient education skills in optimizing response to medications.

**5158. Professional Experience in Perioperative Surgery**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of pharmacotherapy to pre-surgical and post-surgical use of drugs. Emphasis is on the optimization of medication-related preparation



and outcomes in the surgical patient, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

#### **5159. Professional Experience in Burn Care**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics to the provision of pharmaceutical care in patients with burns. Emphasis is on optimization of medication-related outcomes in burn patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

#### **5160. Professional Experience in Academia II**

Four credits. Prerequisite: PHRX 5047, 5048, 5153.

Building on PHRX 5153, this rotation is designed to provide students who are interested in a career in academia the opportunity to develop their skills in teaching in various settings. Students will have extensive exposure to the development of learning modules, lecture and small group discussions. In addition, opportunity exists for an introduction to ACPE accreditation of Continuing Pharmacy Education and students may be involved in the planning and design of various continuing education activities as well as scholarship activities surrounding continuing education to develop a sense of the importance of continuing professional development

#### **5161. Professional Experience in Pharmacy Informatics**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the integration of information systems into health care settings. Students will be exposed to a variety of component parts of medication distribution automation, electronic documentation as well as data gathering and reporting tools embedded in pharmacy practice. Students will also experience data management issues embedded in contemporary pharmacy practice.

#### **5162. Professional Experience in Hospital Administration**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the development of management skills in health system settings. Students will gain an understanding of the challenges of management responsibilities and strategies used to overcome them as well as the role of leadership.

#### **5163. Professional Experience in Neurology**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of therapeutics of neurological disorders to the provision of pharmaceutical care in cardiology patients. Emphasis is on optimization of medication-related outcomes in patients with neurological disorders through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

#### **5164. Professional Experience in Infectious Disease II**

Four credits. Prerequisite: PHRX 5047, 5048, 5105.

Building on PHRX 5105, the student will apply knowledge of pharmacotherapy of infectious disease to the provision of pharmaceutical care to infectious disease inpatients. Emphasis is on optimization of medication-related outcomes in patients with serious infectious diseases through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education. Direct patient contact.

#### **5165. Professional Experience in Pharmacy Management**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy knowledge and skills to the development of management skills in pharmacy settings. Students will gain an understanding of the challenges of management responsibilities and strategies used to overcome them as well as the role of leadership.

#### **5166. Professional Experience in Outcomes Research**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply pharmacy, drug literature evaluation, pharmacoeconomic and statistical analysis knowledge and skills to complete clinically relevant outcomes research projects. Students will work as a member of an interdisciplinary team to complete prospective clinical research, systematic reviews and meta-analyses, observational and economic modeling studies. Finally, students will also participate in didactic sessions designed to increase their knowledge of outcomes research.

#### **5167. Urban Service Track**

Four credits. Prerequisite: Acceptance into the UST Program.

The Urban Service Track (UST) scholar program is an innovative educational program that provides health professions students with the opportunity to gain valuable skills and experiences in the care of urban, underserved patients, while working and learning together. UST Scholars collaborate in all activities as inter-professional teams composed of students from the UConn Schools of Pharmacy, Dental Medicine, Medicine and Nursing and the Connecticut Area Health Education Center (AHEC) program. UST Pharmacy Scholars focus on teaching both patients and other health profession students regarding their role on the health care team. Direct patient contact.

#### **5168. Professional Experience in Pediatric Infectious Disease**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will apply knowledge of infectious diseases to the provision of pharmaceutical care in pediatric patients (inpatient and outpatient). Students will participate in antimicrobial stewardship activities as well as participate as a member of the pediatric infectious disease team. Emphasis is on medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring. Direct patient contact.

#### **5169. Professional Experience in Pharmacy Leadership**

Four credits. Prerequisite: PHRX 5047, 5048.

The student will improve leadership skills through an understanding of leadership theory, interactions with leaders in pharmacy and other fields, and participation in a "real world" project. This course provides an opportunity to improve teaching and mentoring skills while working collaboratively with pharmacists and health professionals.

#### **5195. Special Topics in Clinical Rotations**

Credits by arrangement. This course may be repeated for credit.

#### **5199. Undergraduate Experiential Research**

Four credits. Prerequisite: PHRX 5047, 5048; open only with the consent of instructor and Associate Dean.

This rotation is designed primarily for qualified students who wish to extend their knowledge in various fields represented in the School of Pharmacy. A written summary of work performed is required at the end of this rotation in addition to all other requirements.

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## **Philosophy (PHIL)**

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*Head of Department:* Professor Donald Baxter

*Department Office:* Room 101, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### **1101. Problems of Philosophy**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Topics may include skepticism, proofs of God, knowledge of the external world, induction, free-will, the problem of evil, miracles, liberty and equality. CA 1.

#### **1102. Philosophy and Logic**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Techniques for evaluating inductive and deductive arguments; applications to specific arguments about philosophical topics, for example the mind-body problem or free will vs. determinism. CA 1.

#### **1103. Philosophical Classics**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Discussion of selections from such philosophers as Plato, Aristotle, Descartes, and Hume. CA 1.

#### **1104. Philosophy and Social Ethics**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Topics may include the nature of the good life, the relation between social morality and individual rights, and practical moral dilemmas. CA 1.

**1105. Philosophy and Religion**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Topics may include proofs of the existence of God, the relation of religious discourse to other types of discourse, and the nature of religious commitment. CA 1.

**1106. Non-western and Comparative Philosophy**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Classic non-Western texts on such problems as the nature of reality and of our knowledge of it, and the proper requirements of social ethics, along with comparison to classic Western approaches to the same problems. CA 1. CA 4-INT.

**1107. Philosophy and Gender**

Three credits. No student may receive more than 6 credits for PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Topics concern social ethics and gender, such as gender equality and the impact of gender norms on individual freedom. Specific topics are examined in light of the intersections between gender and race, ethnicity, class, and sexual orientation. CA 1. CA 4

**1175. Ethical Issues in Health Care**

Three credits.

Theories of ethics, with specific application to ethical issues in modern health care. CA 1.

**2170W. Bioethics and Human Rights in Cross-Cultural Perspective**

(Also offered as HRTS 2170W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher.

Philosophical examination of the ethical and human rights implications of recent advances in the life and biomedical sciences from multiple religious and cultural perspectives. CA 1.

**2205. Aesthetics**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

The fundamentals of aesthetics, including an analysis of aesthetic experience and judgment, and a study of aesthetic types, such as the beautiful, tragic, comic and sublime. Recent systematic and experimental findings in relation to major theories of the aesthetic experience.

**2210. Metaphysics and Epistemology**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Topics may include time, personal identity, free-will, the mind-body problem, skepticism, induction, perception, a priori knowledge.

**2210W. Metaphysics and Epistemology**

Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011.

**2211Q. Symbolic Logic I**

Three credits. Prerequisite: At least one of LING 1010, POLS 1002, PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Systematic analysis of deductive validity; formal languages which mirror the logical

structure of portions of English; semantic and syntactic methods of verifying relations of logical consequence for these languages.

**2212. Philosophy of Science**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Issues concerning the nature and foundations of scientific knowledge, including, for example, issues about scientific objectivity and progress.

**2212W. Philosophy of Science**

Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011.

**2215. Ethics**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Judgments of good and evil, right and justice, the moral 'ought' and freedom; what do such judgments mean, is there any evidence for them, and can they be true?

**2215W. Ethics**

Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011.

**2217. Social and Political Philosophy**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Conceptual, ontological, and normative issues in political life and thought; political obligation; collective responsibility; justice; liberty; equality; community; the nature of rights; the nature of law; the justification of punishment; related doctrines of classic and contemporary theorists such as Plato, Rousseau, John Rawls.

**2221. Ancient Philosophy**

(Also offered as CAMS 3257.) Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Greek philosophy from its origin in the Pre-Socratics through its influence on early Christianity. Readings from the works of Plato and Aristotle.

**2221W. Ancient Philosophy**

Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011.

**2222. Seventeenth and Eighteenth-Century Philosophy**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Central philosophical issues as discussed by philosophers such as Descartes, Locke, Berkeley, Hume and Kant.

**2222W. Seventeenth and Eighteenth-Century Philosophy**

Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011.

**3200. Philosophical Issues in Contemporary Life**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; open to juniors or higher. May be repeated with a change in topic for a maximum of six credits.

Philosophical dimensions of problems in contemporary life. Topics vary by semester.

**3214. Symbolic Logic II**

Three credits. Prerequisite: PHIL 2211.

Logical concepts developed in PHIL 2211 applied to the study of philosophical issues in the foundations of mathematics.

**3216. Environmental Ethics**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; open to juniors or higher.

Inquiry into obligations to, or concerning, the environment, particularly the moral standing of animals, species, ecosystems, and natural objects.

**3216W. Environmental Ethics**

Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3218. Feminist Theory**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; or WGSS 1104, 1105, or 1124.

Philosophical issues in feminist theory. Topics may include the nature of gender difference, the injustice of male domination and its relation to other forms of domination, the social and political theory of women's equality in the home, in the workplace, and in politics.

**3219. Topics in Philosophy and Human Rights**

(Also offered as HRTS 3219.) Three credits. Prerequisite: One three-credit course in Philosophy or instructor consent; open to juniors or higher. With a change in content, may be repeated for credit.

What are human rights? Why are they important? Topics may include the philosophical precursors of human rights, the nature and justification of human rights, or contemporary issues bearing on human rights.

**3219W. Topics in Philosophy and Human Rights**

(Also offered as HRTS 3219W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; one three-credit course in Philosophy or instructor consent; open to juniors or higher. With a change in content, may be repeated for credit.

**3220. Philosophical Foundations of Human Rights**

(Also offered as HRTS 3220.) Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107. *Bloomfield, Parekh*

Ontology and epistemology of human rights investigated through contemporary and/or historical texts. CA 1.

**3220W. Philosophical Foundations of Human Rights**

(Also offered as HRTS 3220W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; at least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107. CA 1.

**3225W. Analysis and Ordinary Language**

Three credits. Prerequisite: At least one of PHIL 2210, 2221, 2222; ENGL 1010 or 1011 or 2011.

The reaction, after Russell, against formal theories and the belief in an ideal language, and the turn to familiar common-sense "cases" and everyday language in judging philosophical claims. Russell, Moore, Wittgenstein, Ryle and Strawson.

**3226. Philosophy of Law**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107, which may be taken concurrently.

The nature of law; law's relation to morality; law's relation to social facts; the obligation to obey the law; interpreting texts; spheres of law; international law; the justification of state punishment; the good of law; related doctrines of contemporary theorists such as Herbert Hart and Ronald Dworkin.

**3231. Philosophy of Religion**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Various religious absolutes, their meaning and validity, existentialism and religion, the post-modern religious quest.

**3241. Language: Meaning and Truth**

Three credits. Prerequisite: PHIL 1102 or 2211, and at least one of PHIL 2210, 2221, 2222.

An analysis of the concepts used in thinking about language.

**3247. Philosophy of Psychology**

Three credits. Prerequisite: Any one of PSYC 2500, 3500, 3550W, 3551W, or 3552; and at least one three-credit philosophy course or instructor consent.

Conceptual issues in theoretical psychology. Topics may include computational models of mind, the language of thought, connectionism, neuropsychological deficits, and relations between psychological models and the brain.

**3247W. Philosophy of Psychology**

Prerequisite: Any one of PSYC 2500, 3500, 3550W, 3551W, or 3552; and at least one three-credit philosophy course or instructor consent; ENGL 1010 or 1011 or 2011.

**3249. Philosophy and Neuroscience**

Three credits. Prerequisite: At least one 2000-level or above, three-credit course in Physiology and Neurobiology (PNB), and at least one three-credit course in philosophy or consent of instructor.

Philosophical issues in neuroscience. Topics may include theories of brain function, localization of function, reductionism, neuropsychological deficits, computational models in neuroscience, connectionism, and evolution.

**3249W. Philosophy and Neuroscience**

Prerequisite: At least one 2000-level or above, three-credit course in Physiology and Neurobiology (PNB), and at least one three-credit course in philosophy or consent of instructor; ENGL 1010 or 1011 or 2011.

**3250. Philosophy of Mind**

Three credits. Prerequisite: At least one 2000-level or above, three-credit philosophy course.

Contemporary issues in the philosophy of mind. Topics may include the nature of the mental; the mind-body problem, the analysis of sensory experience, the problem of intentionality, and psychological explanation.

**3250W. Philosophy of Mind**

Prerequisite: At least one 2000-level or above, three-credit philosophy course; ENGL 1010 or 1011 or 2011.

**3256. Philosophy of Perception**

Three credits. Prerequisite: Any one of PSYC 2501, 3501, 3550W, or 3552; or at least one 2000-level or above, three-credit philosophy course.

Conceptual problems in contemporary models of perception. Topics may include the nature of color perception, direct perception and its alternatives, computation and representation in perception, and the connections between perception and awareness.

**3256W. Philosophy of Perception**

Prerequisite: Any one of PSYC 2501, 3501, 3550W, or 3552; or at least one 2000-level or above, three-credit philosophy course; ENGL 1010 or 1011 or 2011.

**3261. Medieval Philosophy**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; open to juniors or higher.

Readings from the principal philosophers between the fourth and fourteenth centuries.

**3261W. Medieval Philosophy**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3263. Asian Philosophy**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107; open to juniors or higher.

The historical, religious, and philosophical development of Asian systems of thought.

**3264. Classical Chinese Philosophy and Culture**

Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.

Classical Chinese philosophy, including such works as The Analects of Confucius and the works of Chuang Tzu, and their influence on Chinese culture.

**3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

Advanced and individual work.

**4293. Foreign Study**

Credits and hours by arrangement up to a maximum of six credits. Prerequisite: Consent of Department Head required, preferably prior to the student's departure.

Special topics taken in a foreign study program.

**4296W. Senior Thesis in Philosophy**

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor and Department Head; twelve credits in Philosophy at the 2000-level or above, three of which may be taken concurrently. Independent study authorization form required.

**4995. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated for credit.

**4998. Variable Topics**

Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated for credit.

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**Physics (PHYS)**


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*Head of Department:* Professor Nora Berrah

*Department Office:* Room 101, Physics Building

*Program Assistant for Graduate and Undergraduate Studies:* Micki Bellamy

*Office:* Room 107, Physics Building, 860-486-0449

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1010Q. Elements of Physics**

Four credits. Three class periods and one 2-hour laboratory period. Not open for credit to students who have passed PHYS 1201Q, 1401Q, 1501Q or 1601Q.

Basic concepts and applications of physics for the non-science major. Scientific principles and quantitative relationships involving mechanics, energy, heat and temperature, waves, electricity and magnetism, and the theory of the atom are covered. A laboratory provides hands-on experience with the principles of physics. CA 3-LAB.

**1020Q. Introductory Astronomy**

Three credits. Not open to students who have passed PHYS 1025Q.

A basic introductory astronomy course without laboratories, including principles of celestial coordinate systems and telescope design; applications of fundamental physical laws to the sun, planets, stars and galaxies; evolution of stars, galaxies and the universe; recent space probe results, modern cosmology, astrobiology. Night observing sessions are an integral part of the course. CA 3.

**1025Q. Introductory Astronomy with Laboratory**

Four credits. Three class periods and one 2-hour laboratory period. Not open to students who have passed PHYS 1020Q.

A basic introductory astronomy course including principles of celestial coordinate systems and telescope design; applications of fundamental physical laws to the sun, planets, stars and galaxies; evolution of stars, galaxies and the universe; recent space probe results, modern cosmology, astrobiology. Basic quantitative laboratory techniques relevant to astronomy. Night observing sessions are an integral part of the course. CA 3-LAB.

**1030Q. Physics of the Environment**

Three credits. Not applicable to any requirement that specifies a course in "general physics."

Concepts of physics applied to current problems of the physical environment: energy, transportation, pollution. No previous knowledge of physics is assumed. CA 3.

**1035Q. Physics of the Environment with Laboratory**

Four credits. Three class periods and one 2-hour laboratory period. No previous knowledge of physics is assumed. Not open for credit to students who have passed PHYS 1030Q.

Concepts of physics applied to the physical environment, particularly to current problems related to energy, transportation, and pollution. These relationships will be further explored in the laboratory section. CA 3-LAB.

**1075Q. Physics of Music**

Four credits. Three class periods and one 2-hour laboratory period.

Basic principles of physics and scientific reasoning will be taught in the context of the production and perception of music, emphasizing the historic and scientific interplay between physics and music. Basic quantitative laboratories pertaining to sound, music, and waves. No previous knowledge of physics or music is assumed. CA 3-LAB.

**1201Q-1202Q. General Physics**

Four credits each semester. Three class periods and one 3-hour laboratory period. Prerequisite: MATH 1060Q or 1110Q or equivalent. PHYS 1201Q not open for credit to students who have passed PHYS 1401Q, 1501Q or 1601Q. PHYS 1202Q not open for credit to students who have passed PHYS 1402Q, 1502Q or 1602Q. PHYS 1201Q required for PHYS 1202Q.

Basic facts and principles of physics. The laboratory offers fundamental training in precise measurements. CA 3-LAB.

**1230. General Physics Problems**

Three credits. Prerequisite: PHYS 1202Q and MATH 1132Q, both of which may be taken concurrently. Not open for credit to students who have passed PHYS 1501Q or 1601Q.

Problems, emphasizing applications of calculus, dealing with topics in general physics. Intended for those students who have taken or are taking PHYS 1202Q and who desire to have a calculus-based physics sequence equivalent to PHYS 1401Q-1402Q.

**1300. Physics for the Pharmacy Profession**

Three credits. Prerequisite: MATH 1126Q which may be taken concurrently, or MATH 1131Q, or MATH 1151Q. Not open for credit to students who have passed PHYS 1230, 1401Q, 1402Q, 1501Q, 1502Q, 1601Q, or 1602Q.

Survey of the principles of physics and their application to the pharmaceutical sciences. Basic concepts of calculus are used. Examples from mechanics, electricity and magnetism, thermodynamics, fluids, waves, and atomic and nuclear physics.

**1401Q-1402Q. General Physics with Calculus**

Four credits each semester. Three class periods and one 3-hour laboratory period. Recommended preparation for PHYS 1401Q: MATH 1131Q.

Prerequisite for PHYS 1402Q: PHYS 1401Q. Recommended preparation for PHYS 1402Q: MATH 1132Q. PHYS 1401Q is not open for credit to students who have passed PHYS 1501Q or 1601Q. PHYS 1402Q not open for credit to students who have passed PHYS 1502Q or 1602Q. PHYS 1401Q may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credits for PHYS 1201Q. PHYS 1402Q may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 1202Q.

Quantitative study of the basic facts and principles of physics. The laboratory offers fundamental training in physical measurements. Recommended for students planning to apply for admission to medical, dental or veterinary schools and also recommended for science majors for whom a one year introductory physics course is adequate. CA 3-LAB.

**1501Q. Physics for Engineers I**

Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 1010Q or secondary school physics; and CE 2110, as well as either MATH 2110Q or 2130Q which may be taken concurrently. Not open for credit to students who have passed PHYS 1401Q or 1601Q. PHYS 1501Q may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 1201Q.

Basic facts and principles of physics. Elementary concepts of calculus are used. Classical dynamics, rigid-body motion, harmonic motion, wave motion, acoustics, relativistic dynamics, thermodynamics. CA 3-LAB.

**1502Q. Physics for Engineers II**

Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 1501Q. Not open for credit to students who have passed PHYS 1402Q or 1602Q. PHYS 1502Q may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 1202Q.

Electric and magnetic fields, electromagnetic waves, quantum effects, introduction to atomic physics. CA 3-LAB.

**1530. General Physics Problems for Engineers**

Four credits. Three class periods and one 1-hour recitation period. Prerequisite: PHYS 1202Q and MATH 1132Q, both of which may be taken concurrently. Not open for credit to students who have passed PHYS 1230, 1501Q or 1601Q.

Problems, emphasizing applications of calculus, dealing with topics in general physics. Intended for those students who have taken or are taking PHYS 1202Q and who desire to have a calculus-based physics sequence equivalent to PHYS 1501Q-1502Q or 1601Q-1602Q.

**1600Q. Introduction to Modern Physics**

Four credits. Three class periods, one recitation period, and one 3-hour laboratory period. Recommended preparation: MATH 1060Q, which may be taken concurrently, or a qualifying score on the mathematics placement assessment.

Quantitative exploration of the structure of matter, including gas laws, electric and magnetic forces, the electron, x-rays, waves

and light, relativity, radioactivity, and spectra. Recommended for prospective Physics majors. CA 3-LAB.

**1601Q. Fundamentals of Physics I**

Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: MATH 1131Q or 1151Q, any of which may be taken concurrently. MATH 1151Q is preferred for Physics majors. Not open for credit to students who have passed PHYS 1401Q or 1501Q. May be taken for not more than three credits, with the permission of the instructor, by students who have received credit for PHYS 1201Q.

Fundamental principles of mechanics, statistical physics, and thermal physics. Basic concepts of calculus are used. Recommended for prospective Physics majors. CA 3-LAB.

**1602Q. Fundamentals of Physics II**

Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 1601Q, and MATH 1132Q or 1152Q, any of which may be taken concurrently. MATH 1152Q is preferred for Physics majors. Not open for credit to students who have passed PHYS 1402Q or 1502Q. May be taken for not more than three credits, with the permission of the instructor, by students who have received credit for PHYS 1202Q.

Fundamental principles of electromagnetism, optics and wave propagation. Basic concepts of calculus are used. Recommended for prospective Physics majors. CA 3-LAB.

**2200. Computational Physics**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q and MATH 2410Q, any of which may be taken concurrently; or instructor consent.

A basic introduction to numerical and mathematical methods required for the solution of physics problems using currently available scientific software for computation and graphics.

**2300. The Development of Quantum Physics**

Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q, which may be taken concurrently; or PHYS 1202Q with consent of instructor.

The inadequacies of classical physical concepts in the submicroscopic domain. The revision of physical principles that led to special relativity and modern quantum theory. Application to topics chosen from atomic and molecular physics, solid state physics, nuclear physics and elementary particle physics.

**2400. Mathematical Methods for the Physical Sciences**

Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q; and MATH 2110Q; either or both may be taken concurrently; or consent of the instructor.

Theoretical mathematical methods required for physical science courses.

**2501W-2502. Laboratory in Electricity, Magnetism, and Mechanics**

Three credits each semester. One class period, one 3-hour laboratory period, and additional assignments on the theoretical interpretation

of experiments. One hour lecture per week. Time by arrangement. A written presentation of methods and results is required for each experiment. Prerequisite: First semester, PHYS 1201Q or 1401Q or 1501Q or 1601Q; Second semester, PHYS 1202Q or 1402Q or 1502Q or 1602Q. Both semesters, Prerequisite: ENGL 1010 or 1011 or 2011.

Experiments with mechanical phenomena. Experiments with electric and magnetic phenomena, including their interaction with matter. The handling of experimental data. The use of computers in experimental physics.

### 3101. Mechanics I

Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q; MATH 2110Q or 2130Q, which may be taken concurrently.

Newton's Laws of motion applied to mass points, systems of particles, and rigid bodies.

### 3102. Mechanics II

Three credits. Prerequisite: MATH 2410 or 2420 and PHYS 3101 or CE 2120.

Further applications of Newton's Laws; continuous media; Lagrange's and Hamilton's formulation of dynamics.

### 3150. Electronics

Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q or instructor consent.

The principles of devices and their applications to instrumentation in science and engineering. Rectification, filtering, regulation, input and output impedance, basic transistor circuits, operational amplifiers, preamplifiers for photodiodes and other transducers, logic gates, and digital circuits.

### 3201. Electricity and Magnetism I

Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q or instructor consent; MATH 2110Q and 2410Q, or 2130Q and 2420Q.

Properties of electric and magnetic fields; direct and alternating current circuits.

### 3202. Electricity and Magnetism II

Three credits. Prerequisite: PHYS 3201.

Mathematical theory of the electromagnetic field; electric and magnetic properties of matter.

### 3300. Statistical and Thermal Physics

Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q; PHYS 2300; MATH 2110Q and 2410Q, or 2130 and 2420. Recommended preparation: PHYS 3201 and 3401.

The laws of thermodynamics and their microscopic statistical basis; entropy, temperature, Boltzmann factor, chemical potential, Gibbs factor, and the distribution functions.

### 3401-3402. Introductory Quantum Mechanics

Three credits each semester. Prerequisite: PHYS 2300; MATH 2110Q and 2410Q, or 2130Q and 2420Q.

Elementary principles of quantum mechanics; applications to electrons, atoms, molecules, nuclei, elementary particles, and solids.

### 3989. Undergraduate Research

Credits, not to exceed three each semester, and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Introduction to original investigation performed by the student under the guidance of a faculty member. The student is required to submit a brief report at the end of each semester.

### 4093. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 4095. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### 4096W. Research Thesis in Physics

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only with instructor consent.

Research investigation for the advanced undergraduate. Research and writing of a Thesis are required. Final public presentation is recommended.

### 4098. Variable Topics

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

### 4099. Independent Study

Credits by arrangement, not to exceed 3 each semester. Prerequisite: Open only with consent of instructor. With a change of topic, this course may be repeated for credit.

### 4100. Physics of the Earth's Interior

(Also offered as GSCI 4550.) Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q, which may be taken concurrently; MATH 1126Q or 1131Q, which may be taken concurrently. Recommended preparation: MATH 1132Q. *Cormier*

The composition, structure, and dynamics of the Earth's core, mantle, and crust inferred from observations of seismology, geomagnetism, and heat flow.

### 4130. Fundamentals of Planetary Science

(Also offered as GSCI 4560.) Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q, which may be taken concurrently; MATH 1126Q or 1131Q, which may be taken concurrently. *Cormier*

Evolution of the solar system, celestial mechanics, tidal friction, internal composition of planets, black-body radiation, planetary atmospheres.

### 4140. Principles of Lasers

Three credits. Prerequisite: PHYS 3202 and 3401 or instructor consent. Recommended preparation: PHYS 4150.

The physics of lasers, including optical pumping and stimulated emission, laser rate equations, optical resonators, Gaussian beam

propagation, Q-switching, mode-locking and nonlinear optics. Applications to gas, solid-state and tunable laser systems.

### 4150. Optics

Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q or instructor consent. Recommended preparation: PHYS 3201.

An introduction to geometrical and physical optics. Thick lenses, stops, aberrations, interference, diffraction, polarization.

### 4210. Introduction to Solid State Physics

Three credits. Prerequisite: PHYS 1230 or 1402Q or 1502Q or 1530 or 1602Q.

Crystal lattices, lattice waves, thermal and electronic properties, imperfections in solids.

### 4300. Astrophysics and Modern Cosmology

(Also offered as PHYS 6300.) Three credits. Prerequisite: PHYS 2300, 3101, and 3201; or instructor consent.

Basic principles of contemporary astrophysics; applications to stars, galaxies, and modern cosmology.

### 4350. Nuclei and Particles

Three credits. Prerequisite: PHYS 3401 or equivalent.

Properties of nuclei and particles, conserved quantities, isospin, quark model, Fermi gas model, electroweak interaction, high energy scattering.

### 4900. Experimental Physics Design Laboratory

Three credits. Two 3-hour laboratory periods and additional reading assignments. A written description of the proposed method must be submitted and approved before each experiment, and a subsequent written critical evaluation of each experiment is required. Prerequisite: PHYS 2300, 3101 or 3102, and 3202; PHYS 3401, which may be taken concurrently; and PHYS 2501 or 2502 or MSE 4003.

Experiments in modern and classical physics are independently designed, performed, and evaluated. Experiments are chosen from the areas of atomic, solid state and thermal physics, as well as from acoustics and optics. Computers are utilized for control of the experimental process, data acquisition and analysis.

## Physiology and Neurobiology (PNB)

*Head of Department:* Professor Larry Renfro

*Department Office:* Room 67, Torrey Life Science Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1401. Honors Core: Computational Molecular Biology

(Also offered as BME 1401, CSE 1401, and MCB 1401.) Three credits.

Introduction to research in computational biology through lectures, computer lab exercises, and mentored research projects. Topics include gene and genome structure, gene regulation, mechanisms of inheritance, biological databases, sequence alignment, motif finding, human genetics, forensic genetics, stem cell development,

comparative genomics, early evolution, and modeling complex systems. CA 3.

### 2250. Animal Physiology

Three credits. Prerequisite: BIOL 1107 and either 1108 or 1110.

Physiological mechanisms and regulation in vertebrate animals.

### 2264-2265. Human Physiology and Anatomy

Four credits each semester. Three class periods and one 3-hour laboratory. Prerequisite: BIOL 1107, and one of CHEM 1122 or 1124Q or 1127Q. Not open to students who have passed PNB 2274-2275. These courses must be taken in sequence to obtain credit, and may not be counted toward the Biological Sciences or Physiology and Neurobiology majors.

Fundamentals of human anatomy and physiology for students in medical technology, physical therapy, nursing, and education (Sport Science). A fee of \$20 is charged for each course.

### 2274-2275. Enhanced Human Physiology and Anatomy

Four credits each semester. Three class periods and one 3-hour laboratory. Prerequisite: BIOL 1107, and either CHEM 1124Q or 1127Q. Not open to students who have passed PNB 2264-2265. Must be taken in sequence to obtain credit.

Fundamentals of human physiology and anatomy enhanced through inquiry-based laboratories. A fee of \$20 is charged for each course.

### 3120W. Scientific Writing in Physiology and Neurobiology

One credit. Prerequisite: One 2000-level course in PNB; ENGL 1010 or 1011 or 2011; open to juniors or higher. Instructor consent required.

Principles of effective scientific writing focusing on the communication of physiology and neurobiology to lay audiences.

### 3180. Field Study in Physiology and Neurobiology

Variable (1 to 4) credits. Hours by arrangement. Prerequisite: Open with consent of department head. May be repeated for a total of up to 6 credits. One credit may be earned for each 42 hours of pre-approved activities up to a maximum of 4 credits. May be applied towards the major with permission of department head subject to the PNB major's 3-credit research group limitation. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised field work at an off-campus research organization or business. Activities that meet objectives consistent with a major in Physiology and Neurobiology must be planned and agreed upon in advance by the job site supervisor, the faculty coordinator and the student.

### 3251. Biology of the Brain

Three credits. Two class periods. Prerequisite: One 2000-level course in PNB or instructor consent; open to juniors or higher.

Brain functions, from molecular and cellular to overall central nervous system organization. Topics of current scientific interest.

### 3252. Physiological Model Systems

Three credits. Prerequisite: PNB 2250, 2274-2275, or instructor consent; open to

juniors or higher. Recommended preparation: undergraduate class in basic comparative animal physiology.

Advanced, in-depth examination of animal comparative physiology.

### 3260. Stem Cell Biology

Three credits. Prerequisite: PNB 2250 or 2274; or consent of instructor. Recommended preparation: MCB 2000 or 2210 or 2410 (which may be taken concurrently).

Principles of stem cell biology and the use and applications of stem cells in research and therapy. Emphasis on molecular, cellular and physiological properties of stem cells, mechanisms of differentiation, use of recombinant DNA technology and application of stem cells in disease models.

### 3262. Mammalian Endocrinology

Two credits. Two class periods. Prerequisite: One 2000-level course in PNB or instructor consent; open to juniors or higher.

Functions of hormones in mammalian physiology emphasizing humans.

### 3263WQ. Investigations in Neurobiology

Three credits. One 1-hour discussion, one 4-hour laboratory period. Prerequisite: PNB 2250 or PNB 2274-2275; ENGL 1010 or 1011 or 2011; open to juniors or higher.

Experimental investigations in neurobiology. Emphasis on designing and carrying out independent research projects, and on communicating the results. A fee of \$20 is charged for this course.

### 3264W. Molecular Principles of Physiology

Four credits. Two class periods and one 4-hour laboratory. Prerequisite: PNB 2274; MCB 2410, or MCB 3010; ENGL 1010 or 1011 or 2011; open to juniors or higher; instructor consent required.

Case study of a disease: genetics and inheritance patterns, molecular defects, including transcription and post-transcription defects, physiological defects, therapeutic approaches.

### 3265. Comparative Endocrinology

Three credits. Prerequisite: A 2000-level course in PNB or instructor consent; open to juniors or higher.

The evolution of hormonal signaling systems in invertebrates and vertebrates.

### 3270. Molecular Endocrinology

(Also offered as MCB 3210.) Three credits. Prerequisite: BIOL 1107; open to juniors and seniors only. Recommended preparation: PNB 3262.

Molecular mechanism(s) of hormone action in vertebrates and invertebrates. Molecular and genetic characterization of hormones, receptors, and signal transduction, and hormone actions at the molecular, cellular, and organismal levels. Includes student presentations on selected papers.

### 3275. Biology of Synaptic Transmission

First nine weeks. Two credits. Prerequisite: One 2000-level course in PNB or instructor consent; open to juniors or higher. Not open to students who have passed PNB 3276. Recommended preparation: MCB 2000 or 3010.

Various neurotransmitter systems in the brain including anatomy, physiology, cell biology and biochemistry. Neurotransmitters, receptors and transporters at synapses. Synaptic signaling pathways and molecules.

### 3276. Molecular Neuroanatomy

Three credits. Prerequisite: One 2000-level course in PNB or instructor consent; open to juniors or higher. Recommended preparation: MCB 2000 or 3010.

Introduction to molecular neurobiology and the anatomy of the brain, and integration of the molecular systems with anatomical structure and function.

### 3278. Patient and the Healer

Two credits. Two class periods. Prerequisite: Consent of instructor required.

Introductory grounding and experience for students interested in the healing professions in how patients and families experience illness, and what it's like to be a professional health provider.

### 3279. Insights into Dental Science and Clinical Medicine

One credit. Weekly 2-hour lecture for ten weeks. May be repeated for credit.

Presentations by Medical and Dental School faculty on basic sciences supporting dental and medical clinical practices. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

### 3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of Department Head or Key Advisor required, normally to be granted prior to the student's departure. May count toward the major with consent of Department Head or Key Advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### 3294. Undergraduate Seminar

Credits and hours by arrangement. Prerequisite: Open to juniors or higher. May be repeated for credit with a change in topic.

### 3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

### 3298. Variable Topics

Three credits. Prerequisite: Open to juniors or higher. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

### 3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and the department honors committee. May be repeated for credit with change in topic.

Designed for the advanced undergraduate student who desires to pursue a special problem as an introduction to independent investigation.

### 3340. Non-coding RNAs in Human Physiology and Disease

Two credits. Spring semester. Prerequisite: MCB 2400 or 2410; MCB 2000 or 3010; MCB 2210 or PNB 2275. Open to juniors or higher.

Non-coding RNAs: discovery, major classes, regulatory pathways, physiology, disease, research methodology.

### **3350. Membrane Transport in Health and Disease**

Three credits. Prerequisites: One 2000-level course in PNB, or instructor consent. Open to juniors or higher.

Fundamental mechanisms by which water and small molecules are transported across biological membranes. Biophysical and biochemical analysis of transport by diffusion, osmosis, channels, carriers and pumps in health and disease.

### **3500. Cardiorespiratory Physiology**

Two credits. First nine weeks. Prerequisites: One 2000-level course in PNB, or instructor consent; open to juniors or higher.

Cellular and molecular mechanisms controlling cardiovascular and respiratory function in health and disease.

### **4162. Neuroethology**

Three credits. Prerequisite: PNB 2274 or consent of instructor. Recommended preparation: PNB 3251.

Neural mechanisms of stereotyped behavior in vertebrates and invertebrates, emphasizing model systems. Shaping of these systems by environmental requirements and the evolutionary histories of the animals.

### **4296W. Senior Research Thesis in Physiology and Neurobiology**

Three credits. Hours by arrangement. Prerequisite: Three credits of PNB 3299, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor and departmental honors committee. Not limited to honors students.

Special research or independent investigation for advanced undergraduates. Involves research and writing a thesis.

### **4400. Biology of Nervous System Diseases**

Three credits. Prerequisite: Either PNB 2274 or 3251; one course from MCB 2000, 2210, 2400, 2410, or 3010; or instructor consent.

Basic principles of genetics, molecular and cell biology, and physiology as applied to the mechanisms of disease and repair processes in the nervous system. Topics include established concepts and areas of current research on chronic neurodegenerative, synaptic, and demyelinating disorders, acute trauma and cerebrovascular disorders, and plasticity and repair.

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## **Plant Science (PLSC)**

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*Head of Department:* Professor Richard McAvoy  
*Department Office:* Room 133, W.B. Young Building  
For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

### **1125. Insects, Food and Culture**

Three credits. Three class periods. *Legrand*  
Introduction to the fascinating world of insects and their ubiquitous interactions with people. Role of insects in food and fiber production; insects as food; impact of insects on human health, commerce and history; and

insects as inspiration sources for art, music, film and literature around the world. CA 4-INT.

### **1150. Agricultural Technology and Society**

Three credits.

Development of agricultural systems and technologies and their influence on societies. Topics include plant and animal domestication, food and industrial crops and centers of production, environmental issues, and agricultural ethics. CA 3.

### **2100. Environmental Sustainability of Food Production in Developed Countries**

Three credits. Not open for credit to students who have passed PLSC 3995 when taught as Environmental Sustainability of Food Production in North America. *Guillard*

Foundations of modern systems that produce the majority of food calories consumed in North America and other developed countries. Benefits and environmental risks associated with modern food production systems. Alternative food production systems and sustainability. Local food production and food security. Food production and climate change.

### **2500. Principles and Concepts of Agroecology**

Three credits. Recommended preparation: introductory course in plant biology or environmental science. *Guillard*

Application of ecological processes to modern agricultural production practices. Crops and their environment. Soil quality and maintenance of soil productivity. Sustainability of agroecosystems.

### **3055. Genetically Engineered Crops from Farm to Fork**

Two credits. Two class periods. *Auer*

Analysis of genetically engineered crops through the study of environmental, health, social, regulatory, economic, and farm management issues in the United States and other countries. For students from all disciplines.

### **3081. Summer Internship Experience**

Zero credit. Hours by arrangement. Must be followed by PLSC 3990. Prerequisite: Instructor consent. Students taking this course will be assigned a grade of S (satisfactory) or U (unsatisfactory). May be repeated.

Provides opportunity for students to gain practical experience, knowledge, and professional skills in a work environment related to employment and careers in plant science or landscape architecture. Students work with instructor and internship supervisor to develop a learning contract and plan of work to ensure meaningful and educational tasks and experiences.

### **3090. Field Study of U.S. Food Production Systems**

Two credits. Prerequisite: PLSC 3094. *Morris*  
Visits to and discussions with farmers of agronomic, vegetable, fruit and livestock production systems in the Northeastern United States, the Corn Belt and the High Plains. Visits to agricultural research stations for discussions with scientists and educators, and visits to agricultural infrastructure sites such as retail fertilizer dealerships, granaries, and post

production facilities such as juice factories or flour mills will also be included.

### **3094. Seminar in U.S. Food Production Systems**

One credit. *Morris*

Discussion of the complex issues surrounding the economic, agronomic, and environmental performance of food production systems in the United States.

### **3210. Molecular Laboratory Technology**

Three credits. Prerequisite: BIOL 1107 or 1108 or 1110 or equivalent. *Wang*

Laboratory technologies for identification and characterization of molecules important for molecular biology research, genetic manipulation and disease diagnosis. Labs will provide hands-on experience performing basic molecular biology techniques, lectures will cover theoretical basis and application. A fee of \$50 is charged for this course.

### **3230. Biotechnology - Science, Application, Impact, Perception**

Three credits.

Scientific, legal, and ethical aspects of Biotechnology application in agriculture, health medicine, forensics, and the environment. Designed for students with diverse departmental affiliations.

### **3240. Plant Biotechnology**

Three credits. Prerequisites: One of BIOL 1110, MCB 3010, MCB 3201. *Li*

Principles of recombinant DNA and plant gene transfer technologies. Applications of plant biotechnology in agriculture, horticulture, forestry, human/animal health care, and pharmaceutical industry. Social and environmental impacts of plant biotechnology.

### **3250. Plant Gene Transfer Techniques**

Three credits. *Li*

Techniques of plant gene delivery and transgenic plant production. Verification and analysis of transgenic plants. A fee of \$75 is charged for this course.

### **3810. Fundamentals of Plant Pathology**

Three credits. Two class periods and one 2-hour laboratory. Prerequisite: BIOL 1108 or 1110; open to juniors or higher. *Inguagiato*

Causal agents, nature and dynamics of plant disease. Pathogen biology, factors influencing disease development, diagnosis of diseases, and principles of plant disease control with emphasis on major diseases of crop, horticultural and turfgrass systems.

### **3820. Ecology and Control of Weeds**

Three credits. Two class periods and one 2-hour laboratory. Prerequisite: BIOL 1110. *Guillard*

Weed origin and classification. Losses caused by weeds. Weed competition. Weed seed production, dormancy and germination. Cultural, mechanical, biological and chemical control methods. Weed identification.

### **3830. Insect Pests of Ornamentals and Turf**

Three credits. Two class periods and one 2-hour laboratory. *Legrand*

Biology and management of insects with an emphasis on pests of ornamental plants and turf. Identification of key pests and their damage

symptoms, monitoring insect populations and management strategies and tactics.

#### **3840. Integrated Pest Management**

Three credits. Taught with SAPL 840. Not open for credit to graduate students. *Legrand*

Principles of integrated pest management covering insect, disease, and weed problems in agronomic crops, vegetables, fruits, turfgrass, ornamentals, and greenhouse production. Environmental impacts and pest control strategies will be covered.

#### **3990. Field Study Internship**

One to six credits. Hours by arrangement. Prerequisite: Open to junior-senior students who have demonstrated professional potential as identified by their advisor; open only with consent of Head of the Department of Plant Science and the advisor. This course may be repeated provided that the sum total of credits earned does not exceed six. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Students will work with professionals in an area of research or management.

#### **3995. Special Topics**

Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

#### **3999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to qualified students with consent of instructor and Department Head. Students are expected to submit written reports. Course may be repeated for credit.

#### **4210. Plant Physiology: How Plants Work**

Three credits. Three class periods. Prerequisite: BIOL 1108 or 1110 and CHEM 1122 or 1124Q or 1127Q or 1137Q or 1147Q; open to juniors or higher. Not open for credit to students who have passed PLSC 213. *Auer*

Principles of plant physiology and gene expression from the cell to the whole plant level. Emphasis on plant cell structure, water movement, transport systems, photosynthesis, respiration, phytohormone signals and responses to environmental stresses.

#### **4215. Plant Physiology Lab: Investigations into How Plants Work**

One credit. One 2-hour laboratory. Corequisite: PLSC 4210. Not open for credit to students who have passed PLSC 213. *Auer*

Independent research projects investigating plant physiology, development and response to the environment. Principles of experimental design, data analysis and scientific communication. A fee of \$20 is charged for this course.

#### **4994. Seminar**

One credit. Prerequisite: Open only with consent of instructor. Course may be repeated for credit.

Professional presentations of current topics in Plant Science.

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## Polish (PLSH)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

#### **1104. Intermediate Polish Level II**

Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 for more information.

#### **1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

#### **3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

#### **3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

#### **3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

#### **3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

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## Political Science (POLS)

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*Head of Department:* Professor David A. Yalof

*Department Office:* Room 409, Oak Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

#### **1002. Introduction to Political Theory**

Three credits.

Major themes of political theory such as justice, obligation, and equality, and their relevance to contemporary political concerns. CA 1.

#### **1202. Introduction to Comparative Politics**

Three credits.

A survey of institutions, politics, and ideologies in democratic and non-democratic states. CA 2. CA 4-INT.

#### **1202W. Introduction to Comparative Politics**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2. CA 4-INT.

#### **1207. Introduction to Nonwestern Politics**

Three credits.

A survey of institutions, ideologies, development strategies, and the political

processes in nonwestern culture. CA 2. CA 4-INT.

#### **1402. Introduction to International Relations**

Three credits.

The nature and problems of international politics. CA 2. CA 4-INT.

#### **1402W. Introduction to International Relations**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2. CA 4-INT.

#### **1602. Introduction to American Politics**

Three credits.

Analysis of the organization and operation of the American political system. CA 2.

#### **1602W. Introduction to American Politics**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2.

#### **2062. Privacy in the Information Age**

Three credits.

Honors course providing a thematic overview of privacy from a variety of disciplinary perspectives. Public policy, legal and ethical debates surrounding privacy and the impact of technology and scientific advances on how privacy is conceptualized, valued, enacted, and protected.

#### **2062W. Privacy in the Information Age**

Prerequisite: ENGL 1010 or 1011 or 2011.

Provides a thematic overview of privacy from a variety of disciplinary perspectives. Public policy, legal and ethical debates surrounding privacy and the impact of technology and scientific advances on how privacy is conceptualized, valued, enacted, and protected.

#### **2072Q. Quantitative Analysis in Political Science**

Three credits. Recommended preparation: High school Algebra II and a mathematics course.

Explanation of the quantitative methods used in political science. Application of these methods for the analysis of substantive political questions.

#### **2222. Political Institutions and Behavior in Western Europe**

Three credits.

Comparative analysis of the governments and politics of Western Europe.

#### **2222W. Political Institutions and Behavior in Western Europe**

Prerequisite: ENGL 1010 or 1011 or 2011.

#### **2607. American Political Parties**

Three credits. Prerequisite: POLS 1602.

An analysis of the aims, organization, and growth of parties in the United States.

#### **2607W. American Political Parties**

Prerequisite: POLS 1602; ENGL 1010 or 1011 or 2011.

#### **2622. State and Local Government**

Three credits.

The practical working of democracy and the role of state and local governments.

#### **2998. Political Issues**

Three credits. May be repeated for credit with a change in subject matter.

An exploration of the fundamental nature of political conflicts on the national and international levels.



**2998W. Political Issues**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3002. Classical and Medieval Political Theory**

Three credits. Prerequisite: Open to juniors or higher.

An examination of Greek, Roman and early Judeo-Christian political ideas and institutions, and their relevance to the present.

**3012. Modern Political Theory**

Three credits. Prerequisite: Open to juniors or higher.

Major political doctrines of the contemporary period, and their influence upon political movements and institutions as they are reflected in the democratic and nondemocratic forms of government.

**3012W. Modern Political Theory**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3017. Contemporary Political Theory**

Three credits. Prerequisite: Open to juniors or higher.

Major political writings from 1900 to the present.

**3022W. Western Marxist Tradition**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Exploration of the social and political theories of Marx and Engels, and of later interpretations and modifications of their ideas.

**3023. Politics and Literature**

Three credits. Prerequisite: Open to juniors or higher; freshmen and sophomores by permission.

An examination of major works of literature that either describe governing systems and institutions, interpret political processes and clashes, or address perennial themes in political philosophy and theory.

**3032. American Political Thought and Ideology**

Three credits. Prerequisite: Open to juniors or higher.

American political thought from the colonial to the contemporary period. Political thought discussed as the ideological expression of the larger sociopolitical situation.

**3042. The Theory of Human Rights**

(Also offered as HRTS 3042.) Three credits. Prerequisite: Open to juniors or higher.

Various theories of human rights, both historical and contemporary. Conceptual arguments both in favor and critical of the theory and practice of human rights will be considered, with literature taken primarily from philosophy and political theory.

**3062. Democratic Theory**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1002, 3002, or 3012.

Survey of theories of democracy from classical times to the present; analysis of defenders and critics of democracy.

**3062W. Democratic Theory**

Recommended preparation: POLS 1002, 3002, or 3012; ENGL 1010 or 1011 or 2011.

**3072. Political Protest and Ideology**

Three credits. Prerequisite: Open to juniors or higher.

Variants of major ideologies such as liberalism, socialism, communism, anarchism, fascism, and feminism in their socio-historical context, as well as alternative visions from the Third World.

**3082. Critical Race Theory as Political Theory**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1002.

Interdisciplinary scholarship on racial identity, legal decisions, and political action from the perspective of political science and political theory. Topics include interactions between states and social movements, the intersections of race, class, gender, and membership, and the problems with both post-racialism and identity politics.

**3202. Comparative Political Parties and Electoral Systems**

Three credits. Prerequisite: Open to juniors or higher.

A focus on political party and electoral systems around the world, including advanced industrial nations, transitional nations, and less developed nations. Issues such as the relationship between electoral and party systems, democratic reform, voting behavior, and organization of political parties are examined.

**3202W. Comparative Political Parties and Electoral Systems**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3205. Voting Behavior and Public Opinion Around the World**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 or 1207.

How voting behavior differs across countries. Topics may include turnout, class voting, the electoral role of religion, accountability for the economy, vote buying, ethnic politics, attitudes toward welfare, support for democracy, and anti-Americanism.

**3206. Comparative Political Economy**

Three credits. Prerequisite: Open to juniors or higher.

Introduction to overlapping themes in economics and political science including the substantive and empirical relationship between these two in advanced industrial democracies.

**3208. Politics of Oil**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 or 1207.

Historical and contemporary role of oil in comparative politics and international relations. CA 2.

**3208W. Politics of Oil**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: POLS 1202 or 1207. CA 2.

**3209. Sustainable Energy in the 21st Century**

(Also offered as ENGR 3209 and HRTS 3209.) Three credits. Open to juniors or higher.

Political, socioeconomic, environmental, science and engineering challenges of energy sources; comparison of feasibility and sustainability of energy policies around the world.

**3210. Ethnic Conflict and Democracy in Comparative Perspective**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 or 1207.

Conflicts among ethno-national groups in democratic and democratizing states and conflict management strategies. Theoretical approaches to understanding origin-of-identity conflicts.

**3210W. Ethnic Conflict and Democracy in Comparative Perspective**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: POLS 1202 or 1207.

**3211. Politics of Water**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 or 1207.

The role of water in state building, state-society relations, and economic and political development. Draws on approaches from comparative politics and international relations.

**3212. Comparative Perspectives on Human Rights**

(Also offered as HRTS 3212.) Three credits. Prerequisite: Open to juniors or higher.

Cultural difference and human rights in areas of legal equality, women's rights, political violence, criminal justice, religious pluralism, global security, and race relations.

**3214. Comparative Social Policy**

Three credits. Prerequisites: POLS 1202 or 1207 or instructor consent; open to sophomores or higher.

Institutional structures of modern welfare states, including systems of social insurance, healthcare, and education. Assessment of leading political explanations for their growth and cross-national differences among them.

**3214W. Comparative Social Policy**

Three credits. Prerequisites: POLS 1202 or 1207 or instructor consent; ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: Coursework in economics and sociology.

**3216. Women in Political Development**

(Also offered as WGSS 3216.) Three credits. Prerequisite: Open to juniors or higher, others by consent.

How women and gender circumscribe political life and generate relationships of inequality and justice on a global scale. Topics may include conflict and security, development, human rights and legal systems, labor and migration, nation building, political economy, and transnational justice.

**3218. Indigenous Peoples' Politics and Rights**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 or 1207.

Governments, political behavior, human rights and constitutional rights of indigenous peoples of North America and Latin America.

Impact of international law and globalization on indigenous peoples.

**3218W. Indigenous Peoples' Politics and Rights**

Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: POLS 1202 or 1207.

**3228. Politics of Russia and the Former Soviet Union**

Three credits. Prerequisite: Open to juniors or higher.

The social and political structure of the former Soviet Union, the causes and outcome of efforts to reform it, and the development of democratic politics in Russia and other former Soviet republics.

**3235. Latin American Politics**

Three credits. Prerequisite: Open to juniors or higher.

Theories and institutions of Latin American politics, with emphasis on issues of stability and change.

**3237. Democratic Culture and Citizenship in Latin America**

Three credits. Prerequisite: Open to juniors or higher.

The development of democratic attitudes, norms, and behavior in Latin America. CA 2.

**3237W. Democratic Culture and Citizenship in Latin America**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2.

**3239. Politics of the Environment and Development**

Three credits. Prerequisite: Open to juniors and higher. Recommended preparation: POLS 1202 or 1207.

Politics of the environment and development with a focus on environmental issues in developing countries.

**3239W. Politics of the Environment and Development**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors and higher. Recommended preparation: POLS 1202 or 1207.

**3245. Chinese Politics and Economy**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: a 1000-level course in economics.

Chinese political structure and policymaking process, attempts at democratization, process and outcome of economic reforms, development challenges in contemporary China.

**3247. Gender and War**

(Also offered as WGSS 3247.) Three credits. Prerequisite: Open to juniors or higher.

Gender aspects of war. Masculinities and militaries; gender-based war violence; laws of war and post-war conditions for male and female soldiers and civilians.

**3249. Gender Politics and Islam**

(Also offered as WGSS 3249.) Three credits.

Construction of gender in Islamic texts and history, the religion's interaction with other patriarchal cultures and systems, western interventions and their impact, male leaders' reform efforts, women's movements.

**3250. The Political Economy of East Asia**

Three credits. Prerequisite: Open to juniors and higher. Recommended preparation: 1000-level courses in political science and economics.

Economic, political, and social development of East Asia.

**3252. Politics in Africa**

(Also offered as AFRA 3252) Three credits. Prerequisite: Open to juniors or higher.

The political systems in contemporary Africa; the background of the slave trade, imperialism, colonialism, and the present concerns of nationalism, independence, economic development and military rule. Emphasis on sub-Saharan Africa.

**3255. Politics of South Africa**

Three credits. Prerequisite: Open to juniors or higher.

Internal development of the South African state and the external response to apartheid policies, with special attention to both white and African politics, U.S. policy, and other selected topics.

**3256. Politics and Human Rights in Global Supply Chains**

(Also offered as HRTS 3256.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 and 1402 and POLS/HRTS 3212.

Political and human rights implications of regulating contemporary global supply chains: official regulatory frameworks; non-regulatory approaches to rule-making (such as voluntary corporate codes of conduct and industry standards); social responses to the dilemmas of "ethical" sourcing of goods and services.

**3256W. Politics and Human Rights in Global Supply Chains**

(Also offered as HRTS 3256W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to Political Science or Human Rights majors and minors; open to juniors or higher. Recommended preparation: POLS 1202 and 1402 and POLS/HRTS 3212.

**3402. Contemporary International Politics**

Three credits. Prerequisite: Open to juniors or higher.

Problems in international relations with emphasis on changing characteristics of international politics.

**3406. Globalization and Political Change**

Three credits. Prerequisite: Open to juniors or higher.

Origins and contested definitions of globalization, and its impact on national, regional and international institutions and political processes. Designed for upper-level undergraduate students with a solid grounding in comparative politics and international relations.

**3406W. Globalization and Political Change**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3410. International Political Economy**

Three credits. Prerequisite: Open to juniors or higher.

Politics of international economic relations: trade, finance, foreign direct investment, aid.

**3412. Global Environmental Politics**

(Also offered as EVST 3412) Three credits. Prerequisite: Open to juniors or higher.

Politics of how humans and natural systems interact. Managing the global environment, regulating resource commons, and coordinating to solve environmental problems.

**3414. National and International Security**

Three credits. Prerequisite: Open to juniors or higher.

Key American national security issues as integral parts of the larger problem of global security.

**3418. International Organizations and Law**

(Also offered as HRTS 3418.) Three credits. Prerequisite: Open to juniors or higher.

The role of intergovernmental and nongovernmental organizations and international law in world affairs with special attention to contemporary issues.

**3418W. International Organizations and Law**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3422. International Negotiation and Bargaining**

Three credits. Prerequisite: Open to juniors or higher.

A comparative study of foreign policy making. Use of computer-assisted simulation provides realistic experience in foreign policy decision making and international negotiation.

**3426. Politics, Propaganda, and Cinema**

Three credits. Prerequisite: Open to juniors or higher.

Lectures and films from several nations serve to illustrate techniques and effects of propaganda, analyzing the pervasive impact that propaganda has on our lives. The course concentrates on the World War II era.

**3428. The Politics of Torture**

(Also offered as HRTS 3428.) Three credits. Prerequisite: Open to juniors or higher.

Examination of the usage of torture by state and non-state actors. Questions include, "Why is torture perpetrated?" "What domestic and international legal frameworks and issues related to the use of torture?" "How effective are existing legal prohibitions and remedies?" "Who tortures?" and "How does torture affect transitional justice?"

**3429. Political Violence**

Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1402.

Nature and origin of violence, including torture, genocide, terrorism, and civil war, on the part of individuals, non-state groups, and states.

**3429W. Political Violence**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: POLS 1402.

**3430. Evaluating Human Rights Practices of Countries.**

(Also offered as HRTS 3430.) Three credits. Prerequisite: Open to juniors or higher.

Examination of the ways in which governments, businesses, NGOs, IGOs, and scholars assess which human rights are being respected by

governments of the world. Hands-on experience in rating the level of government respect for human rights in countries around the world.

**3432. American Diplomacy**

Three credits. Prerequisite: Open to juniors or higher.

A chronological examination of the foreign relations of the United States from 1776 to the first World War.

**3437. Recent American Diplomacy**

Three credits. Prerequisite: Open to juniors or higher.

The foreign relations of the United States from the first World War to the present.

**3438W. Writing Seminar in Recent American Diplomacy**

One credit. Corequisite: POLS 3437. Prerequisite: ENGL 1010 or 1011 or 2011.

**3442. The Politics of American Foreign Policy**

Three credits. Prerequisite: Open to juniors or higher.

Instructions, forces and processes in the making of American foreign policy. Emphasis will be on contemporary issues.

**3447. American Diplomacy in the Middle East**

Three credits. Prerequisite: Open to juniors or higher.

The strategic, political, and economic interests that have shaped U.S. policy in the Middle East. U.S. responses to regional crises, peace efforts, arms transfers, covert operations and military intervention.

**3457. Foreign Policies of the Russian Federation and the Former USSR**

Three credits. Prerequisite: Open to juniors or higher.

The Soviet Union's role in world affairs as background for studying the international consequences of the breakup of the USSR; the foreign policies of the former soviet republics among themselves, and of Russia and selected other republics.

**3462. International Relations of the Middle East**

Three credits. Prerequisite: Open to juniors or higher.

The foreign policies and security problems of Middle Eastern States; sources of regional conflict and competition – oil, water, borders, religion, ideology, alliances, geopolitics, refugees, and superpower intervention.

**3464. Arab-Israeli Conflict**

Three credits. Prerequisite: Open to juniors or higher.

Political relations between Arabs and Israelis with an emphasis on war and diplomacy.

**3464W. Arab-Israeli Conflict**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3472. South Asia in World Politics**

Three credits. Prerequisite: Open to juniors or higher.

Relations among countries of South Asia and between this region and the rest of the world. Problems of development and security confronting South Asian countries. CA 4-INT.

**3472W. South Asia in World Politics**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. CA 4-INT.

**3476. World Political Leaders**

Three credits. Prerequisite: Open to juniors or higher.

Theory and practice of political leadership. Comparison of leaders in different political systems. Leadership in foreign and domestic politics. Case studies of great leaders.

**3602. The Presidency and Congress**

Three credits. Prerequisite: Open to juniors or higher.

The contemporary Presidency and its interactions with the Congress in the formation of public policy.

**3604. Congress in Theory and Practice**

Three credits. Prerequisite: Open to juniors or higher.

In-depth analysis of the U.S. Congress, including representation, elections, policy formation, law making, and organization.

**3604W. Congress in Theory and Practice**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher with consent of instructor.

**3612. Electoral Behavior**

Three credits. Prerequisite: Open to juniors or higher.

Explaining elections and the basis for voters' decisions.

**3613. Congressional Elections**

Three credits. Prerequisite: Open to juniors or higher; freshmen and sophomores by permission. Recommended preparation: POLS 1602.

Campaign organization, strategy, and election outcomes in Congressional elections. Topics include candidates and nominations, the roles of political parties and interest groups, campaign communications, campaign finance, and electoral reform.

**3613W. Congressional Elections**

Prerequisite: Open to juniors or higher; freshmen and sophomores by permission; ENGL 1010 or 1011 or 2011. Recommended preparation: POLS 1602.

**3615. Electoral Realignment**

Three credits. Prerequisite: Open only to juniors and seniors.

Theoretical and empirical examination of electoral realignment in the United States. CA 2.

**3615W. Electoral Realignment**

Prerequisite: ENGL 1010 or 1011 or 2011; open only to juniors and seniors. CA 2.

**3617. American Political Economy**

Three credits. Prerequisite: Open to juniors or higher.

Theoretical foundations of the American political economy. Examination of selected public policy issues, including interaction between economic factors and incentives, and democratic institutions and processes.

**3618. Politics of Inequality**

Three credits. Open to juniors or higher.

Relationship between democracy and inequality. Economic inequality and its causes, poverty, public opinion, inequalities in political voice and representation, public policy, the role of money in politics.

**3622. American Political Leadership**

Three credits. Prerequisite: Open to juniors or higher.

Study of American political leadership as it relates to political culture, institutions and democratic principles.

**3625. Public Opinion**

(Also offered as PP 3030.) Three credits. Prerequisite: Open to juniors or higher.

Concepts, theories, structure, and substance of public opinion.

**3627. Connecticut State and Municipal Politics**

Three credits. Prerequisite: Open to juniors or higher.

An examination of contemporary Connecticut politics on the state and municipal levels.

**3632. Urban Politics**

Three credits. Prerequisite: Open to juniors or higher.

Political systems and problems confronting urban governments.

**3632W. Urban Politics**

(Also offered as URBN 3632W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3633. Race and Policy**

(Also offered as AFRA and PP 3033.) Three credits.

Examination of contemporary public policy through the lens of race.

**3642. African-American Politics**

(Also offered as AFRA 3642) Three credits. Prerequisite: Open to juniors or higher.

Political behavior, theory, and ideology of African-Americans, with emphasis on contemporary U.S. politics. CA 4.

**3647. Black Leadership and Civil Rights**

(Also offered as AFRA 3647) Three credits. Prerequisite: Open to juniors or higher.

Black leadership, emphasizing the principles, goals, and strategies used by African-American men and women to secure basic citizenship rights during the civil rights era.

**3652. Black Feminist Politics**

(Also offered as AFRA 3652 and WGSS 3652) Three credits. Prerequisite: Open to juniors or higher.

An introduction to major philosophical and theoretical debates at the core of black feminist thought, emphasizing the ways in which interlocking systems of oppression uphold and sustain each other.

**3662. Latino Political Behavior**

(Also offered as LLAS 3270.) Three credits. Prerequisite: Open to juniors or higher.

Latino politics in the United States. Political histories of four different Latino populations: Mexican, Puerto Rican, Cuban, and Central American. Different forms of political

expressions, ranging from electoral behavior to political art. CA 4.

### **3667. Puerto Rican Politics and Culture**

(Also offered as LLAS 3667.) Three credits. Prerequisite: Open to juniors or higher.

Legal and political history of the relationship between Puerto Rico and the United States with an emphasis on the question of United States empire and the politics of cultural resistance.

### **3672. Women and Politics**

(Formerly offered as POLS 3052.) (Also offered as WGSS 3052.) Three credits. Prerequisite: Open to juniors or higher.

An introduction to feminist thought, the study of women as political actors, the feminist movement and several public policy issues affecting women.

### **3802. Constitutional Law**

Three credits. Prerequisite: Open to juniors or higher.

The role of the Supreme court in expounding and developing the United States Constitution. Topics include judicial review, separation of powers, federalism, and due process.

### **3807. Constitutional Rights and Liberties**

(Also offered as HRTS 3807.) Three credits. Prerequisite: Open to juniors or higher.

The role of the Supreme Court in interpreting the Bill of Rights. Topics include freedoms of speech and religion, criminal due process, and equal protection.

### **3812. Judiciary in the Political Process**

Three credits. Prerequisite: POLS 1602; open to juniors or higher.

The Supreme Court in the Political Process.

### **3817. Law and Society**

(Formerly offered as POLS 254.) Three credits. Prerequisite: Open to juniors or higher. When students intend to take several courses in the Judicial Process field, it is recommended that 3817 be taken first.

Leading schools of legal thought, fundamental principles and concepts of law, the basic framework of legal institutions, and judicial procedure. Particular attention is devoted to the general features of American law as it affects the citizen, and primary emphasis is placed on the function of law as a medium for attaining a balance of social interests in a politically organized society.

### **3822. Law and Popular Culture**

Three credits. Prerequisite: Open to juniors or higher.

Exploration of themes in the study of law and courts by contrasting scholarly work against representations of such themes in movies, television, and other media of popular culture.

### **3822W. Law and Popular Culture**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

### **3827. Politics of Crime and Justice**

Three credits. Prerequisite: Open to juniors or higher.

Criminal justice in the United States, with emphasis on the links between law, politics, and administration.

### **3832. Maritime Law**

(Also offered as MAST 3832.) Three credits. Prerequisite: Open to juniors or higher.

International and domestic legal concepts concerning jurisdiction in a maritime setting.

### **3834. Immigration and Transborder Politics**

(Also offered as LLAS 3271.) Three credits. Prerequisite: Open to juniors or higher.

U.S. immigration policy, trans-border politics, and the impact diasporas and ethnic lobbies have on U.S. foreign policy, with emphasis on Latino diasporas.

### **3837. Civil Rights and Legal Mobilization**

Three credits. Prerequisite: Open to juniors or higher.

Strategies used by interest groups to achieve civil rights recognition through the legal system and legislative process.

### **3837W. Civil Rights and Legal Mobilization**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

### **3842. Public Administration**

Three credits. Prerequisite: Open to juniors or higher.

The politics of public administration. Role of administrative agencies and officials in American national, state, and local governments.

### **3847. The Policy-making Process**

Three credits. Prerequisite: Open to juniors or higher.

Introduction to the study of policy analysis. Consideration of description and prescriptive models of policy-making. Examination of several substantive areas of national policy in the United States.

### **3850. Politics and Ethics**

Three credits. Prerequisite: Open to juniors or higher.

Relationship between power and ethics in political life. Examination of ethical perspectives on political decisions and issues.

### **3850W. Politics and Ethics**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

### **3852. Politics of Budgeting**

Three credits. Prerequisite: Open to juniors or higher.

Examination of the decision-making processes and role of the budget in public bureaucracies and policy implementation. Contemporary controversies in budgeting are used to illustrate and apply basic principles.

### **3857. Politics, Society, and Education Policy**

Three credits. Prerequisite: Open to juniors or higher.

Analysis of interactions among educational policy, politics, and other social forces. Insights and concerns from politics and other social sciences disciplines applied to different levels and types of schooling.

### **3991. Supervised Field Work**

Credits up to 12. Hours by arrangement. Prerequisite: Open only with consent of the department head. Students taking this course

will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

### **3993. Foreign Study**

Credits (up to a maximum of 15) and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted before the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### **3995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

### **3999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and department head. This course may be repeated for credit with a change in subject matter.

### **4994. Senior Seminar**

Three credits. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Required for students in the Honors Program. Weekly seminar on selected topics in political science. Students must complete this course prior to their final semester.

### **4997W. Senior Thesis**

Three credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only by instructor consent. All honors students writing an honors thesis in Political Science must take this course in each of their last two semesters. Course may be repeated once for credit.

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## **Portuguese (PORT)**

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

### **1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

### **3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

### **3295. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3298. Variable Topics**

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

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**Psychological Sciences (PSYC)**


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*Head of Department:* Professor James Green

*Department Office:* Room 102, Bousfield Psychology Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1100. General Psychology I**

Three credits. Two class periods and one 1-hour demonstration discussion. Ordinarily this course should be taken in the fall semester.

Basic principles that underlie mental processes and behavior; research methodology, biopsychology, sensation, perception, learning, memory and language. CA 3.

**1101. General Psychology II**

Three credits. Prerequisite: PSYC 1100. Not open for credit to students who have passed PSYC 1103. May not be taken concurrently with PSYC 1103.

Psychology as a social science. Research methodology, developmental, personality, clinical, abnormal and social psychology. CA 2.

**1103. General Psychology II (Enhanced)**

Four credits. Three lecture periods and one 1-hour discussion section. Prerequisite: PSYC 1100. Not open for credit to students who have passed PSYC 1101. May not be taken concurrently with PSYC 1101.

Psychology as a social science. Research methodology, developmental, personality, clinical, abnormal and social psychology. Applications of theory, writing, and demonstrations during discussion periods. CA 2.

**2100Q. Principles of Research in Psychology**

Four credits. Three 1-hour lectures and one 2-hour laboratory/discussion. Prerequisite: PSYC 1100, and 1101 or 1103 and STAT 1000 or 1100 (or Statistics Q 1000-level).

Design, analysis, and reporting of psychological research. Experimental and quasi-experimental designs, laboratory and correlational techniques, research ethics.

**2100WQ. Principles of Research in Psychology**

Four credits. Three 1-hour lectures and one 2-hour laboratory/discussion. Prerequisite: PSYC 1100, and 1101 or 1103 and STAT 1000Q or 1100Q (or Statistics Q 1000-level); ENGL 1010 or 1011 or 2011.

Design, analysis, and reporting of psychological research. Experimental and quasi-experimental designs, laboratory and correlational techniques, research ethics.

**2101. Introduction to Multicultural Psychology**

Three credits. Prerequisite: PSYC 1100, and 1101 or 1103.

General introduction to cross-cultural and multicultural issues and the role psychology has played in understanding the experiences of diverse groups. CA 4.

**2110. Psychology of Human Sexuality**

Three credits. Recommended preparation: PSYC 1100.

Sexuality from across psychological science, highlighting relevant theoretical perspectives, methodology, and empirical research.

**2200. Physiological Psychology**

Three credits. Prerequisite: BIOL 1102 or 1107 or PNB 2264-2265, and PSYC 1100.

Physiological processes related to motivation, emotion, sensory processes, motor skills, learning, and psychiatric conditions.

**2201. Drugs and Behavior**

Three credits. Prerequisite: PSYC 1100 or BIOL 1107.

An overview of drug effects on chemical transmission in the nervous system, with an emphasis on the behavioral/psychological effects of drugs.

**2300. Abnormal Psychology**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Nature of abnormal behavior, theories and data regarding symptoms, etiology, treatment and prevention of mental disorders.

**2300W. Abnormal Psychology**

Prerequisite: PSYC 1100, and PSYC 1101 or 1103; ENGL 1010 or 1011 or 2011.

**2301. The Study of Personality**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Theories, methods, and research in both clinical and experimental approaches to personality.

**2400. Developmental Psychology**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Social behavior, personality, perception, cognition, language, intelligence, learning, biobehavioral processes, and research methodology in developmental perspective.

**2500. Learning**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Learning and memory principles found in animal research and their relationship to human behavior. Human and other species' specific types of unique learning abilities.

**2501. Cognitive Psychology**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Different views of mental representation and processes involved in memory, language comprehension, perception, attention, and problem solving. Historical development of models in cognitive psychology.

**2600. Industrial/Organizational Psychology**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Applications of psychology in the workplace: Measurement, personnel decisions, performance

appraisal, training, motivation, worker attitudes, leadership, ergonomics and job design, workplace health and safety.

**2700. Social Psychology**

Three credits. Prerequisite: PSYC 1100, and 1101 or 1103.

Attitudes, social cognition, social influence, interpersonal relations, group dynamics.

**2701. Social Psychology of Multiculturalism**

Three credits. Prerequisite: PSYC 1100, and 1101 or 1103. Recommended preparation: PSYC 2700.

Introduction to theoretical perspectives and behavioral research that seek to explain the nature and mechanisms of intergroup relations and the psychology of culture, prejudice, and biased behavior. CA 4.

**3100. The History and Systems of Psychology**

Three credits. Prerequisite: PSYC 1100; PSYC 1101 or 1103; PSYC 2300/W or 2301 or 2400 or 2600 or 2700; and PSYC 2200 or 2500 or 2501 or 3201 or 3500 or 3501.

Philosophical and scientific origins and major schools, including structuralism, functionalism, behaviorism, gestalt, and psychoanalysis.

**3100W. The History and Systems of Psychology**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; PSYC 1100; PSYC 1101 or 1103; PSYC 2300/W or 2301 or 2400 or 2600 or 2700; and PSYC 2200 or 2500 or 2501 or 3201 or 3500 or 3501.

**3101. Psychological Testing**

Three credits. Prerequisite: PSYC 2100Q or 2100WQ.

Practical and theoretical interpretation of common personality, industrial, educational, cognitive, and attitude tests. Evaluating utility, test bias, and error. Using tests in clinical, educational, and workplace settings.

**3102. Psychology of Women**

(Also offered as WGSS 3102.) Three credits. Prerequisite: Three credits of 2000 to 3000-level psychology.

Gender roles, socialization, women and work, women's relationships, violence against women, and other topics. Theory and research. CA 4.

**3103. Motivation and Emotion**

(Also offered as COMM 3103.) Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103; open to juniors or higher.

Cognition, brain mechanisms, biofeedback, aggression, sex, competence, social influence, and conformity.

**3104. Environmental Psychology**

Three credits. Prerequisite: PSYC 2700.

Reciprocal relationships between built and natural environments and human behavior.

**3105. Health Psychology**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

The interface between psychology and health is examined using a biopsychosocial model. Topics include stress and coping, health promotion, adjustment to chronic illness, and the psychology of health behaviors.

**3106. Black Psychology**

(Also offered as AFRA 3106.) Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Empirical and theoretical literature on psychological experiences of African Americans. Impact of race, culture, and ethnicity on psychological development. CA 4.

**3150. Laboratory in Health Psychology**

Three credits. Two hours lecture, two hours laboratory. Prerequisite: PSYC 3105.

Introduction to experimental design and research methods in health psychology. Includes a class research project.

**3200. Introduction to Behavioral Genetics**

Three credits. Prerequisite: PSYC 1100, and BIOL 1102, or 1107 and 1108; open to juniors or higher.

Methods, concepts and findings of behavioral genetics in animals and humans.

**3200W. Introduction to Behavioral Genetics**

Prerequisite: PSYC 1100, and BIOL 1102, or 1107 and 1108; ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3201. Animal Behavior**

(Also offered as EEB 3201.) Three credits. Prerequisite: BIOL 1102 or 1107, and PSYC 1100.

Principles of animal behavior derived from a review of descriptive and analytic studies in laboratory and field. Sometimes offered in multimedia format.

**3250W. Laboratory in Animal Behavior and Learning**

Prerequisite: PSYC 2100Q or PSYC 2100WQ and PSYC 2200 or 2500 or 3201, and consent of instructor; ENGL 1010 or 1011 or 2011.

**3251. Laboratory in Physiological Psychology**

Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 2100Q or 2100WQ, and PSYC 2200, which may be taken concurrently.

Techniques employed in experimental investigation of the anatomical and physiological bases of behavior.

**3252. Drugs and Behavior Laboratory**

Three credits. Prerequisite: PSYC 2100Q or 2100WQ and PSYC 2201.

Techniques employed in the experimental investigation of drug action. Laboratory exercises illustrate behavioral and neural effects of various psychoactive pharmacological agents such as stimulants, antipsychotics, antidepressants, antiparkinsonian drugs, anxiolytics, and sedatives/hypnotics.

**3253. Sensory Neuroscience Laboratory**

Three credits. A one-hour lecture and two 2-hour laboratories each week. Prerequisite: PSYC 2100Q or 2100WQ and PSYC 3501.

Techniques employed in the experimental investigation of sensory neuroscience. Laboratory exercises in psychophysics and assessment of human and animal sensory abilities. Elementary computer programming is used to synthesize and process sound files and analyze psychophysics data.

**3270. Current Topics in Behavioral Neuroscience**

Three credits. Prerequisite: Instructor consent required. With a change in topic, course may be repeated for credit.

Selected topics vary with each offering (e.g., The Neurobiology of Memory and Decision-Making, Sensory Coding and Decoding, Animal Models of Basal Ganglia Dysfunction, Animal Models of Developmental Disorders).

**3300. Abnormal Child Psychology**

Three credits. Prerequisite: PSYC 2400.

Theory, research, treatment, and prevention in developmental psychopathology from infancy through adolescence.

**3301. Introduction to Clinical Psychology**

Three credits. Prerequisite: PSYC 2300 or 2300W.

History of clinical psychology as a profession; graduate training and ethical responsibilities; assessment and treatment of psychological disorders; and clinical sub-specialties.

**3350W. Laboratory in Personality**

Prerequisite: PSYC 2100Q or 2100WQ or STAT 1100Q, PSYC 2301 and consent of instructor; ENGL 1010 or 1011 or 2011.

Experimental design and methodology in personality research, followed by a class project written individually by each student.

**3370W. Current Topics in Clinical Psychology**

Prerequisite: PSYC 2300/W or 3750 or instructor consent; ENGL 1010 or 1011 or 2011.

**3400. Theories in Developmental Psychology**

Three credits. Prerequisite: PSYC 2400.

Historical and contemporary theories of development. Includes Piaget, Vygotsky, Freud, Erikson, social-learning theory, ethological theory, and information-processing theory.

**3440. Developmental Cognitive Neuroscience**

Three credits. Prerequisite: Open to juniors or higher.

Survey of current research and methods in developmental cognitive neuroscience, an interdisciplinary scientific field at the boundaries of neuroscience, developmental psychology, and cognitive science.

**3450W. Laboratory in Developmental Psychology**

Four credits. Prerequisite: PSYC 2400 and PSYC 2100Q or 2100WQ; ENGL 1010 or 1011 or 2011.

The techniques necessary for performing psychological research on young children; advanced topics.

**3470. Current Topics in Developmental Psychology**

Three credits. Prerequisite: PSYC 2400 or instructor consent. With change of topic, may be repeated for credit.

Selected topics (e.g., infant development, peer relations, cognitive development, and developmental psychobiology) that may vary with each offering.

**3500. The Psychology of Language**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Those aspects of language that make it a uniquely efficient vehicle for communication and thought.

**3501. Sensation and Perception**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103.

Sensory and perceptual processes in vision, hearing, touch, taste, and smell.

**3502. Psychology of Consciousness**

Three credits. Prerequisite: PSYC 1100.

The role of consciousness in human cognition is examined by comparing the conscious and unconscious operation of mental faculties including perception, memory, learning, and thought.

**3503. Computer Modeling of Cognitive Processes**

Three credits. Prerequisite: PSYC 2501 or 3501.

Symbolic and connectionist approaches to modelling vision, problem solving, planning, deduction, language understanding, learning, and memory.

**3550W. Laboratory in Cognition**

Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 2100Q or 2100WQ, and PSYC 2500 or 2501, which may be taken concurrently; ENGL 1010 or 1011 or 2011.

Selected experiments from the following topics: memory processes, categorization, language comprehension and problem solving.

**3551W. Psycholinguistics Laboratory**

Three credits. Two 3-hour laboratory periods. Prerequisite: PSYC 2100Q or 2100WQ; ENGL 1010 or 1011 or 2011. Recommended preparation: PSYC 2501 or 3500. May be taken concurrently.

Introduction to the experimental study of language understanding and use. Topics selected from among speech perception, word recognition, sentence processing, language production, and corpus phenomena.

**3552. Laboratory in Sensation and Perception**

Three credits. Two 3-hour laboratory periods. Prerequisite: PSYC 2100Q or 2100WQ, and PSYC 3501, which may be taken concurrently.

Techniques for the study of sensory capacities and perceptual processes.

**3600. Social-Organizational Psychology**

Three credits. Prerequisite: PSYC 2600. Recommended preparation: PSYC 2700.

Social psychological phenomena in the workplace. Social perceptions, personality, stress, work-related attitudes, motivation, team decision-making and effectiveness, leadership and influence, organizational culture.

**3601. Human Factors Design**

Three credits. Prerequisite: PSYC 1100.

Application of information about human abilities and limitations to the design of systems, products, tools, computer interfaces, tasks, jobs, and environments for safe, comfortable and effective human use.

**3670. Current Topics in Industrial/Organizational Psychology**

Three credits. Prerequisite: PSYC 2600 or 3601 or instructor consent. May be repeated for credit with a change of topic.

**3670W. Current Topics in Industrial/Organizational Psychology**

Prerequisite: PSYC 2600 or 3601 or instructor consent; ENGL 1010 or 1011 or 2011.

**3750. Laboratory in Social Psychology**

Three credits. Prerequisite: PSYC 2100Q/WQ or STAT 1100Q; PSYC 2700; and consent of instructor.

Methods and techniques of research in social psychology. Supervised research investigations.

**3770. Current Topics in Social Psychology**

Three credits. Prerequisite: PSYC 2700 and consent of instructor. With a change in content, this course may be repeated for credit.

Selected topics (e.g., social influence, person perception, pro-social behavior) vary with each offering.

**3880. Field Experience**

Credits, not to exceed six per semester, and hours by arrangement. Prerequisite: PSYC 1100, and PSYC 1101 or 1103; open only with consent of instructor. With a change in content, this course may be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised field work in clinical, community, or organizational settings.

**3883. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head or advisor may be required prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3884. Seminar in Psychology**

Three credits. Prerequisite: PSYC 1100, and PSYC 1101 or 1103 and consent of instructor. With a change in content, may be repeated for credit.

Recent developments in psychology. Topics vary with each offering.

**3885. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3889. Undergraduate Research**

Credits, not to exceed six per semester, and hours by arrangement. Prerequisite: Open only with consent of instructor. Recommended preparation: PSYC 2100Q or 2100WQ. With a change in content, this course may be repeated for credit.

Participant activities related to research.

**3899. Independent Study**

Credits and hours by arrangement. Prerequisite: PSYC 2100Q or 2100WQ; open only with consent of instructor. With a change in content this course may be repeated for credit.

Students are expected to develop their own plan for a research project, conduct the research, and write-up this research, consulting periodically with a faculty member.

**4197W. Senior Thesis in Psychology**

Three credits. Hours by arrangement. Prerequisite: Three credits of PSYC 3889 or PSYC 3899; ENGL 1010 or 1011 or 2011; open only to Honors students with consent of instructor and Department Head.

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**Public Health (PUBH)**


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**1001. Introduction to Public Health**

Three credits. Two 1-hour and 15 minute lectures plus individual and group field assignments.

Basic foundation in public health principles and practices. CA 2.

**3001. Introduction to Epidemiology**

Three credits. Prerequisite: Open only by instructor consent. *Gregorio*

Provides overview of epidemiological concepts and methods for examining the distribution and causes of health and illness across populations. Stresses the application of epidemiology in advancing health research, disease prevention efforts, and medical care delivery. Primarily suited for, but not limited to, juniors and seniors interested in public health.

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**Public Policy (PP)**


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*Head of Department:* Professor Mark Robbins

*Office:* 4th Floor, 1800 Asylum Avenue, West Hartford, CT

**1001. Introduction to Public Policy**

Three credits.

Public policy history and institutions, government administration and systems, policy analysis, contemporary policy issues, polling and influences on policy making. CA 2.

**2100. Survey Research Methods**

(Also offered as URBN 2100.) Three credits.

Theory and practice of surveys, including overall project design, questionnaire development, sampling, methods of data collection and data analysis.

**3001. Public Policy**

Three credits.

The public policy process in the United States and frameworks for understanding and evaluating contemporary policy problems.

**3010. Public Policy Research Methods I**

Three credits.

Research design for policy analysis, impact analysis, implementation analysis, program evaluation.

**3011Q. Public Policy Research Methods II**

Three credits. Prerequisite: PP 3010 and STAT 1000Q or STAT 1100Q, or consent of instructor.

Data analysis for program evaluation, public policy and management research including data description, probability theory, statistical inference, multiple regression and time series analysis.

**3020. Cases in Public Policy**

Three credits.

Exploration of policy analysis using case studies on various contemporary policy topics.

**3020W. Cases in Public Policy**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3030. Public Opinion**

(Also offered as POLS 3625.) Three credits. Prerequisite: Open to juniors or higher.

Concepts, theories, structure, and substance of public opinion.

**3031. Public Administration in Theory and Practice**

Three credits.

Overview of public administration theory, systems and practices as they have developed in the United States. Explores the roles of public officials in the context of a pluralistic democratic society.

**3032. Budgeting in Public Service Organizations**

Three credits.

Introduction to the policy and management issues surrounding how governments budget and spend the money they raise.

**3033. Race and Policy**

(Also offered as AFRA 3033 and POLS 3633.) Three credits.

Examination of contemporary public policy through the lens of race.

**3082. Practicum in Public Policy**

Three credits.

Policy workshop on the practical application of making public policy.

**3091. Internship**

Credits up to 12. Hours by arrangement. Prerequisite: Open only with consent of the department head.

**3098. Public Policy Issues**

Three credits. May be repeated for credit with a change in subject matter.

An exploration of fundamental issues in public policy, public management and public opinion.

**3099. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in subject matter.

**4031. Financial Management for Public and Nonprofit Organizations**

Three credits.

Management of financial resources in public service organizations. Topics include variance analysis, cost analysis, public sector and nonprofit accounting, financial statement analysis, and forecasting.

**4032. Capital Financing and Budgeting**

Three credits.

An examination of the municipal bond market, capital budgeting techniques, and related public policy issues.

**4033. State and Local Fiscal Problems**

Three credits.

Analytical tools and concepts to evaluate policies related to government revenues, the delivery of public services, and intergovernmental relations.

**4034. Social Policy**

Three credits.

Examination of the concepts and principles of public policy analysis, with applications to important social issues.

**4095. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. May be repeated for credit with a change in subject matter.

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**Russian (RUSS)**


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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure. May be repeated for credit.

**3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

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**Science (SCI)**


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*Director:* College of Liberal Arts and Sciences Dean's Office

**1150. Unifying Concepts in Biology, Chemistry and Physics**

Four credits. Three lecture periods and one 2-hour laboratory. Prerequisite: a mathematics course.

A laboratory course introducing unifying concepts from biology, chemistry, and physics and their application to daily life. Includes examination of the scientific process and current scientific ideas.

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of the program director normally before the student's departure to study abroad. How credits are used to be determined by the College Dean and/or Advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**2206. History of Science**

(Also offered as HIST 2206.) Three credits. *Roe*

Development of modern science and technology in relation to culture, politics, and social issues. CA 1.

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**Sociology (SOCI)**


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*Head of Department:* Professor Bandana Purkayastha

*Department Office:* Room 114, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1001. Introduction to Sociology**

Three credits.

Modern society and its social organization, institutions, communities, groups, and social roles: the socialization of individuals, family, gender, race and ethnicity, religion, social class, crime and deviance, population, cities, political economy, and social change. CA 2.

**1001W. Introduction to Sociology**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2.

**1251. Social Problems**

Three credits.

Major social problems, their sources in the organization of society, public policies for their alleviation, and questions of ethics and social justice: alcohol and drug abuse, physical and mental illness, sexual variances, poverty and inequality, ethnic and racial prejudice and discrimination, women and gender, the changing family, violence, crime and delinquency, the environment, urban problems, and population planning and growth. CA 2.

**1251W. Social Problems**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2.

**1501. Race, Class, and Gender**

Three credits.

Race, class, and gender, as they structure identities, opportunities, and social outcomes. CA 2. CA 4.

**1501W. Race, Class, and Gender**

Prerequisite: ENGL 1010 or 1011 or 2011. CA 2. CA 4.

**1701. Society in Global Perspective**

Three credits.

Economic, political, social and cultural processes in globalization. The world economy, the autonomy of nation-states, the role of the media, and the social and environmental problems of societies in a world context. CA 4-INT.

**1993. International Study**

One to fifteen credits. Hours by arrangement. Prerequisite: Consent of program director required, normally to be granted before the student's departure. May be repeated for credit.

Special topics taken in an Education Abroad program.

**2101. Sports and Society**

Three credits. Prerequisite: Open to sophomores or higher.

Sports as an institution and its impact on society. Gender, race, and class inequality in sports. Cultural, economic, political, and legal influences on sports at the professional, intercollegiate, scholastic, and recreational levels.

**2210. Interaction and the Conduct of Social Research**

Three credits. Prerequisite: Open to juniors or higher; instructor consent. Recommended preparation: six credits of introductory social science courses.

Sociological analysis of methodological, socio-relational, and structural factors affecting social research and clinical or community work with individuals and groups.

**2271. The Social Construction of Happiness**

Three credits. Lecture.

Happiness as a social construction that shapes and is shaped by human societies and their social structures and processes. The social causes, nature, and consequences of the pursuit of happiness as a socially defined and organized phenomenon.

**2275. Social Well-Being**

Three credits.

Socially-embedded facets of well-being. Definitions and levels of well-being; relationship of well-being to social situations, social interactions, and social institutions.

**2275W. Social Well-Being**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores and higher.

**2301. Criminology**

Three credits.

Theories and research on crime, criminal law, and the criminal justice system.

**2301W. Criminology**

Prerequisite: ENGL 1010 or 1011 or 2011.

**2411. Work and Occupations**

(Formerly offered as SOCI 3411.) Three credits. Prerequisite: Open to sophomores or higher.

Occupations, jobs, careers, and the professions, and their effects on the division of labor, on the workplace, and on individuals in the labor force.

**2501. Sociology of Intolerance and Injustice**

Three credits. Prerequisite: Open to sophomores or higher.

Sociological concepts of intolerance and injustice and how they affect members of marginalized groups; case studies may consider social class, race/ethnicity, gender, sexuality, age, religion, and disability. CA 4.

**2501W. Sociology of Intolerance and Injustice**

Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4.

**2509. Sociology of Anti-Semitism**

Three credits. Prerequisite: Open to sophomores or higher.

Sources and consequences of anti-Semitism in society. CA 4-INT.

**2509W. Sociology of Anti-Semitism**

Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4-INT.



**2701. Sustainable Societies**

Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: SOCI 1001, SOCI 2709.

Sociological perspectives on the concepts of sustainability, focusing on issues of climate change mitigation and adaptation, including questions of social transitions based on concepts of social justice, biomimicry, permaculture, and the future of life on earth.

**2705. Sociology of Food**

Three credits. Prerequisite: Open to sophomores or higher. Not open for credit to students who have passed SOCI 3271 when offered as "Food." Recommended preparation: SOCI 1001.

Social factors shaping the industrial food system, as well as a social analysis of viable alternatives.

**2709W. Society and Climate Change**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: SOCI 1001. Not open for credit to students who have passed SOCI 3271 when offered as Society and Climate Change.

Sociological perspectives on the social, economic, political, and environmental causes and consequences of anthropogenic global climate change.

**2827. Revolutionary Social Movements Around the World**

Three credits. One 3-hour class per week.

Lectures and documentary films on the Russian, Chinese, Vietnamese, Cuban and Nicaraguan revolutions and movements in South Africa and the Middle East.

**2827W. Revolutionary Social Movements Around the World**

Prerequisite: ENGL 1010 or 1011 or 2011.

**2993. International Study**

One to fifteen credits. Hours by arrangement. Prerequisite: Consent of program director required, normally to be granted before the student's departure. May count toward the major with consent of the advisor up to a maximum of 6 credits. May be repeated for credit.

Special topics taken in an Education Abroad program.

**2995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open to sophomores and higher. With a change in content, may be repeated for credit.

A lecture course. Topics vary by semester.

**3201. Methods of Social Research**

Three credits. Prerequisite: SOCI 1001, 1251, 1501, or 1701; open to juniors or higher.

Quantitative and qualitative methods used in sociological research: designs for gathering data, problems of measurement, and techniques of data analysis. Lectures and laboratory work. Majors in sociology should take this required course in their junior year.

**3211Q. Quantitative Methods in Social Research**

Four credits. Lectures and discussion section. Prerequisite: SOCI 3201 and either STAT 1000Q or 1100Q; or instructor consent; open to juniors or higher.

Practical work in the design and execution of research, hypothesis testing, data analysis, and interpretations.

**3221. Sociological Perspectives on Asian American Women**

(Also offered as AASI 3221 and HRTS 3571.) Three credits. Prerequisite: Open to juniors or higher.

An overview of social structures, inter-group relations, and women's rights, focusing on the experience of Asian American women. CA 4.

**3222. Asian Indian Women: Activism and Social Change in India and the United States**

(Also offered as AASI 3222 and HRTS 3573.) Three credits. Prerequisite: SOCI 1001, 1251 or 1501; open to juniors or higher.

How gender, class and ethnicity/race structure everyday lives of Asian Indian women in both India and the United States.

**3251. Social Theory**

Three credits. Prerequisite: SOCI 1001, 1251, 1501, or 1701; open to juniors or higher.

Sociological theory for advanced undergraduates.

**3251W. Social Theory**

Prerequisite: SOCI 1001, 1251, or 1501; ENGL 1010 or 1011 or 2011.

**3271. Topics in the Sociology of Culture**

Three credits. Prerequisite: Open to juniors or higher. May be repeated for credit with a change in topic.

A variable topics course focusing on issues in the sociology of culture. Specific topics may include: production of culture and the culture industry, popular culture, the sociology of the arts, cultural representation of deviance and social problems, women and culture, film and the developing world, material culture, and cultural constructions of social inequality.

**3307. Drugs and Society**

Three credits. Prerequisite: Open to juniors or higher.

Drug taking as a social problem, the "war on drugs," drug education, treatment and prevention approaches, the illegal drug market.

**3307W. Drugs and Society**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3311. Deviant Behavior**

Three credits. Prerequisite: Open to juniors or higher.

Behaviors labeled by society as deviant, such as crime, prostitution, suicide, alcoholism, drug abuse, and mental illness.

**3311W. Deviant Behavior**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3315. Juvenile Delinquency**

Three credits. Prerequisite: Open to juniors or higher.

An overview of sociological theory and research on juvenile delinquency.

**3315W. Juvenile Delinquency**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3317. Women and Crime**

(Also offered as WGSS 3317.) Three credits. Prerequisite: Open to juniors or higher.

Women as offenders, victims and practitioners in the criminal justice system.

**3317W. Women and Crime**

(Also offered as WGSS 3317W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3351. Society and the Individual**

Three credits. Prerequisite: Open to juniors or higher.

Modern social systems and the behavior, psychological organization, and development of individuals.

**3351W. Society and the Individual**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3401. Social Organization**

Three credits. Prerequisite: Open to juniors or higher.

Social structure, processes, and social change in institutions such as the family, education, religion, economy, and polity.

**3401W. Social Organization**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3407. Energy, Environment, and Society**

Three credits. Prerequisite: Open to juniors or higher.

Sociological perspectives on energy production, distribution and consumption, environment and social organization.

**3407W. Energy, Environment, and Society**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3421. Class, Power, and Inequality**

(Also offered as HRTS 3421.) Three credits. Prerequisite: Open to juniors or higher.

Inequality and its consequences in contemporary societies.

**3421W. Class, Power, and Inequality**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3425. Social Welfare and Social Work**

Three credits. Prerequisite: Open to juniors or higher.

Social welfare needs and programs; introduction to social work as a professional service.

**3429. Sociological Perspectives on Poverty**

(Also offered as HRTS 3429.) Three credits. Prerequisite: Open to juniors or higher.

Poverty in the U.S. and abroad, its roots, and strategies to deal with it.

**3429W. Sociological Perspectives on Poverty**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3451. Sociology of Health**

Three credits. Prerequisite: Open to juniors or higher.

Social factors related to health, illness, and health-care systems.

**3453. Women and Health**

(Also offered as WGSS 3453.) Three credits. Prerequisite: Open to juniors or higher.

Social factors shaping women's health, health care, and their roles as health-care providers.

**3453W. Women and Health**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3457. Sociology of Mental Illness**

Three credits. Prerequisite: Open to juniors or higher.

Madness in human societies; its history, incipience, epidemiology, etiology, institutionalization, and other issues.

**3457W. Sociology of Mental Illness**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3459. Aging in American Society**

(Also offered as HDFS 3240.) Three credits. Prerequisite: Open to juniors or higher. May be used only once to meet the distribution requirements.

Social gerontology: the role and status of older people in a changing society.

**3459W. Aging in American Society**

(Also offered as HDFS 3240W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3471. Sociology of Education**

Three credits. Prerequisite: Open to juniors or higher.

Education and society: primary schools through universities as agencies for social selection and socialization.

**3471W. Sociology of Education**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3501. Ethnicity and Race**

(Also offered as AFRA 3501.) Three credits. Prerequisite: Open to juniors or higher.

Ethnic groups, their interrelations, assimilation, and pluralism. Culture, and identity that arise from differences in race, religion, nationality, region, and language.

**3501W. Ethnicity and Race**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3503. Prejudice and Discrimination**

Three credits. Prerequisite: Open to juniors or higher.

Sources and consequences of racial and ethnic prejudice and discrimination.

**3503W. Prejudice and Discrimination**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3505. White Racism**

(Also offered as HRTS 3505 and AFRA 3505.) Three credits. Prerequisite: Open to juniors or higher.

The origin, nature, and consequences of white racism as a central and enduring social principle around which the United States and other modern societies are structured and evolve. CA 4.

**3511W. American Jewry**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Historical, demographic, organizational, and sociopsychological perspectives.

**3521. Sociology of Religion**

Three credits. Prerequisite: Open to juniors or higher.

Religion in social context: differences of church, denomination, sect, and cult; religious culture, organization, and ideology.

**3521W. Sociology of Religion**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3525. Latino Sociology**

(Also offered as LLAS 3525.) Three credits.

The economic, social, political, and cultural experiences of Latinos in the United States.

**3601. Sociology of Gender**

Three credits. Prerequisite: Open to juniors or higher.

Explores processes contributing to social construction of gender; examines the theories used to explain the system of inequality in the United States with particular attention to the intersection of gender, race, ethnicity, sexuality, and class; and evaluates how men and women are differentially constituted in the family, in education, work, politics, and language.

**3601W. Sociology of Gender**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3621. Sociology of Sexualities**

(Also offered as WGSS 3621.) Three credits. Not open for credit to students who have passed SOCI 246 or 246W.

Explores the social organization, construction, and politics of sexualities; particular focus on lesbian, gay, bisexual, transgender, and queer experiences and the intersection of sexualities, gender, race, and class. CA 4.

**3621W. Sociology of Sexualities**

(Also offered as WGSS 3621W.) Prerequisite: ENGL 1010 or 1011 or 2011. Not open for credit to students who have passed SOCI 246 or 246W. CA 4.

**3651. Sociology of the Family**

Three credits.

The American family, its changing forms and values, and the social conditions influencing it: mate selection, marital adjustment, the responsibilities and opportunities of parenthood, and resolving family crises.

**3651W. Sociology of the Family**

Prerequisite: ENGL 1010 or 1011 or 2011.

**3701. The Developing World**

Three credits. Prerequisite: Open to juniors or higher.

Social and economic conditions in Asia, Africa, and Latin America and attempts to improve them.

**3701W. The Developing World**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3801. Political Sociology**

(Also offered as HRTS 3801.) Three credits. Prerequisite: Open to juniors or higher.

Social analysis of power, democracy and voting, society and the state, and political economy.

**3801W. Political Sociology**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3821. Social Movements and Social Change**

Three credits. Prerequisite: Open to juniors or higher.

Revolutionary, reform, reactionary, religious, communal, and escapist movements.

**3821W. Social Movements and Social Change**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3823. The Sociology of Law: Global and Comparative Perspectives**

Three credits. Prerequisite: Open to juniors or higher.

The relationship between law and social change cross-nationally, including dispute processing in kinship societies, the impact of Western law on Third World countries, legal strategies that challenge inequality based on class, race, sex, religion, and sexuality, and the impact of international human rights treaties on inequality. CA 2. CA 4-INT.

**3825. African Americans and Social Protest**

(Also offered as HRTS 3825 and AFRA 3825.) Three credits. Prerequisite: Open to juniors or higher.

Social and economic-justice movements, from the beginning of the Civil Rights movement to the present.

**3831. Human Rights in the United States**

(Also offered as HRTS 3831.) Three credits. Prerequisite: Open to juniors or higher.

Sociological analyses of human rights issues in the United States, including economic, racial, and gender justice; prisoner's rights and capital punishment; the role of the United States in international human rights agreements and treaties; and struggles on behalf of human rights.

**3833. Topics in Sociology and Human Rights**

Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

Variable topics covering theoretical and empirical examination of social, political, economic, legal, and/or cultural issues of human rights from a sociological perspective.

**3835. Refugees and Humanitarianism**

(Also offered as HRTS 3835.) Three credits.

Social and political challenges of living as a refugee and working in humanitarian settings. Refugee camps, the institutional development of the United Nations High Commissioner for Refugees, and alternative approaches to sanctuary.

**3835W. Refugees and Humanitarianism**

(Also offered as HRTS 3835W.) Three credits. Prerequisites: ENGL 1010 or 1011 or 2011. Recommended preparation: HRTS 1007.

**3837. Sociology of Global Human Rights**

(Also offered as HRTS 3837.) Three credits.

Comparative approach to the study of human rights in the United States and elsewhere around the world from a sociological perspective.

**3837W. Sociology of Global Human Rights**

(Also offered as HRTS 3837W.) Three credits. Prerequisites: ENGL 1010 or 1011 or 2011.

**3841. Public Opinion and Mass Communication**

Three credits. Prerequisite: Open to juniors or higher.

Contemporary public opinion and ideology, the process and effects of mass communication, and the measurement of public opinion.

**3841W. Public Opinion and Mass Communication**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3901. Urban Sociology**

(Also offered as URBN 3275.) Three credits.

Social and physical organization of cities and suburbs.

**3901W. Urban Sociology**

(Also offered as URBN 3275W.) Prerequisite: ENGL 1010 or 1011 or 2011.

**3903W. Urban Problems**

(Also offered as URBN 3276W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Social problems of American cities and suburbs, with emphasis on policy issues.

**3907. City Life**

Three credits. Prerequisite: Open to juniors or higher.

Ways of life in large cities and suburbs and the culture of modernism.

**3907W. City Life**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3911. Communities**

Three credits. Three class periods. Prerequisite: One introductory level sociology course or instructor consent; open to juniors or higher.

Sociological analysis of processes and structures of various kinds of communities.

**3971. Population**

Three credits. Prerequisite: Open to juniors or higher.

Size, growth, composition and distribution of population; social factors in population change.

**3971W. Population**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3990. Internship: Field Experience**

Variable (1-6) credits. Supervised field experience. Hours by arrangement, 42 hours per semester per credit. Prerequisite: Instructor consent required; open to juniors or higher. Corequisite: Must be taken with SOCI 3991/W, unless continuing an internship already initiated. Repeatable to a maximum of six credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**3991. Internship: Research Paper**

Variable (1-2) credits. Prerequisite: Instructor consent required; open to juniors or higher. Corequisite: Must be taken with SOCI 3990. May be repeated up to 3 credits maximum.

Research paper based on Field Experience.

**3991W. Internship: Research Paper**

Variable (1-2) credits. Prerequisite: Instructor consent required; ENGL 1010 or 1011 or 2011; open to juniors or higher. Corequisite: Must be taken with SOCI 3990. May not be repeated.

**3993. Foreign Study**

Credits and hours by arrangement up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required, preferably prior to the student's departure. With a change in content, may be repeated for credit.

Special topics in a foreign-study program.

**3995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher. With a change in content, may be repeated for credit.

A lecture course. Topics vary by semester.

**3996W. Senior Thesis in Sociology**

Three credits. Prerequisite: Fifteen credits in sociology and consent of instructor and Department Head; ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3998. Variable Topics**

Three credits. Prerequisite: Open to juniors or higher. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

**3999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change in content, may be repeated.

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## Soil Science (SOIL)

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*Head of Department:* Professor Richard McAvoy

*Department Office:* Room 133, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

**2120. Environmental Soil Science**

Three credits. Three class periods. Prerequisite: CHEM 1122 or 1124Q or 1127Q or 1137Q or 1147Q. *Schulthess*

Introduction to the physical, chemical and biological properties of soils. The relationship between soils and the growth of higher plants. Impact of soils on environmental quality. CA 3.

**2125. Soils Lab**

One credit. One 2-hour laboratory period. Prerequisite: SOIL 2120, which may be taken concurrently. *Schulthess*

Basic laboratory analysis of the physical and chemical properties of soil. Includes weekend field trips.

**3410. Soil Chemistry Components**

Four credits. Three class periods and one 2-hour computer laboratory period. Prerequisites:

CHEM 1128Q. Recommended preparation: SOIL 2120 and 2125. *Schulthess*

Basic concepts of the physical chemistry of soil constituents. Topics include soil atmospheres, soil solutions, soil organic matter, soil mineralogy, and surface characteristics and analysis.

**3520. Urban and Sports Turf Soils**

Three credits. Prerequisite: SOIL 2120. Taught with SAPL 352. *Henderson*

Physical and engineering properties of soils and root zone mixes utilized for landscapes, horticulture production, golf course putting greens and athletic fields. Areas of emphasis will include: preparation and evaluation of project specifications, root zone constituent selection, design and installation of drainage systems, evaluating soils and root zone mixes prior to construction by conducting and assessing laboratory performance testing, examining construction techniques and maintaining quality control during construction.

**3620. Soil Fertility**

Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: SOIL 2120. *Morris*

Factors governing nutrient uptake by plants, fate of nutrients applied to soils, principles and practices in the manufacture and use of fertilizers for crop production, laboratory and greenhouse studies of soil and plant response to applied nutrients.

**4420. Soil Chemistry Processes**

Three credits. Three class periods. Prerequisite: CHEM 1128Q. Recommended preparation: SOIL 2120 and 2125. *Schulthess*

Physical chemical characteristics of soil minerals and soil organic matter and their reactivity with compounds present in the aqueous and vapor phase. Topics include: redox reactions, adsorption and desorption measurements, electrokinetics, adsorption modeling, and basic principles of soil modification and remediation practices.

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## Spanish (SPAN)

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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

Consult the Literatures, Cultures and Languages Departmental listing in this Catalog for requirements for Majors in Spanish.

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

**1001-1002. Elementary Spanish I and II**

Four credits each semester. Four class periods and additional laboratory practice. Not open for credit to students who have had three or more years of Spanish in high school. Students who wish to continue in Spanish but feel ill prepared should contact the head of the Literatures, Cultures and Languages Department.

Development of ability to communicate in Spanish, orally and in writing, to satisfy basic survival needs within a cultural setting.

**1003-1004. Intermediate Spanish I and II**

Four credits each semester. Four class periods and additional laboratory practice. Prerequisite: SPAN 1002 or two years of Spanish in high school.

Further development of understanding, speaking, reading, and writing skills within a cultural setting. Readings to enhance cultural awareness of the Spanish-speaking world.

**1006. Spanish for Reading Knowledge**

Three credits. Prerequisite: Open only to seniors and graduate students. Not open for credit to undergraduates who have had SPAN 1001-1002. May not be used to meet the undergraduate foreign language requirement or as a prerequisite for other Spanish courses.

Basic Spanish grammar and intensive practice in reading expository prose in a variety of subjects, for use as a research tool and in preparation for the Ph.D. reading examination.

**1007. Major Works of Hispanic Literature in Translation**

Three credits. Knowledge of Spanish is not required.

A study of major works selected from the best of Spanish and Spanish-American literature. CA 1. CA 4-INT.

**1008. Christians, Muslims and Jews in Medieval Spain**

Three credits. Taught in English.

Contacts, conflicts and coexistence among the diverse cultures and traditions of medieval Spain: Christian Hispania, Muslim al-Andalus, and Jewish Sefarad. CA 1. CA 4-INT.

**1009. Latino Literature, Culture, and Society**

(Also offered as LLAS 1009.) Three credits. Knowledge of Spanish is not required. Taught in English.

Critical approaches to Latinos/as and cultural representation, production, and agency, as impacted by globalization and local dynamics. Will engage the value and function of race, gender and sexuality in popular culture, literature, film, music, digital culture, visual arts, and urban culture. CA 1. CA 4.

**1009W. Latino Literature, Culture, and Society**

(Also offered as LLAS 1009W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Knowledge of Spanish is not required. Taught in English. CA 1. CA 4.

**1010. Contemporary Spanish Culture and Society through Film**

Three credits. Taught in English; Spanish is not required; does not fulfill foreign language requirement.

Critical approaches to Spanish culture and society from the early 20th century to the present as portrayed in Spanish film. Introduction to filmic textual analysis and film history. Discussion of topics such as avant-garde, social art, revolutionary movements, civil war, exile, Francoism, democratic transition, peripheral nationalisms, immigration, cultural diversity, postmodernity, globalization. CA 1. CA 4-INT.

**1020. Fashion, Design, Art and Identity in Spain**

Three credits. Taught in English; Spanish not required; does not fulfill foreign language requirement.

Interdisciplinary approach to fashion, design, and art, and their connection to politics, society, and culture in Spain and in the world at large. CA 1. CA 4-INT.

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3170. Business Spanish**

Three credits. Prerequisite: SPAN 1004 or instructor consent.

Introduction to commercial terminology in Spanish. Designed to meet the needs of students desiring to use Spanish as a tool for industry or commerce.

**3171. Spanish for Engineers**

Three credits. Prerequisite: SPAN 1004 or three or more years of Spanish in high school.

Introduction to Spanish in the fields of engineering and industrial job market in the Hispanic world. Designed to meet the needs of students desiring to use Spanish as a tool for industry or commerce.

**3177. Composition and Reading for Speakers of Spanish**

Three credits. Prerequisite: Consent of instructor.

Grammar, written composition, and readings for speakers of Spanish with little or no formal training. Emphasis is on Puerto Rican literature.

**3178. Intermediate Spanish Composition**

Three credits. Prerequisite: SPAN 1004 or three or more years of Spanish in high school.

Provides a thorough review of grammar and methodical practice in composition leading to command of practical idioms and vocabulary.

**3179. Spanish Conversation: Cultural Topics**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

In-depth development of speaking skills through cultural readings, group discussions and oral presentations on selected topics concerning the Spanish-speaking world.

**3200. Spanish Civilization to the Modern Period**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

An interdisciplinary course analyzing the politics, social structures, and cultural life of Spain from its beginnings to the start of the nineteenth century.

**3201. Ibero-American Civilization and Culture**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

History of the major social, intellectual, and artistic trends of Spanish-speaking America.

**3204. Language and Culture of U.S. Hispanics**

Three credits. Prerequisite: SPAN 1004.

Comparison of linguistic, historical and cultural backgrounds of various Hispanic groups in the U.S. through fiction, non-fiction, films, music, and guest speakers.

**3205. Contemporary Spanish America**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

An interdisciplinary course concerned with present-day cultural, social, and political structures of Spanish America. Revolutionary and counter-revolutionary ideas in contemporary society and the struggle for social, political and economic stability.

**3206. Contemporary Spain**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

An interdisciplinary course analyzing the politics, social structures and cultural life in Spain today. Spain in relation to Western Europe and the community of nations.

**3207. Women's Studies in Spanish**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

Women in Spanish and Ibero-American literature. Women's writings. The development of Spanish and Ibero-American feminism. Contemporary issues concerning women in the Spanish-speaking world.

**3208. Issues in Hispanic Thought**

Three credits. Recommended preparation: SPAN 3178 or instructor consent. With a change in topic, may be repeated for credit.

Selection for study of a major world issue debated in the Iberian Peninsula or in Ibero-America by great thinkers. A history of the issue, taking into account international cultural contexts.

**3214. Topics in Hispanic Cultures**

Three credits. Recommended preparation: five semesters of college Spanish. May be repeated for credit with a change in topic.

Selected topics. Cross-disciplinary approach to the study of Peninsular and Hispanic American cultures: the colonial heritage in Latin America; intellectual traditions and national identities; cultural production under military regimes; and experience of exiles; among possible topics.

**3230. Introduction to Literary Study**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

Introduction to literary analysis through a variety of critical approaches: readings in poetry, drama, and prose fiction with explanation of terms useful to the study of literature.

**3231. Great Works of Spanish Literature from its Origins to the Golden Age**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

The study of selected poems, plays, fables and novels reflecting the development of Spanish society from feudalism to world empire.

**3232. Literature of Crisis in Modern Spain**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

The study of selected poems, plays, short fiction, and novels reflecting the clash between tradition and progress in nineteenth- and twentieth-century Spain. CA. 1.

**3233. Spanish-American Literature: The Formative Years**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

The emergence of the New World in the chronicles of the conquest and colonization of Spanish America. Selected texts from “barroco de Indias” (Sor Juana Inés de la Cruz), and from the period of political independence. The coming of age of Spanish-American literature with the pioneer texts of José Martí and the first “Modernismo.”

**3234. Great Works of Modern Spanish-American Literature**

Three credits. Recommended preparation: SPAN 3178 or instructor consent.

Study of the most significant texts of “Modernismo” with focus on Rubén Darío. The “avant-garde” in Spanish America. The narrative of the “boom” and its impact on present-day literature.

**3240W. Advanced Spanish Composition**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: SPAN 3178.

Treatment of the finer points of Spanish grammar. Exercises in translation and free composition. Stylistic analysis of texts chosen from Spanish or Latin American authors, newspapers, and magazines.

**3241. Spanish Phonetics**

Three credits. Recommended preparation: SPAN 3178.

A study of the sounds of the language and drills to improve pronunciation. Recommended for all majors and for those who expect to teach Spanish.

**3242. Spanish Communicative Grammar**

Three credits. Prerequisite: SPAN 3178.

Grammar in context. Linguistic awareness. Culture in relation to grammar. Focus on language knowledge and language use.

**3250. Film in Spain and Latin America**

Three credits. Taught in English.

Film language and genre in Spanish and Latin American cinema. CA 1. CA 4-INT.

**3251. Latin American Film**

Three credits. One 3-hour class period. Recommended preparation: SPAN 3178 or instructor consent.

Offers insights into Latin American cinema and video production. Provides tools for analyzing film and its expression of socio-political and aesthetic debates in the continent.

**3252. Spanish Film**

Three credits. One 3-hour class period. Recommended preparation: SPAN 3178 or instructor consent.

Class explores the way film has expressed debates over Spanish identity and history, including the role of film under Franco, in the new democratic Spain, and as part of a postmodern Europe.

**3254. Special Topics in Latin American National Cinemas**

Three credits. May be repeated for credit with a change of topic. Taught in English. Loss, Schiw

Selected Latin American national cinema. Focus on identity, aesthetics, and history.

**3260. Studies in Spanish-American Literature**

Three credits. Recommended preparation: SPAN 3201.

Readings and discussions of specific aspects of Spanish-American literature. May be repeated for credit once with a change of topic. Consult department for particulars each year.

**3261. Old Spanish Language and Literature**

Three credits. Prerequisite: SPAN 3231.

Linguistic and literary analysis of Medieval and Renaissance Spanish texts.

**3262. Studies in Spanish Golden Age Literature**

Three credits. Recommended preparation: SPAN 3200. May be repeated for credit once with a change in topic. Consult department for particulars each year.

Readings and discussions of specific aspects of Golden Age literature.

**3263. Studies in Spanish Literature of the Eighteenth and Nineteenth Centuries**

Three credits. Recommended preparation: SPAN 3200. May be repeated for credit once with a change in topic. Consult department for particulars each year.

Readings and discussions of specific aspects of the literature of the period.

**3264. Studies in Spanish Literature of the Twentieth Century**

Three credits. Recommended preparation: SPAN 3200. May be repeated for credit once with a change in topic. Consult department for particulars each year.

Readings and discussions of specific aspects of the literature of the period.

**3265. Literature of Puerto Rico and the Spanish Caribbean**

(Also offered as LLAS 3265.) Three credits. Recommended preparation: SPAN 3178 or instructor consent.

Readings and discussions of major authors and works of the Spanish Caribbean with special emphasis on Puerto Rico.

**3266. Spanish-American Fiction**

Three credits. Recommended preparation: SPAN 3201.

Lectures, readings and reports on the development of the Spanish-American novel and short story.

**3267W. The Spanish-American Short Story**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: SPAN 3178. With a change in content, this course may be repeated for credit.

Readings of major authors and works with special emphasis on the development of the short story since the nineteenth-century and on its relations to other short narrative forms (such as the fable, the cuadro de costumbres, or the tradición) as well as to significant moments of Spanish-American social history. Instruction in academic writing in Spanish. CA 1.

**3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally

to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3298. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change in content, may be repeated for credit.

**4200W. Senior Seminar for Spanish Majors: Selected Topics in Hispanic Literature**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. With a change of content, may be repeated for credit.

Topics focused on a particular area of Spanish or Latin American literature, culture or linguistics.

**Education Abroad in Spain.** The University of Connecticut sponsors an academic program at the University of Granada, Spain, which is open to those who have successfully completed a fifth semester Spanish course or the equivalent. Courses include Spanish language and linguistics, literature, culture, history, economics, political science and art history.

**Education Abroad in Latin America.** Students who have taken at least two years of college-level Spanish are eligible for University of Connecticut sponsored programs in Argentina, Chile, the Dominican Republic and Mexico. Courses are offered in liberal arts and social sciences.

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## Speech, Language and Hearing Sciences (SLHS)

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*Department Head:* Associate Professor Bernard Grela

*Department Office:* Room 232, D. C. Phillips Building

For major requirements, see the Speech, Language and Hearing listing in the College of Liberal Arts and Sciences section of this Catalog.

**1150. Introduction to Communication Disorders**

(Formerly offered as CDIS 1150.) Three credits.

Introduction to normal communicative processes and to disorders of communication. CA 2. CA 4.

**2156Q. Speech and Hearing Science**

Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: MATH 1060 or the equivalent. Not open to students who have passed CDIS 1155Q.

Fundamentals of acoustics specifically oriented to voice, speech production, and hearing. Human response to sound and its measurement. Introduction to acoustic instrumentation and software used in communication sciences.

Examples of concepts to be covered include frequency, intensity, decibels, filters, pitch, loudness, formants, critical bands, and masking.

### **2203. Anatomy and Physiology of Speech and Hearing**

Three credits. Prerequisite: Open to sophomores or higher.

Anatomical, neurological and physiological principles fundamental to the understanding of speech and hearing.

### **2204. Speech and Language Acquisition**

Three credits. Prerequisite: Open to sophomores or higher. Not open for credit to students who have passed CDIS 3202.

How children learn their first language, the effects of language on their thinking and behavior.

### **3247. Introduction to Phonetic Principles**

(Formerly offered as CDIS 3247.) Three credits. Prerequisite: SLHS 2156Q and 2203; open to juniors or higher.

The analysis of speech through the application of phonetic theory.

### **3248. Introduction to Audiology**

(Formerly offered as CDIS 3248.) Three credits. Prerequisite: SLHS 2156Q and 2203; open to juniors or higher.

An introduction to the nature, causation, assessment and management of hearing impairment and the principles and techniques of public school conservation programs.

### **3293. Foreign Study**

(Formerly offered as CDIS 3293.) Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of Department Head required, normally granted prior to the student's departure. May be repeated for credit. May count toward the major with consent of the advisor.

Special topics taken in foreign study program.

### **3295. Special Topics**

(Formerly offered as CDIS 3295.) Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

### **3298. Variable Topics**

(Formerly offered as CDIS 3298.) Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated for credit.

### **3299. Independent Study**

(Formerly offered as CDIS 3299.) Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change of content, may be repeated for credit.

The course, for superior students, includes independent reading, periodic conferences, and such other work as desired by the instructor.

### **4245. Neuroscience of Cognitive and Communication Disorders**

Three credits. Prerequisite: SLHS 2203 and 2204; open to juniors or higher. Not open for credit to students who have passed CDIS 4244/W.

Anatomy and physiology of the central nervous system. Brain mechanisms that underlie

speech, language, hearing, and cognition. Neurogenic communication disorders.

### **4245W. Neuroscience of Cognitive and Communication Disorders**

Four credits. Prerequisite: SLHS 2203 and 2204; ENGL 1010 or 1011 or 2011; open to juniors or higher. Not open for credit to students who have passed CDIS 4244/W.

### **4249. Introduction to Aural Rehabilitation**

(Formerly offered as CDIS 4249.) Three credits. Prerequisite: SLHS 3248; open to juniors or higher.

An introduction to the effects of hearing impairment on communication. Communication strategies for adults and children with impaired hearing are discussed.

### **4249W. Introduction to Aural Rehabilitation**

(Formerly offered as CDIS 4249W.) Four credits. Prerequisite: SLHS 3248; ENGL 1010 or 1011 or 2011; open to juniors or higher.

### **4251. Introduction to Articulation, Voice, and Fluency Disorders**

(Formerly offered as CDIS 4251.) Three credits. Prerequisites: SLHS 2156Q, 2203, 2204, and 3247; open to juniors or higher.

Communication problems resulting from disorders of speech, voice, and fluency. Assessment and management strategies in settings including public schools, hospitals, and rehabilitation centers.

### **4254. Introduction to Language Disorders in Children**

Three credits. Prerequisite: SLHS 2204; open to juniors or higher.

Development, measurement, and function of language in children. Emphasis on child language disorders and their causes. Assessment and management strategies in settings including public schools and private clinics.

### **4254W. Introduction to Language Disorders in Children**

Four credits. Prerequisite: SLHS 2204; ENGL 1010 or 1011 or 2011; open to juniors or higher.

### **4296W. Senior Thesis**

(Formerly offered as CDIS 4296W.) Credits and hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.

Preparation of a thesis and its presentation to the department.

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## Statistics (STAT)

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*Head of Department:* Professor Joseph Glaz

*Department Office:* Room 323, Philip E. Austin Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

Credit restrictions: 1000-level statistics courses are not open for credit to students who have passed a 2000-level or above statistics course or who are taking such a course concurrently. Students can receive no more than four credits from STAT 1000Q and 1100Q.

### **1000Q. Introduction to Statistics I**

Four credits. Three class periods and one discussion period. See credit restrictions above.

A standard approach to statistical analysis primarily for students of business and economics; elementary probability, sampling distributions, normal theory estimation and hypothesis testing, regression and correlation, exploratory data analysis. Learning to do statistical analysis on a personal computer is an integral part of the course.

### **1100Q. Elementary Concepts of Statistics**

Four credits. Three class periods and one discussion period. See credit restrictions above.

Standard and nonparametric approaches to statistical analysis; exploratory data analysis, elementary probability, sampling distributions, estimation and hypothesis testing, one- and two-sample procedures, regression and correlation. Learning to do statistical analysis on a personal computer is an integral part of the course.

### **2215Q. Introduction to Statistics II**

Three credits. Prerequisite: STAT 1000Q or 1100Q.

Analysis of variance, multiple regression, chi-square tests, and non-parametric procedures.

### **3005. Biostatistics for Health Professions**

(Also offered as AH 3005.) Three credits. Prerequisite: A course in pre-calculus or higher; STAT 1000Q or 1100Q or higher; open to CANR students and Statistics majors, juniors or higher; others with instructor consent. Not open for credit to students who have passed AH 3005 or STAT 4625.

Introduction to biostatistical techniques, concepts, and reasoning using a broad range of biomedical and public health related scenarios. Specific topics include description of data, statistical hypothesis testing and its application to group comparisons, and tools for modeling different type of data, including categorical, and time-event, data. Emphasis on the distinction of these methods, their implementation using statistical software, and the interpretation of results applied to health sciences research questions and variables.

### **3025Q. Statistical Methods (Calculus Level I)**

Three credits each semester. Prerequisite: MATH 1132Q or 1152Q. Students may not receive more than three credits from STAT 3025 and STAT 3345.

Basic probability distributions, point and interval estimation, tests of hypotheses, correlation and regression, analysis of variance, experimental design, non-parametric procedures.

### **3115Q. Analysis of Experiments**

Three credits. Prerequisite: STAT 2215Q or 3025Q or instructor consent. Credit may not be received for both STAT 3115Q and 5315.

Straight-line regression, multiple regression, regression diagnostics, transformations, dummy variables, one-way and two-way analysis of variance, analysis of covariance, stepwise regression.

### **3345Q. Probability Models for Engineers**

Three credits. Prerequisite: MATH 2110 or 2130. Students may not receive more than three credits from STAT 3025Q and 3345Q or from STAT 3345Q and 3375Q.

Probability set functions, random variables, expectations, moment generating functions, discrete and continuous random variables, joint and conditional distributions, multinomial distribution, bivariate normal distribution, functions of random variables, central limit theorems, computer simulation of probability models.

#### **3375Q. Introduction to Mathematical Statistics I**

Three credits. Prerequisite: MATH 2110Q or 2130Q. Students may not receive credit for both STAT 3345Q and 3375Q, or both STAT 3375Q and 5585.

The mathematical theory underlying statistical methods. Probability spaces, distributions in one and several dimensions, generating functions, and limit theorems.

#### **3445. Introduction to Mathematical Statistics II**

Three credits. Prerequisite: STAT 3375Q. Students may not receive credit for both STAT 3445 and STAT 5685.

Sampling distributions and parameter estimation. Neyman-Pearson theory of hypothesis testing, correlation, regression, analysis of variance.

#### **3484. Undergraduate Seminar I**

One credit. Prerequisite: STAT 2215Q or 3115Q; and STAT 3025Q or 3375Q.

The student will attend 6-8 seminars per semester, and choose one statistical topic to investigate in detail. The student will write a well-revised, comprehensive paper on this topic, including a literature review, description of technical details, and a summary and discussion.

#### **3494W. Undergraduate Seminar II**

One credit. Prerequisite: STAT 2215Q or 3115Q; and STAT 3025Q or 3375Q, and STAT 3484; ENGL 1010 or 1011 or 2011.

The student will attend 6-8 seminars per semester, and choose one statistical topic to investigate in detail. The student will write a well-revised, comprehensive paper on this topic, including a literature review, description of technical details, and a summary and discussion, building upon the writing experience in STAT 3484.

#### **3515Q. Design of Experiments**

Three credits. Prerequisite: STAT 2215Q or 3025Q or instructor consent. Credit may not be received for both STAT 3515Q and 5515.

Methods of designing experiments utilizing regression analysis and the analysis of variance.

#### **3675Q. Statistical Computing**

Four credits. Prerequisite: STAT 3025Q or STAT 3375Q; open only with consent of instructor. Recommended preparation: An applied statistics course.

Introduction to computing for statistical problems; obtaining features of distributions, fitting models and implementing inference (obtaining confidence intervals and running hypothesis tests); simulation-based approaches and basic numerical methods. One hour per week devoted to computing and programming skills.

#### **3965. Elementary Stochastic Processes**

(Also offered as MATH 3170.) Three credits. Prerequisite: STAT 3025Q or 3345Q or 3375Q or MATH 3160.

Conditional distributions, discrete and continuous time Markov chains, limit theorems for

Markov chains, random walks, Poisson processes, compound and marked Poisson processes, and Brownian motion. Selected applications from actuarial science, biology, engineering, or finance.

#### **4185. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

#### **4188. Variable Topics**

Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

#### **4190. Field Study Internship**

Credits and hours by arrangement. Prerequisites: Completion of freshman-sophomore General College of Liberal Arts and Sciences requirements. Completion with a grade of "C" or better of STAT 3025Q or 3375Q and STAT 3115Q or 3515Q. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised field work relevant to some area of Statistics with a regional industry, government agency, or non-profit organization. Evaluated by the field supervisor and by the instructor (based on a detailed written report submitted by the student).

#### **4299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

#### **4389. Undergraduate Research**

Three credits. Hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Supervised research in probability or statistics. A final written report and oral presentation are required.

#### **4475. Statistical Quality Control and Reliability**

Three credits. Prerequisite: STAT 3445.

Development of control charts, acceptance sampling and process capability indices, reliability modeling, regression models for reliability data, and proportional hazards models for survival data.

#### **4525. Sampling Theory**

Three credits. Prerequisite: STAT 3445 or instructor consent.

Sampling and non-sampling error, bias, sampling design, simple random sampling, sampling with unequal probabilities, stratified sampling, optimum allocation, proportional allocation, ratio estimators, regression estimators, super population approaches, inferences in finite populations.

#### **4625. Introduction to Biostatistics**

Three credits. Prerequisite: STAT 3025 or instructor consent.

Rates and proportions, sensitivity, specificity, two-way tables, odds ratios, relative risk, ordered and non-ordered classifications, trends, case-control studies, elements of regression including logistic and Poisson, additivity and interaction, combination of studies and meta-analysis.

#### **4675. Probability and Statistics Problems**

One or two credits. Hours by arrangement. Prerequisite: MATH 3160 and STAT 3375Q.

Not open for credit to students who have passed MATH 3660Q.

Designed to help students prepare for the second actuarial examination.

#### **4825. Applied Time Series**

Three credits. Prerequisite: STAT 3445 or instructor consent.

Introduction to prediction using time-series regression methods with non-seasonal and seasonal data. Smoothing methods for forecasting. Modeling and forecasting using univariate, autoregressive, moving average models.

#### **4875. Nonparametric Methods**

Three credits. Prerequisite: STAT 3445 or instructor consent.

Basic ideas, the empirical distribution function and its applications, uses of order statistics, one- two- and c-sample problems, rank correlation, efficiency.

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### **Turfgrass Science (TURF)**

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*Head of Department:* Professor Richard McAvoy

*Department Office:* Room 133, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

#### **1100. Turfgrass Management**

Three credits. Two class periods and one 2-hour laboratory. Taught with SAPL 110. *Guillard*

An overview of turfgrass adaptation, selection, and management. Topics include turfgrass growth, physiology, soil interactions, weeds and diseases, morphology and identification, establishment, and maintenance. Cultural system practices for lawns, golf courses, athletic fields, and other turf areas.

#### **2200. Athletic Field Management**

Three credits. Three class periods. *Henderson*

Management strategies associated with heavily used athletic fields. Sport specific focus on mowing, fertilization, irrigation, core cultivation, overseeding, and pest control. Areas of emphasis will include: playing surface renovation, optimizing wear tolerance, maximizing turfgrass recovery, traffic management, and game day preparations.

#### **3100. Golf Course Management**

Three credits. Taught with SAPL 210. Not open for credit to graduate students. *Rackliffe*

Cultural management techniques including soil aeration, topdressing, mowing, thatch removal, grass or species selection, fertilization, irrigation and management of personnel, pests, equipment and inventory. Field trips required.

#### **3200. Turfgrass Physiology and Ecology**

Three credits. Three class periods. Prerequisite: TURF 1100; open to juniors or higher. *Guillard*

Turfgrass physiology related to growth and development. Response to temperature, light, water, traffic, and wind. Turfgrass community dynamics, competition, and environmental effects of turfgrass culture.

#### **3200W. Turfgrass Physiology and Ecology**

Prerequisite: TURF 1100; ENGL 1010 or 1011 or 2011; open to juniors or higher. *Guillard*

**3300. Principles of Turfgrass Irrigation Systems**

Three credits. Two class periods and one 2-hour laboratory. Taught with SAPL 230. Not open for credit to graduate students. *Rackliffe*

Turfgrass irrigation systems, principles of hydraulics, irrigation components, design, installation and repair. Students will design irrigation systems for various turf areas. Field trips and fieldwork will be required.

**3400. Professional Development for Turfgrass Industries**

Two credits. Two hour class periods. Taught with SAPL 240. Not open for credit to graduate students. *Rackliffe*

Topics include human resource information, communication skills, turfgrass pesticide laws and compliance, labor laws and compliance, bid specifications, resume writing, interviewing, golf course management structures, business ethics, and benefits of professional association membership. Guest lecturers include industry professionals and representatives.

**3720. Golf Course Design**

Two credits. Taught with SAPL 720. Not open for credit to graduate students. *Guillard*

Introduction to golf course design theory, planning, and layout. Putting green and tee construction methods. Turfgrass species and cultivar selection for the golf course. Guest presentations by designers and golf course superintendents. Field trips required.

**3800. Turfgrass Pests and Control**

Three credits. Two class periods and one 2-hour laboratory. Taught with SAPL 800. Not open for credit to graduate students. *Rackliffe*

Turfgrass weed, insect, disease and vertebrate identification and control. Emphasis on biological controls and IPM. Field trips required.

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## University (UNIV)

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*University Interdisciplinary Courses Committee Chair:* Associate Professor Eric Donkor

*Individualized and Interdisciplinary Studies Program:* 4th Floor, John W. Rowe Center for Undergraduate Education

University (UNIV) courses are offered by departments that report to the Provost but fall outside of the schools and colleges. Students should consult the requirements for their own major to determine any limitations on the extent to which UNIV courses can be used to meet degree requirements.

**1730. Holster Research Proposal Development**

Second semester. One credit. Prerequisite: Open only to first-year Honors students. Permission and advance application required. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Developing research ideas into fundable, discipline-appropriate research applications. Topics may include drafting and revision of statements; meeting compliance requirements; budgeting; completing a literature review; creating a timeline; and practicing interview skills. Culminates in proposal for Holster Scholars Program.

**1784. Freshman Honors Seminar**

(Formerly offered as INTD 1784.) One credit. Two class periods. Prerequisite: Open only with consent of Honors Director.

An overview of some aspects of university education. Designed to help students set learning goals to be achieved during the baccalaureate experience.

**1800. FYE University Learning Skills**

(Formerly offered as INTD 1800.) One credit. One class period. Prerequisite: Open to freshman and sophomore students only.

An overview of the university experience with a focus on acquiring learning skills and understanding resources available for academic success.

**1810. FYE Learning Community Seminar**

(Formerly offered as INTD 1810.) One credit. One class period. Prerequisite: Open to freshman and sophomore students only. May be repeated for credit with a change in content for a maximum of three credits.

An overview of topics relevant to the theme of the Learning Community.

**1820. First Year Seminar**

(Formerly offered as INTD 1820.) One credit. One class period. Prerequisite: Open to freshman and sophomore students only. May be repeated for credit with a change in content.

Guided research or reading, discussion, and writing on topics of professional interest to the instructor. Course materials promote independent learning and active engagement in the academic life of the university.

**1840. Learning Community Service-Learning**

One credit. Class hours by arrangement. Prerequisite: Open only with instructor consent. This course may be repeated for a total of four semesters. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Service learning, community engagement, and/or experiential learning activities, discussions, and critical reflection specific to the theme of a learning community.

**1981. Documented Internship Experience**

Zero credit. Hours by arrangement. Prerequisite: Instructor consent required; open to matriculated undergraduates only; students must have a minimum GPA of 2.0; students must secure a satisfactory internship position prior to the end of the second week of the semester. May be repeated one time, with permission. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised fieldwork of 8-10 hours per week for 8-12 weeks for a minimum of 80 hours at the internship site. Evaluations by the field supervisor and the course instructor.

**1983. International Study**

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Course work undertaken within approved Education Abroad programs.

**1985. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**1991. Supervised Internship Experience**

(Formerly offered as INTD 1991.) One credit. Prerequisite: Open to matriculated undergraduates only, students must have a minimum GPA of 2.0. Students must secure a satisfactory internship position prior to the end of the second week of the semester of enrollment in this course. May be repeated one time, with permission.

Supervised fieldwork of six to eight hours per week (for a minimum of 80 hours) for 8-10 weeks, relevant to major and/or career goals. Mid semester and final evaluations are prepared by the field supervisor and the course instructor. This course does not fill any general education or major requirements. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**1993. International Study**

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17).

Course work undertaken within approved Education Abroad programs.

**1995. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

**1999. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only to freshmen and sophomores with consent of instructor. May be repeated for credit with a change in topic.

**2100. Preparation for STEM Academic Research**

One credit. Prerequisite: Instructor consent required.

Preparation for STEM (science, technology, engineering, and mathematics) undergraduate research projects and academic research assignments to prepare for graduate school.

**2230. The PA2SS Program, Mentoring African American Students**

(Formerly offered as INTD 2230.) One credit. May be repeated for a maximum of four credits. Prerequisite: Open to sophomores or higher with instructor consent. *Price*

Successful mentoring strategies and strategies for effective communication and discourse. Students will learn about and recognize the consequences of stereotype threat and will develop proficiency in mentoring African American college students to become lifelong learners.

**2300. Tutoring Principles for Quantitative Learning**

(Formerly offered as INTD 2300.) One credit. Prerequisite: Open only with instructor consent. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

An interdisciplinary introduction to peer-to-peer tutoring in quantitative courses. Readings on individualized learning assistance and adapting instruction to different learning styles. Training in techniques to guide peers towards



becoming independent learners with higher levels of reasoning and assessment of knowledge in quantitative disciplines.

### 2500. Gender, Sexuality and Community

Three credits. Prerequisite: Open to sophomores and higher.

A weekly lecture and discussion series with guest scholars, community activists, and educators from assorted disciplines. Critical investigation and exploration of interrelationships of gender, sexuality and community.

### 2600. Individualized Study Across Academic Disciplines

One credit. Consent of instructor is required.

Introduction to disciplinarity, multidisciplinarity, and interdisciplinarity. Recommended for students exploring an application to the Individualized Major Program.

### 2983. International Study

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Course work undertaken within approved Education Abroad programs.

### 2993. International Study

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17).

Course work undertaken within approved Education Abroad programs.

### 3784. Interdisciplinary Honors Seminar

(Formerly offered as INTD 3784.) Three credits. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic.

An interdisciplinary seminar designed for honors students and open to other qualified students. Topics vary from semester to semester. Sponsored by the Honors Program.

### 3820. Learning Community Advanced Seminar

One credit. Prerequisite: Instructor consent required; open only to sophomores, juniors, or seniors in learning communities. With a change in content, this course may be repeated for a total of 3 credits.

A variable topics course designed to help students engage with the advanced academic and enrichment opportunities unique to their learning community.

### 3985. Special Topics

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

### 3991. Interdisciplinary Internship Field Experience

(Formerly offered as INTD 3991.) Variable (1-6) credits. Supervised field experience. Hours by arrangement, 42 hours of field experience per semester per credit. Prerequisite: Instructor consent required. Repeatable to a maximum of 12 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

### 3993. International Study

Credits and hours by arrangement. May be repeated for credit (to a maximum of 17).

Course work undertaken within approved Education Abroad programs.

### 3995. Special Topics

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in topic, may be repeated for credit.

### 3999. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

### 4600W. Capstone Course

(Formerly offered as INTD 4600W.) Three credits. Prerequisite: Consent required by instructor and the Individualized Major Program Director; ENGL 1010 or 1011 or 2011; senior standing with an approved individualized major plan of study; and an approved placement, research or project.

All students with an approved individualized major plan of study who are not earning a double major nor have another capstone course on their plan of study must register for this course during their last academic year. Students will integrate their interdisciplinary major through a capstone paper.

### 4697W. Senior Thesis

(Formerly offered as INTD 4697W.) Three - six credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011 and senior standing with an approved individualized major plan of study; consent required by instructor and the Individualized Major Program Director. Students must have obtained a thesis advisor and have an approved thesis topic before registration.

All honors students writing a thesis for their individualized major plan of study must register for this course during their last academic year. Students must present their thesis to the Individualized Major Program.

### 4800. Senior Year Experience

(Formerly offered as INTD 4800.) One credit. Prerequisite: Open only to seniors. Students taking the course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

An overview of the transition to life beyond the University with a focus on life skill development, career preparation, reflection on the meaning and value of the undergraduate experience, and decision making in life after college.

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## Urban and Community Studies (URBN)

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*Director, Urban and Community Studies Program:* Professor Edith Barrett

*West Hartford Office:* Room 410, Library Building

*Email:* edith.barrett@uconn.edu

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

### 1200. The City in the Western Tradition

(Also offered as GEOG 1200.) Three credits.

A broad discussion of the role and structure of the city in the western tradition from the Classical

period to contemporary America. Special emphasis will be placed on the mechanisms by which cities and ideas about them have been diffused from one place to another and on the changing forces that have shaped the western city. CA 1.

### 1300. Exploring Your Community

Three credits.

Various aspects of urban and community life emphasizing the interplay of social justice, diversity, individual and social well-being. Theories, concepts, and methods in community studies. May contain a service learning component. CA 2. CA 4.

### 1300W. Exploring Your Community

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. CA 2. CA 4.

### 2000. Introduction to Urban and Community Studies

Three credits.

Introduction to the analysis of urban development with particular stress on those problems pertinent to the American central city.

### 2000W. Introduction to Urban and Community Studies

Prerequisite: ENGL 1010 or 1011 or 2011.

### 2100. Survey Research Methods

(Also offered as PP 2100.) Three credits.

Theory and practice of surveys, including overall project design, questionnaire development, sampling, methods of data collection and data analysis.

### 2301Q. Research Methods and Analysis in Urban and Community Studies

Three credits. Prerequisite: STAT 1000Q or 1100Q; open to sophomores or higher.

Introduction to research methods and analysis techniques useful in understanding urban issues and assessing public and non-profit social programs.

### 2302. Qualitative Methods in Urban and Community Studies

Three credits. Open to sophomores or higher.

An introduction to qualitative methods used in urban social research. Interdisciplinary techniques for data collection and analysis, including visual and narrative analysis, participant observation, interviewing, and archival research.

### 3000. Urban Anthropology

Three credits.

A general course on urbanization, emphasizing contrasts between "developed" and "developing" countries.

### 3200. Urban Geography

(Also offered as GEOG 3200.) Three credits.

Analysis of the growth, distribution, and functional patterns within and among Western cities. Application of urban geographical concepts to city planning problems.

### 3275. Urban Sociology

(Also offered as SOCI 3901.) Three credits.

Social and physical organization of cities and suburbs.

### 3275W. Urban Sociology

(Also offered as SOCI 3901W.) Prerequisite: ENGL 1010 or 1011 or 2011.

**3276. Urban Problems**

Three credits. Prerequisite: Open to juniors or higher.

Social problems of American cities and suburbs with emphasis on policy issues.

**3276W. Urban Problems**

(Also offered as SOCI 3903W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

**3439. Urban and Regional Economics**

(Also offered as ECON 3439.) Three credits. Prerequisite: ECON 2201. Recommended preparation: ECON 1200 or 1202, and one of: MATH 1071Q, 1110Q, 1131Q, or 1151Q.

Economic problems of cities and regions: urban markets for land, labor, and housing; location decisions of businesses and households; metropolitan transportation problems; urban/suburban fiscal relations; urban and regional environmental quality; and the economics of crime.

**3541. The History of Urban America**

(Also offered as HIST 3541.) Three credits.

The development of urban America with emphasis on social, political, physical, and environmental change in the industrial city.

**3541W. The History of Urban America**

(Also offered as HIST 3541W.) Prerequisite: ENGL 1010 or 1011 or 2011.

**3632W. Urban Politics**

(Also offered as POLS 3632W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Political systems and problems confronting urban governments.

**3650. History of Urban Latin America**

(Also offered as HIST 3650.) Three credits. Open to sophomores or higher. Not open to students who have passed HIST 3095 or 3995 when taught as Latin American Urban History.

The development of Latin American cities with emphasis on social, political, physical and environmental change, from Spanish conquest to present.

**3981. Internship in Urban Studies: Seminar**

Credits, not to exceed three, by arrangement. To be elected concurrently with URBN 3991. Prerequisite: Consent of instructor.

Description, analysis, and evaluation of the fieldwork portion (URBN 3991) of the internship. Written reports are required.

**3991. Internship in Urban Studies: Field Study**

Credits, not to exceed three, by arrangement. Hours by arrangement with hosting agency. To be elected concurrently with URBN 3981. Prerequisite: Consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

A fieldwork internship program under the direction and supervision of a member of the Urban Studies faculty. Students will be placed in agencies or industries where their academic training will be applied. One 8-hour work day per week (or its equivalent) for the host agency during the course of the semester will be necessary for three academic credits.

**3993. Foreign Study**

Credits and hours by arrangement up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required, preferably prior to the student's departure. With a change in content, may be repeated for credit.

Special topics in a foreign-study program.

**3995. Special Topics**

Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

**3998. Variable Topics**

Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

**4000. Understanding Your Community**

Three credits. Prerequisite: URBN 2000; open to Urban and Community Studies majors in their senior year only.

Examination of an urban area or local community. Production of a detailed case study including historical perspective, analysis of issues and stakeholders, evaluation of internal strengths and weaknesses as well as external threats and opportunities. Proposal of strategies for addressing problems and advancing equity, growth, and development.

**4000W. Understanding Your Community**

Prerequisite: URBN 2000; ENGL 1010 or 1011 or 2011; open to Urban and Community Studies majors in their senior year only.

**4497W. Senior Thesis**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Instructor consent required. Students must have a thesis advisor and an approved thesis topic.

Research and writing of an urban and/or community-focused thesis.

**4999. Independent Study**

Credits and hours by arrangement. Prerequisite: Consent of instructor. May be repeated for credit.

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**Vietnamese (VIET)**


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*Head of Department:* Associate Professor Gustavo Nanclares

*Department Office:* Room 207, Oak Hall

**1193. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May be repeated for credit.

Special topics taken in a foreign study program.

**3293. Foreign Study**

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

**3295. Special Topics**

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3299. Independent Study**

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

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**Women's, Gender, and Sexuality Studies (WGSS)**


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*Program Director:* Professor Nancy Naples

*Office:* Room 411, Beach Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

**1104. Feminisms and the Arts**

(Formerly offered as WS 1104.) Three credits. D'Alleva

Interdisciplinary exploration of the work of women artists in drama, the visual arts, music, literature, and/or film. Key issues of feminist criticism in the arts are discussed. CA 1. CA 4.

**1105. Gender and Sexuality in Everyday Life**

(Formerly offered as WS 1105.) Three credits.

How gender, sex, and sexuality are woven into systems of difference and stratification that shape everyday life. Examines these processes in the family, education, work, and politics with sensitivity to the diversity of individual experiences across class, racial ethnic groups, cultures, and regions. Provides experience in introductory research methods to analyze the social construction and structural organization of gender and sexuality. CA 2. CA 4.

**1121. Women in History**

(Formerly offered as WS 1121.) (Also offered as HIST 1203.) Three credits.

The historical roots of challenges faced by contemporary women as revealed in the Western and/or non-Western experience: the political, economic, legal, religious, intellectual, and family life of women. CA 1. CA 4.

**1124. Gender and Globalization**

(Formerly offered as WS 1124.) Three credits.

Exploration of the construction and reproduction of gender inequality and the gendered nature of global structures and processes. Key topics include women's rights as human rights; women's work; gender, development, and the global economy; migration; religious fundamentalism; reproduction, health, and HIV/AIDS; education; violence against women; and gender, war, and peace advocacy. CA 2. CA 4-INT.

**1193. Foreign Study**

(Formerly offered as WS 1193.) Credit and hours by arrangement. Prerequisite: Consent of program director required, normally before the student's departure. May be repeated for credit.

**2105. Gender and Science**

(Formerly offered as WS 2105.) Three credits. Prerequisite: Open to sophomores or higher.

The historical, sociological, economic, and political processes that shape the ways that gender, race, class, sexuality and nation intersect with science, medicine and technology. CA 4-INT.

**2105W. Gender and Science**

(Formerly offered as WS 2105W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4-INT.

**2250. Feminisms**

(Formerly offered as WS 3250 and as WS 2250.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: Any 1000-level WGSS course.

Current feminist theories and related social and political issues.

**2255. Sexualities, Activism, and Globalization**

(Formerly offered as WS 2255.) Three credits. Prerequisite: Open to sophomores or higher.

Globalization of LGBT identities, cultures and social movement activism, and cultures from a transnational perspective; use, role, and impact of digital media. CA 4-INT.

**2255W. Sexualities, Activism, and Globalization**

(Formerly offered as WS 2255W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. CA 4-INT.

**2263. Women and Violence**

(Formerly offered as WS 2263 and as WS 3263.) (Also offered as HRTS 2263.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: Any 1000-level WGSS course.

Discussion of various forms of gendered violence in the United States and in a global context. Physical, sexual, emotional and structural violence; social, political and personal meanings of gendered violence; special emphasis on women.

**2267. Women and Poverty**

(Formerly offered as WS 2267 and as WS 3267.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: Any 1000-level WGSS course.

Exploration of poverty and gender inequality within the frameworks of the global political economy in select countries. Impact of race, class, and gender differences on policy.

**3042. Baseball and Society: Politics, Economics, Race and Gender**

(Formerly offered as WS 3042.) (Also offered as AFRA 3042 and HDFS 3042.) Three credits. Prerequisite: Open to juniors or higher.

Baseball in historical, political, sociological, and economic contexts. Topics may include: impact on individuals and families; racial discrimination and integration; labor relations; urbanization; roles of women; treatment of gay athletes; and implications of performance-enhancing drugs.

**3052. Women and Politics**

(Formerly offered as WS 3052.) (Also offered as POLS 3672.) Three credits. Prerequisite: Open to juniors or higher.

An introduction to feminist thought, the study of women as political actors, the feminist movement and several public policy issues affecting women.

**3102. Psychology of Women**

(Formerly offered as WS 3102.) (Also offered as PSYC 3102.) Three credits. Prerequisite: Three credits of 2000 to 3000-level psychology. *Crawford*

Gender roles, socialization, women and work, women's relationships, violence against women, and other topics. Theory and research. CA 4.

**3105. The Politics of Reproduction**

Three credits. Prerequisite: Open to juniors or higher; sophomores by consent of instructor. Recommended preparation: any 1000 or 2000-level WGSS course.

National and transnational politics of reproduction including: contraception, sexuality education, abortion, childbirth, surrogacy, adoption, health care policy and funding.

**3105W. The Politics of Reproduction**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; sophomores by consent of instructor. Recommended preparation: any 1000 or 2000-level WGSS course.

**3216. Women in Political Development**

(Formerly offered as WS 3216.) (Also offered as POLS 3216.) Three credits. Prerequisite: Open to juniors or higher, others by consent.

How women and gender circumscribe political life and generate relationships of inequality and justice on a global scale. Topics may include conflict and security, development, human rights and legal systems, labor and migration, nation building, political economy, and transnational justice.

**3217. Women and Film**

(Formerly offered as WS 3217.) Three credits. Prerequisite: Any 1000 or 2000-level WGSS course or instructor consent.

Feminist analysis of film. Investigates women's roles as filmmakers, writers, editors, and actresses, as well as messages communicated to female viewers.

**3247. Gender and War**

(Also offered as POLS 3247.) Three credits. Prerequisite: Open to juniors or higher.

Gender aspects of war. Masculinities and militaries; gender-based war violence; laws of war and post-war conditions for male and female soldiers and civilians.

**3249. Gender Politics and Islam**

(Also offered as POLS 3249.) Three credits.

Construction of gender in Islamic texts and history, the religion's interaction with other patriarchal cultures and systems, western interventions and their impact, male leaders' reform efforts, women's movements.

**3252. Genders and Sexualities**

(Formerly offered as WS 3252.) Three credits.

Examination of lesbian, gay, bisexual, and transgender issues. Focused exploration of three to four topics.

**3253. Gender Representations in U.S. Popular Culture**

(Formerly offered as WS 3253.) Three credits.

Forces in the U.S. that shape and reshape gender in popular culture. CA 2.

**3253W. Gender Representations in U.S. Popular Culture**

(Formerly offered as WS 3253W.) Prerequisite: ENGL 1010 or 1011 or 2011. CA 2.

**3254. Women and Gender in the Deaf World**

(Formerly offered as WS 3254.) (Also offered as ASLN 3254.) Three credits. Prerequisite: One of WGSS 1104, 1105, or 1124; or consent of

the instructor. Recommended preparation: Any 2000-level WGSS course. *Simons*

The roles of women inside and outside the Deaf world. How language and cultural barriers perpetuate the roles defined for and by d/Deaf women within Deaf and hearing societies.

**3255W. Sexual Citizenship**

(Formerly offered as WS 3255W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. *Naples*

Sexuality as a significant axis of citizenship. How sexual citizenship differs in national, historical, and international contexts. How its different constructions influence such issues as welfare, adoption, marriage, and immigration. CA 4-INT.

**3257. Feminist Disability Studies**

Three credits. Prerequisite: Open to juniors or higher; sophomores by consent of instructor. Recommended preparation: 1000-level WGSS course.

Social, historical, cultural, and political constructions of the intersecting categories of gender and disability. Through a wide variety of texts and cultural examples, exploration of how disability is gendered, gender is disabled, and both are interwoven by race, ethnicity, class, nationality, sexuality, and subcultures.

**3257W. Feminist Disability Studies**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; sophomores by consent of instructor. Recommended preparation: a 1000-level WGSS course.

**3258. Latina Narrative**

(Formerly offered as WS 3258.) (Also offered as LLAS 3230.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent. *Gonzalez*

Feminist topics in contemporary Latina literature and cultural studies.

**3259. Fictions of Latino Masculinity**

(Formerly offered as WS 3259.) (Also offered as LLAS 3231.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent. *Gonzalez*

Topics in Latino literature and cultural studies with an emphasis on masculinity and male authors.

**3260. Latinas and Media**

(Formerly offered as WS 3260.) (Also offered as LLAS 3264 and COMM 3321.) Three credits. Prerequisite: Open to juniors or higher. *Rios*

The role of ethnicity and race in women's lives. Special attention to communication research on ethnic and racial minority women. CA 4.

**3264. Gender in the Workplace**

(Formerly offered as WS 3264.) Three credits. Prerequisite: WGSS 1105 or WGSS 1124 or instructor consent.

Examination of the gendered dimensions of migration and labor in the global economy and its impact on workers in the U.S. and select other countries.

**3265W. Research Methodology**

(Formerly offered as WS 3265W.) Three credits. Prerequisite: Any 1000-level WGSS course or HIST 1203; ENGL 1010 or 1011 or 2011; open

only to Women's, Gender, and Sexuality Studies majors. Women's, Gender, and Sexuality Studies majors are strongly urged to take this course as early as possible and before PHIL 3218.

Analyses of gender bias in research design and practice, problems of androcentric values, and over-generalization in research. Varieties of feminist research methods and their implications for the traditional disciplines. Student projects using different methodologies.

### **3268. Gender and Communication**

(Formerly offered as WS 3268.) (Also offered as COMM 3450.) Three credits. Prerequisite: COMM 1000 or instructor consent; open to juniors or higher.

Differences in male/female communication, and an examination of cultural assumptions regarding gender in the communication process. Critically analyze the theory, politics and practice of communication and gender.

### **3269. Women's Movements**

(Formerly offered as WS 3269.) Three credits. Prerequisite: Open to juniors or higher; others by instructor consent. Recommended preparation: Any 1000-level WGSS course.

Examination of women's movements as related to intersections of gender, race, class, nationality, and sexuality, and to topics such as democracy, economic justice, the environment, health, and sexual freedom.

### **3270. Masculinities**

Three credits. Prerequisite: Open to juniors or higher; sophomores by consent of instructor. Recommended preparation: Any 1000-level WGSS course.

Social construction of masculinity and how maleness is gendered. Examination of the multiple forms of masculinity as influenced by differences in social and cultural expressions of gender, race, ethnicity, class, nationality, sexuality, disability and subcultures.

### **3270W. Masculinities**

Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; sophomores by consent of instructor. Recommended preparation: Any 1000-level WGSS course.

### **3271. Seminar on Rape Education and Awareness I**

(Formerly offered as WS 3271.) One credit.

Explores issues of sexual violence and trains those enrolled to facilitate rape awareness workshops for the campus community. Students are required to attend an intensive two-day training program and participate in weekly seminars.

### **3272. Seminar on Rape Education and Awareness II**

(Formerly offered as WS 3272.) One credit. Prerequisite: WGSS 3271.

Further explores broader issues of sexual violence and continues to train those enrolled to facilitate rape awareness workshops for the campus community. Students are required to participate in weekly seminars and facilitate rape awareness workshops.

### **3317. Women and Crime**

(Also offered as SOCI 3317.) Three credits. Prerequisite: Open to juniors or higher.

Women as offenders, victims and practitioners in the criminal justice system.

### **3317W. Women and Crime**

(Also offered as SOCI 3317W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

### **3350. Anthropological Perspectives on Women**

(Formerly offered as WS 3350.) (Also offered as ANTH 3350.) Three credits.

Major conceptual and historical problems in the study of gender in anthropology. Women's roles in different historical and contemporary settings and new understandings of family, kinship, power, and cultural ideologies.

### **3402. Women in the Bible**

(Formerly offered as WS 3402.) (Also offered as ANTH 3402.) Three credits.

An introduction to Biblical interpretation from a feminist perspective, examining how women are represented in the Hebrew Scriptures and the New Testament. Issues of authorship, translation, point of view, cultural context and language.

### **3403. Women and Religion**

(Formerly offered as WS 3403.) (Also offered as ANTH 3403.) Three credits. *Linnekin*

Gender issues in the world's religions. Survey of women's theological standing, ritual activities and participation in a cross-cultural sample of religions, both monotheistic and polytheistic.

### **3416. Gender and Sexuality in Modern Europe**

(Formerly offered as WS 3416.) (Also offered as HIST 3416.) Three credits. *Shafer*

The construction of gender difference and ideas about sexuality in Western Europe since 1789. Masculinity and femininity; sexuality, identity and the state; European power and personhood in global context.

### **3453. Women and Health**

(Formerly offered as WS 3453.) (Also offered as SOCI 3453.) Three credits. Prerequisite: Open to juniors or higher. *Ratcliff*

Social factors shaping women's health, health care, and their roles as health-care providers.

### **3560. Constructions of Race, Gender, and Sexuality in U.S. History**

(Formerly offered as WS 3560.) (Also offered as HIST 3560.) Three credits. Not open for credit to students who have passed HIST 3095 or 3995 when taught as Constructions of Race, Gender, and Sexuality in U.S. History. *McElyea*

Examination of historical development, interconnections, and complexities of conceptions of race, gender, and sexuality in U.S. from European conquest to the present.

### **3561. History of Women and Gender in the U.S. to 1850**

(Formerly offered as WS 3561.) (Also offered as HIST 3561.) Three credits.

Gender ideologies of indigenous and settler cultures, changing conditions of women's and men's lives as the U.S. became a nation, while emphasizing intersections with ethnicity, race, class, religion, and gender.

### **3562. History of Women and Gender in the United States, 1850-Present**

(Formerly offered as WS 3562.) (Also offered as HIST 3562.) Three credits.

History of gender and the lives and cultural representations of women in the U.S., emphasizing intersections with race, sexuality, class, region, and nation.

### **3609. Women's Literature**

(Also offered as ENGL 3609.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Works written by women from different countries and centuries. CA 4.

### **3611. Women's Literature 1900 to the Present**

(Also offered as ENGL 3611.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

Modern and contemporary works written by women from different countries. CA 4.

### **3613. Introduction to LGBT Literature**

(Also offered as ENGL 3613.) Three credits.

An introduction to themes of sexual diversity in literature, related to lesbian, gay, bisexual, and transgender issues. CA 4.

### **3621. Sociology of Sexualities**

(Formerly offered as WS 3621.) (Also offered as SOCI 3621.) Three credits. Not open for credit to students who have passed SOCI 246 or 246W. *Bernstein*

Explores the social organization, construction, and politics of sexualities; particular focus on lesbian, gay, bisexual, transgender, and queer experiences and the intersection of sexualities, gender, race, and class. CA 4.

### **3621W. Sociology of Sexualities**

(Formerly offered as WS 3621W.) (Also offered as SOCI 3621W.) Prerequisite: ENGL 1010 or 1011 or 2011. Not open for credit to students who have passed SOCI 246 or 246W. CA 4.

### **3622. History of Gender and Sexuality in Latin America and the Caribbean**

(Also offered as AFRA, HIST, and LLAS 3622) Three credits.

Topics may include: empire and colonialism/anti-colonialism; slavery, science, and the state; cultural practices and institutions; feminisms and masculinities; law and public policies; immigration; forms of labor and political mobilization; sex and reproduction; and human rights from historical perspective.

### **3652. Black Feminist Politics**

(Formerly offered as WS 3652.) (Also offered as AFRA 3652 and POLS 3652.) Three credits. Prerequisite: Open to juniors or higher.

An introduction to major philosophical and theoretical debates at the core of black feminist thought, emphasizing the ways in which interlocking systems of oppression uphold and sustain each other.

### **3672. Feminist Development Studies and Practice**

Three credits. Prerequisites: Open to juniors or higher.

Feminist development theories and practices applied to Third World or Global South countries, and drawing on related social science and humanities traditions.

**3718. Feminism and Science Fiction**

Three credits. Recommended preparation: Any WGSS course.

Feminist approaches to science fiction. Human and non-human embodiments – humans, aliens, and cyborgs – and the social issues their interactions raise: reproduction and colonization; racial, sexual, and gender apartheid; “human” rights and the rule of law. CA 4.

**3718W. Feminism and Science Fiction**

Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: Any WGSS course. CA 4.

**3891. Internship Program**

(Formerly offered as WS 3891.) Three to nine credits. Hours by arrangement. Prerequisite: One WGSS course; open only with consent of Women’s, Gender, and Sexuality Studies Internship Coordinator. Corequisite: To be taken concurrently with WGSS 3894.

A field placement 9-18 hours per week in an organization related to the student’s major field of study. Such work is overseen by the field work supervisor and the Women’s, Gender, and Sexuality Studies Internship Coordinator.

**3894. Internship Seminar**

(Formerly offered as WS 3894.) Three credits. Prerequisite: Open only with consent of Women’s, Gender, and Sexuality Studies Internship Coordinator. *McComiskey*

A weekly seminar on women and work in which students integrate their field experience with readings, class discussion and guest lecturers.

**3993. Foreign Study**

(Formerly offered as WS 3993.) Credit and hours by arrangement. Prerequisite: Consent of program director required, normally before the student’s departure. May count toward the major with consent of the director. May be repeated for credit.

**3995. Special Topics**

(Formerly offered as WS 3995.) Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

**3998. Variable Topics**

(Formerly offered as WS 3998.) Three credits. Prerequisites and recommended preparation vary. With a change of topic, may be repeated for credit.

**3999. Independent Study**

(Formerly offered as WS 3999.) Credits and hours by arrangement. Prerequisite: Open only with the consent of the instructor and Women’s, Gender, and Sexuality Studies Program Director. This course may be repeated for credit with a change in subject matter.

**4994W. Senior Seminar**

(Formerly offered as WS 4994W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; for Women’s, Gender, and Sexuality Studies majors only. Recommended preparation: WGSS 3265W and PHIL 3218 or instructor consent. *McComiskey*

Capstone course integrating and analyzing Women’s, Gender, and Sexuality Studies theory and substance through research on a common topic and discussion of advanced texts.

## Ratcliffe Hicks School of Agriculture

*Director:* Professor Cameron Faustman

*Office:* 206, W.B. Young Building

For major requirements, see the Ratcliffe Hicks section of this Catalog.

Courses in the Ratcliffe Hicks School of Agriculture are not open to baccalaureate students.

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### Agricultural and Resource Economics (SARE)

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**450. Principles of Agricultural and Resource Economics**

Three credits. Taught with ARE 1150.

An introduction to agricultural economics, the role of agriculture in today’s United States economic system, and relationships that regulate the entire economic environment.

**460. Fundamentals of Accounting and Management for the Agribusiness Firm**

Three credits. Taught with ARE 3210.

An analysis of basic business principles, fundamentals and concepts for business entrepreneurs.

**495. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**699. Independent Study**

Credits and hours by arrangement. Prerequisite: Consent of instructor required. Students are advised to read the Ratcliffe Hicks School regulation limiting the number of credits which may be applied toward graduation.

An independent study project is mutually arranged between a student and an instructor.

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### Agriculture (SAAG)

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**101. Tech Prep**

Credits and hours by arrangement. Total credits not to exceed 12. Prerequisite: Open only to students enrolled in the Agricultural Education Tech Prep program. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). May be repeated for credit up to a total of 12 credits.

Topics and credits are established through pre-approved articulation agreements.

**250. Freshman Seminar**

One credit.

Designed to assist incoming students in adjusting to college and improving their academic performance. Freshmen will learn about university resources and facilities, and strategies relating to study skills, problem solving, time management, and setting and achieving academic and personal goals. Field trips may be required.

**316. Introduction of Agricultural Mechanics and Safety**

Two credits. One class period and one 2-hour laboratory.

Small gas engines, welding and other applications of agricultural equipment in animal science and horticultural operations. A fee of \$35 is charged for this course.

**350. Hispanic Culture and Communication in Agriculture**

Three credits. Two lectures and one two-hour discussion. Prerequisite: Open only to students in the Ratcliffe Hicks School of Agriculture. Taught with AGNR 3350. Not intended for students with advanced Spanish language skills.

Covers everyday conversations in Latin American Spanish needed at the workplace in agriculture and natural resources. Emphasizes dialogues, commands and directions to improve the relationship and understanding of workers and employers in several fields of agriculture. Prepares students in landscape, horticulture, animal science and agriculture economics with basic communication skills in Spanish and familiarizes students with Latin American cultural traditions.

**495. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic.

**693. Foreign Study**

Credits and topics must be approved by department head and director of Ratcliffe Hicks School of Agriculture. May be repeated for credit with change of topic.

Courses taken in agriculture, natural resources, and related areas as part of approved Education Abroad programs.

**699. Independent Study**

Credits and hours by arrangement. Prerequisite: Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

An independent study project is mutually arranged between a student and an instructor.

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### Animal Science (SAAS)

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**101. Introduction to Animal Science**

Three credits. Two class periods and one 2-hour discussion or laboratory period. Taught with ANSC 1001. *Darre*

The biological, physical and social factors that influence animal production and utilization.

**111-112. Anatomy and Physiology of Domestic Animals**

Three credits. Two class periods and one 2-hour laboratory period. *Hoagland*

A study of the anatomy and physiology of the animal body including characteristics that impact animal production systems. The physiology of reproduction and digestion will receive emphasis. Management practices and techniques used to maximize production efficiency will be included.

**113. Principles of Animal Nutrition and Feeding**

Three credits. Two class periods and one 2-hour laboratory period. Taught with ANSC 1111. *Safran*

Focuses on digestive anatomy of various species and the classes of nutrients including their digestion, metabolism, and sources. Nutrient requirements and feeding standards for

various classes of livestock for reproduction, lactation, growth, work and maintenance are included as well as companion animals, exotics and aquatics. Classes of feedstuffs, their characteristics and proper utilization will be discussed. Attention will also be given to characteristics of common feedstuffs and to formulating rations and nutritional programs for animal enterprise.

#### 121. Animal Breeding and Genetics

Three credits. Two-hour class period and 2-hour discussion and practice period. *Hoagland*

The principles of genetics, chemistry of nucleic acids, replication, transcription, translation and regulation of genes, population and quantitative genetics, and modern molecular genetic approaches as tools for breeding, and improving livestock production.

#### 202. Behavior and Training of Domestic Animals

Three credits. Two class periods and one 2-hour laboratory. Taught with ANSC 1602. *Darre*

Application of behavior of cattle, horses, sheep, goats, swine, and poultry to their management, training, and welfare. Basic principles of genetics and physiology of behavior, perception, training, learning, motivation, and stress with consideration of integrated behavioral management and animal welfare.

#### 243. Animal Products

Three credits. Two class periods and one 3-hour laboratory period. *Mancini*

An introduction to meat, dairy and poultry products. Issues concerning regulatory standards, nutritive value, safety and quality assessment will be emphasized. Laboratories will emphasize the production and processing of these animal food products.

#### 251. Horse Science

Three credits. Two class periods and one 2-hour laboratory or discussion period. Taught with ANSC 2251. *Nadeau*

Includes horse types and breeds and their nutrition, breeding, evaluation, behavior, care and management with attention given to detailed studies of the problems and practices of horse production and use.

#### 252. Management of the Horse Breeding Farm

Three credits. One class period and two 2-hour laboratory or discussion periods. Prerequisite: SAAS 251. *Reed*

Designed to develop technical and managerial skills necessary for operating horse farms. Programs for herd health, hoof care, nutrition, breeding, foaling and record keeping will be included.

#### 254. Horse Selection and Evaluation

Two credits. One 4-hour laboratory or discussion period. Taught with ANSC 3454. Prerequisite: Consent of instructor required. *Bennett*

Comparative evaluation, classification and selection of horses according to conformation, breed characteristics and performance. Judging skills including justification of placing through presentation of oral reasons will be developed. Field trips required.

#### 256. Light Horse Training and Management

Two credits. One class period and one 3-hour laboratory period. Prerequisite: SAAS 251.

*Bennett, Meacham*

Includes instruction in the breaking and training of young horses.

#### 257. Methods of Equitation Instruction

Two credits. One class period and one 2-hour laboratory or discussion period. Taught with ANSC 4457. Prerequisite: Consent of instructor required. *Meacham*

The techniques and procedures of teaching equitation including the theories of riding and teaching methods. Practice teaching will be required under the supervision of the instructor.

#### 261. Dairy Herd Management

Three credits. Two class periods and one 2-hour laboratory period. Taught with ANSC 3261.

*Kazmer*

Management of dairy cattle including milking procedures, sanitation, selection, nutrition, reproduction, physiology and anatomy of milk secretion and record keeping. Field trip required.

#### 262. Applied Dairy Herd Management

Three credits. Two class periods and one 2-hour laboratory period. *Kazmer*

The organization and management of dairy farms with emphasis upon business and economic decision making. Management programs in the areas of nutrition, disease control, waste management, selection, reproduction and milking will be evaluated. Field trips are required.

#### 271. Introduction to Poultry Industry

Three credits. Two class periods and one 2-hour laboratory period. *Darre*

A practical application of scientific principles in the poultry industry. It will include classification, selection methods, breeding, incubation and chick development, brooding, nutrient requirements, processing and management practices.

#### 272. Sustainable Animal Management

Three credits. Two class periods and one two-hour lab/discussion period. *Safran*

Introduction to sustainable agriculture, as related to alternative farm animal production. Basic economics will be discussed in preparation for the creation of a farm business plan. Discussion/lab periods will include student presentations and hands-on activities. Field trips required.

#### 273. Livestock Production

Four credits. Three class periods and one 2-hour laboratory period. Taught with ANSC 3273.

*Hoagland*

Biological and economic aspects of beef, sheep, and swine production. Field trips required.

#### 274. Livestock and Carcass Evaluation

Two credits. Two 2-hour laboratory periods. Taught with ANSC 3674. *Hoagland*

Classification, form to function relationships, grades and value differences of livestock are included. Objective and subjective methods of appraisal are used to evaluate beef cattle, sheep and swine.

#### 275. Advanced Animal and Product Evaluation

One credit. Hours by arrangement. Taught with ANSC 3675. May be repeated for credit once. Prerequisite: Consent of instructor required.

Intensive training in the evaluation of selected species of farm animals or their products. Type standards and the relation of anatomical features to physiological function are emphasized. Evaluation skills including justification of decisions will be developed. Students enrolled in this course will have the option to participate on intercollegiate animal and product evaluation teams. Field trips are required, some of which may occur prior to the start of the semester.

#### 276. Introduction to Companion Animals

Three credits. Taught with ANSC 1676. *Safran*

Basic concepts of the nutrition, physiology, health and management of companion animals.

#### 290. Animal Science Field Excursions

One credit. Prerequisite: Open only with instructor consent. May be repeated for credit with a change of topic. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

A multiple day field trip format. Students in this course will travel with the instructor to visit and tour agri-businesses that represent commercial aspects of different animal science activities. Students will interview agri-business personnel and gain an understanding of how agricultural principles are applied in the field. Each student must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor. Field trip is required.

#### 291. Professional Internship

Credits and hours by arrangement. Prerequisite: Open only for third semester students with consent of instructor and Department Head. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Andrew, Darre*

#### 294. Seminar

One credit. One 2-hour discussion period. *Govoni*

A discussion of current employment opportunities in animal agriculture. In addition, students will prepare resumes and give oral presentations.

#### 295. Special Topics

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks section. Contact Department Main Office for list of current topics and instructors.

#### 299. Independent Study

Credits and hours by arrangement. Prerequisite: Consent of instructor required. Students are advised to read the Ratcliffe Hicks regulation limiting the number of credits which may be applied to the minimum graduation requirements. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

An independent study project is mutually arranged between student and an instructor.

**358. Management Skills and Practices – Horses**

One credit. Hours by arrangement. May be repeated once for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Bennett*

Practical experience in common management practices is offered by working in the University facilities under supervision.

**363. Management Skills and Practices – Dairy Cattle I**

One credit. Hours by arrangement. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Safran*

Practical experience in common management practices is offered by working in the University facilities under supervision.

**364. Management Skills and Practices – Dairy Cattle II**

One credit. Hours by arrangement. Prerequisite: SAAS 363. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Safran*

Continued practical experience in common management practices is offered by working in the University facilities under supervision.

**373. Management Skills and Practices – Livestock**

One credit. May be repeated once for credit. *Safran*

Practical experience in common management practices is offered by working with livestock species in the University facilities under supervision.

**375. Management Skills and Practices – Poultry**

One credit. Hours by arrangement. May be repeated once for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Darre*

Practical experience in common management practices is offered by working in the University facilities under supervision.

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## Natural Resources and the Environment (SANR)

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**310. Introduction to Wildlife Management**

(Formerly offered as SAME 310.) Three credits. Three class periods.

Basic wildlife techniques including habitat evaluation and identification signs. Emphasis will be placed on keeping a wildlife field journal. Field exercises and laboratory provide an opportunity to use and evaluate techniques for wildlife management.

**495. Special Topics**

(Formerly offered as SAME 495.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**699. Independent Study**

(Formerly offered as SAME 699.) Credits and hours by arrangement. Prerequisite: Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

An independent study project is mutually arranged between a student and an instructor.

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## Pathobiology (SAPB)

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**301. Health and Disease Management of Animals**

Three credits. Prerequisites: SAAS 111 and 112 and a college course in biology. Taught with PVS 2301. *Bushmich*

Designed for students who plan to own and work with domestic animals. Its purpose is to develop student competence in disease management and to foster an intelligent working relationship with their veterinarian. The course will cover a systematic relationship of infectious and noninfectious diseases of domestic animals from the standpoint of economic and public health.

**495. Special Topics**

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**699. Independent Study**

Credits and hours by arrangement. Prerequisite: Consent of instructor required. Course may be repeated for credit. Students are advised to read the Ratcliffe Hicks School regulation limiting the number of credits which may be applied toward graduation.

An independent study project is mutually arranged between a student and an instructor.

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## Plant Science (SAPL)

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**110. Turfgrass Management**

Three credits. Two class periods and one 2-hour laboratory period. Taught with TURF 1100. *Guillard*

An overview of turfgrass adaptation, selection, and management. Topics include turfgrass growth, physiology, soil interactions, weeds and diseases morphology and identification establishment, and maintenance. Cultural system practices for lawns, golf courses, athletic fields and other turf areas.

**120. Introduction to Plant Science**

Four credits. Three class periods and one 2-hour laboratory period. *Lubell*

A general course designed to give students a broad view of the field of horticulture as well as a working knowledge of the fundamentals of plant growth.

**210. Golf Course Management**

Three credits. Three class periods. Taught with TURF 3100. *Rackliffe*

Discussion of the specialized field of golf course management. Topics: cultural techniques including soil aeration, topdressing, mowing, and thatch removal; grass or species selection, fertilization, irrigation, personnel golf course pest management and equipment and inventory management. Field trips required.

**220. Athletic Field Management**

Three credits. Three class periods. Taught with TURF 2200. *Rackliffe*

Management strategies associated with heavily used athletic fields. Sport specific focus on mowing, fertilization, irrigation, core cultivation, overseeding, and pest control. Areas of emphasis include: playing surface renovation, optimizing wear tolerance, maximizing turfgrass recovery, traffic management, and game day preparations.

**230. Principles of Turfgrass Irrigation Systems**

Three credits. Two class periods and one 2-hour laboratory. Taught with TURF 3300. *Rackliffe*

Turfgrass irrigation systems, principles of hydraulics, irrigation components, design, installation and repair. Students will design irrigation systems for various turf areas. Field trips and fieldwork will be required.

**240. Professional Development for Turfgrass Industries**

Two credits. Two hour class periods. Taught with TURF 3400. Not open for credit to graduate students. *Rackliffe*

Topics include human resource information, communication skills, turfgrass pesticide laws and compliance, labor laws and compliance, bid specifications, resume writing, interviewing, golf course management structures, business ethics, and benefits of professional association membership. Guest lecturers include industry professionals and representatives.

**250. Turfgrass Evaluation and Management Skills**

One credit. May be repeated for a maximum of four credits. Taught with TURF 2250. Prerequisite: Consent of instructor required.

Turfgrass species identification, growth and development, soils and fertility, pest management, and operations management. Participants in intercollegiate Turf Bowl competitions may be selected from this course.

**300. Introduction to Soil Science**

Three credits. Two class periods and one 2-hour laboratory exercise or field trip. *Henderson*

Physical and chemical properties of soils; nature and use of fertilizer and lime materials; management of soils for crop production including soil testing, tillage and fertilization practices, and conservation practices.

**352. Urban and Sports Turf Soils**

Three credits. Prerequisite: SAPL 300. Taught with SOIL 3520.

Physical and engineering properties of soils and root zone mixes utilized for landscapes, horticulture production, golf course putting greens and athletic fields. Areas of emphasis will include: preparation and evaluation of project specifications, root zone constituent selection, design and installation of drainage systems, evaluating soils and root zone mixes prior to construction by conducting and assessing laboratory performance testing, examining construction techniques and maintaining quality control during construction.

**410. Woody Plants: Common Trees, Shrubs and Vines**

Three credits. Two class periods and one 2-hour outdoor laboratory. Prerequisite: SAPL 120. Taught with HORT 3410. *Brand*

Taxonomy, identification, ornamental characteristics, cultural requirements and landscape use of deciduous and evergreen woody plants most often utilized in landscapes

of the northeastern United States and similar environs.

### 430. Herbaceous Ornamental Plants

Three credits. Taught with HORT 2430. *Kuzovkina*  
Identification, nomenclature, cultural requirements and landscape uses of herbaceous perennials, ornamental grasses, ferns, annuals and bulbs. Study of live plants is required.

### 482. Horticulture Production Practicum – Nursery

Credits and hours by arrangement. Prerequisite: SAPL 660; consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Students will be responsible for planning, producing, and marketing a nursery crop. Students may use private facilities or the Ratcliffe Hicks C.R. Burr Teaching Nursery.

### 520. Floral Art

Two credits. One class period and one 2-hour studio period. Taught with HORT 2520.

The study of flower arrangement as an art form with emphasis on historical background, artistic principles, color harmony, and care of perishable media. Individual expression is encouraged in the creation of floral composition. A fee of \$75 is charged for this course.

### 530. Advanced Floral Design

Two credits. One class period and one 2-hour studio period. Prerequisite SAPL 520. Taught with HORT 3530.

In-depth study of post-harvest requirements for specialized floral crops. Exposure to novel floral materials with an emphasis on special events and wedding designs. Mass marketing, retail price structuring and mass-production concepts are covered. A fee of \$75 is charged for this course.

### 540. Garden Center Management

Three credits. Taught with HORT 3540. *Bonelli*  
Techniques and concepts essential in managing and operating a garden center. Topics include goal setting, retailing, finance, business planning and pricing.

### 560. Indoor Plants and Interiorscaping

Three credits. Two class periods. Taught with HORT 3560. *Kuzovkina*

Taxonomy, identification, ornamental characteristics, cultural requirements and use of tropical plants. Principles of interiorscaping in the home, office, public buildings, and related locations.

### 620. Vegetable Production

Four credits. Three class periods and one 2-hour field laboratory period. Field trips required. Taught with HORT 3620. *Berkowitz*

Fundamentals of soil management and crop plant husbandry as applied to commercial vegetable production and home gardening. Horticultural principles of crop growth. Focus is on sustainable practices. Field laboratory will consist of field trips (some outside designated laboratory time) during the early part of the semester to organic and conventional farms to observe production and marketing practices.

### 640. Plant Propagation

Three credits. Two class periods and one 2-hour laboratory period. Taught with HORT 3640. *Brand*

Theory and practice in sexual and asexual propagation of horticultural plants, emphasizing the anatomical, physiological, and ecological principles involved. Laboratories provide practical experience with seeds, division, cuttings, budding, grafting, layering and tissue culture.

### 660. Nursery Production

Three credits. Taught with HORT 3660. *Lubell*  
Principles of field and container production of nursery stock. Emphasis on production practices for woody nursery stock from propagule to sales.

### 670. Greenhouse Operations

Four credits. Three class periods and one 2-hour laboratory period. Field trips required. Prerequisite: SAPL 120. Taught with HORT 3670. *Elliott*

Introduction to greenhouse systems with emphasis on structures, environmental control, root media, irrigation and fertilization, and pest control, in relation to requirements for plant growth and crop production. Laboratories provide experience in greenhouse operations and crop production.

### 682. Horticulture Production Practicum – Vegetables

Credits and hours by arrangement. Prerequisite: SAPL 620; consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Students will be responsible for planning, producing, and marketing a vegetable crop on a commercial scale. Requires the availability of private production facilities.

### 705. Site Plan Graphics

One credit. 1½ hours of studio/discussion. Prerequisite: Open only to students concurrently enrolled in SAPL 710.

Introduction to the graphic language of design drawings and site plan graphics.

### 710. Design of Small Spaces

Two credits. One class period and one 2-hour studio. Prerequisite: Concurrent enrollment in SAPL 705.

Studio-based course emphasizing the acquisition of skills necessary for the landscape design for small spaces, including residential properties. Techniques will include visualization methods, design process methodology, derivation of basic forms and planting design.

### 720. Golf Course Design

Two credits. Two class periods. Taught with TURF 3720. *Guillard*

Introduction to golf course design theory, planning, and layout. Putting green and tee construction methods. Turfgrass species and cultivar selection for the golf course. Expertise and experience of departmental faculty and staff, independent and commercial consultants and designers, and golf course superintendents will be utilized. Field trips required.

### 740. Landscape Construction

Three credits. Two 1-hour lectures per week and seven 4-hour outdoor laboratory modules per semester. *Hutton*

Principles and techniques used to build landscape structures including patios, walls, walkways, water features and green roofs.

### 750. Landscape Plant Maintenance

Three credits. Recommended preparation: SAPL 120 and 300. Taught with HORT 2750. *Elliott*

Planting, establishment and maintenance of woody and herbaceous plants in built and managed environments. Plant structural and functional requirements. Preserving and protecting established plants. Soil conditions and modification. Influence of climate and modification of microclimate. Plant selection. Pruning, mulching, water and irrigation, nutrition and fertilization, plant health care and other horticultural practices.

### 800. Turfgrass Pests and Control

Three credits. Two class periods and one 2-hour laboratory. Taught with TURF 3800. *Rackliffe*

Turfgrass weed, insect, disease and vertebrate identification and control. Emphasis on biological controls and IPM. Field trips required.

### 810. Plant Pest Control

Three credits. Two class periods and one 2-hour laboratory period. *Ellis*

A practical survey of practices used for insect, disease and weed pests of turf, flowers, shrubs, trees and food crops. Consideration will be given to quarantine, mechanical, biological and chemical means of control. Field trips may be required.

### 840. Integrated Pest Management

Three credits. Three class periods. Prerequisite: SAPL 800 or 810. *Legrand*

Principles of integrated pest management covering insect, disease, and weed problems with emphasis on turfgrass, ornamentals, and greenhouse production. Environmental impacts and pest control strategies will be covered.

### 991. Internship

One to 6 credits. Hours by arrangement. Prerequisite: Open to qualified students with consent of advisor and Department Head. This course may be repeated provided that the sum total of credits does not exceed six.

Students will work with professionals in an area of their interest. Written reports, daily logs, and/or evaluations by professional supervisors may be required.

### 995. Special Topics

Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

### 999. Independent Study

Credits and hours by arrangement. Prerequisite: Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.



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