Introduction

The University of Connecticut is a resource for the future, both for the State of Connecticut and for the students who enroll in its programs. The emphasis at this University is on choice: The University of Connecticut can be anything students want it to be – it's a matter of taking advantage of the wealth of opportunities made available. The many programs described in this Catalog reflect a dynamic University, that is both constant and constantly growing. The University grows by responding to challenges, opportunities, and needs. What remains constant at the University's core is its steady commitment to high quality teaching, research, and public service.

Each year, a new class of competitively selected undergraduate and graduate students brings to the University the promise and potential for their futures. They are the vital natural resource from which greater resources grow; as they progress, the University gains strength. Each year, courses are added, dropped, and improved as the faculty of more than 1,500 teacher-scholars strives to build a stronger curriculum that will challenge these students to think logically and creatively while they gain insight, experience, and skills to realize their academic objectives. Each year, the University develops new approaches to enlarge and enhance growth experiences outside the classroom and laboratories. Each year, this *Catalog* records the growth in one of the nation's major public research universities.

Today's University – more than 22,000 students, over 148,000 alumni, about 120 major buildings and 3,100 acres in and around Storrs, three professional schools and five regional campuses in other parts of the State, and a library of more than two million volumes – is a far cry from the institution in its first days.

In April 1881, the Connecticut General Assembly established the Storrs Agricultural School after accepting a gift of 170 acres of land, several frame buildings, and money from Charles and Augustus Storrs. The Storrs brothers were natives of Mansfield, the eastern Connecticut town in which the University is located. The School opened on September 28, 1881, with twelve students in the first class. Growth and change came fast in the early years. Before the turn of the century there were two name changes, to Storrs Agricultural College in 1893 and to Connecticut Agricultural College in 1899. In 1933, two years after the institution celebrated its fiftieth anniversary, it became Connecticut State College, a name more in keeping with its steady advances and broadened mission. Six years later, in 1939, the General Assembly designated the institution the University of Connecticut, an acknowledgement of the institution's developing importance to the State in graduate and professional education, research, and public service.

Since the historic legislative act of 1881, the University has grown steadily and dramatically to fulfill its mandated objectives as a provider of high quality education and public service and as a contributor to society through research. The University has reached out with services to all parts of the State, and it has promoted cultural enrichment by making the main campus a center for the arts in Connecticut.

Jorgensen Auditorium on the Storrs campus regularly schedules internationally prominent symphony orchestras, musical soloists and chamber groups, dance companies, and touring dramatic productions. This is complemented by Department of Music recitals in von der Mehden Hall and by Department of Dramatic Arts productions. The William Benton Museum of Art has been acclaimed as one of Connecticut's finest art museums; the diversity and quality of its exhibitions contribute to the vitality of the arts at the University.

The University stands with the leading institutions of the nation in the size, scope, and contributions of its research involvement. In the last ten years, University researchers at Storrs and at the Health Center in Farmington have attracted more than one-quarter billion dollars in support of their work.

For more than a million Connecticut citizens each year, the University is more than classroom and laboratories, cultural presentations and athletic contests; it is direct contact with University people working through institutes, centers, extension services, and continuing education programs in all 169 cities and towns in Connecticut.

The University's public service mission, which has grown apace with academic offering and research endeavors in both scope and importance, reaches out into local government offices and schools, into pharmacies and medical offices, into corporate laboratories and small business showrooms, onto farm lands and fishing boats. Each year, new programs evolve to meet newly identified needs in Connecticut.

The pages of this *Catalog* contain many of the elements of a university mission that remains constant, of an academic program that is dynamic, and of a commitment to excellence by a university and its faculty, staff and students.

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

Affirmative Action Policy

University of Connecticut policy prohibits discrimination in education, employment, and in the provision of services on the basis of race, religion, sex, age, marital status, national origin, ancestry, sexual orientation, disabled veteran status, physical or mental disability, mental retardation, and other specifically covered mental disabilities.

Calendar

Summer Sessions 2001

Students may register by mail, fax, Internet, or in person in advance of each session. Consult the *Summer Sessions 2001 Catalog* for details and deadlines. Session One begins at the **Regional campuses** on May 21 and at the **Storrs** campus on May 23. (No classes at any campus on Monday, May 28). Session Two begins July 2. (No classes to be held on Wednesday, July 4.)

Last day for filing petitions for course credit by examination is the end of the first week of classes in each session. Examinations for course credit by examination occur during the fourth week of classes in each session.

Fall Semester 2001

Wed.	Aug. 29	Fall semester begins
Fri.	Aug. 31	First Friday of classes follows a **Monday's** schedule
Mon.	Sept. 3	Labor Day – No classes
Wed.	Sept. 5	Last day to file petitions for course credit by examination
Wed.	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 chart under *Adding and Dropping Courses*)
		Add/Drop via the Touchtone Telephone system closes
		Last day to place courses on Pass/Fail
Wed.	Sept. 19	Last day to convert Incomplete or Absence grades
Thur.-Wed.	Sept. 20 - 26	Examinations for course credit by examination
Mon.	Oct. 8	Fall semester break – No classes
Thur.	Oct. 25	Mid-semester progress reports due students from faculty
Thur.	Nov. 1	Last day to drop a course
		Last day to convert courses on Pass/Fail option to letter grade
Mon.-Fri.	Nov. 5 - Nov. 30	Storrs campus registration via Touchtone Telephone for spring semester
Tues.	Nov. 20	Last day of classes before Thanksgiving recess - follows a **Friday's** schedule
Mon.	Nov. 26	Thanksgiving recess ends; classes resume
Sat.	Dec. 8	Emergency closing class makeup day
Tues.	Dec. 11	Last day of fall semester classes
Thurs.	Dec. 14	Final examinations begin
Wed.	Dec. 21	Final examinations end

NB: **Friday** of the first week of classes will follow a **Monday** schedule. **Tuesday** of Thanksgiving week will follow a **Friday** schedule.

Spring Semester 2002

Wed.	Jan. 23	Spring semester begins
Tues.	Jan. 29	Last day to file petitions for course credit by examination
Tues.	Feb. 5	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 chart under *Adding and Dropping Courses*)
		Add/Drop via the Touchtone Telephone system closes
		Last day to place courses on Pass/Fail
Tues.	Feb. 12	Last day to convert Incomplete or Absence grades
Wed.-Tues.	Feb. 13 - 19	Examinations for course credit by examination
Sat.	Mar. 16	Last day of classes before spring recess
Mon.	Mar. 25	Spring recess ends; classes resume
Tues.	Mar. 26	Mid-semester progress reports due students from faculty
Tues.	Apr. 2	Last day to drop a course
		Last day to convert courses on Pass/Fail option to letter grade
Mon.-Thur.	Apr. 1 - 25	Storrs campus registration via Touchtone Telephone for fall semester 2002
Sat.	Apr. 20	Emergency closing class make-up day
Tues.	May 7	Last day of spring semester classes
Fri.	May 10	Final examinations begin
Fri.	May 17	Final examinations end
Sat.	May 18	Commencement ceremony (undergraduate)
Sun.	May 19	Commencement ceremony (graduate)

Faculty are urged to try not to schedule exams on significant religious holidays, such as Rosh Hashanah, Sept. 18, 19; Yom Kippur, Sept. 27; Eid Al-fitr, Dec. 17; Eid Al-adha, March 5; Passover, April 7 - 15; Good Friday, April 13.

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
Bachelor of Science in Pharmacy
Associate of Applied Science[1]

Majors

College of Agriculture and Natural Resources
- Agriculture and Natural Resources
- Agronomy
- Animal Science
- Environmental Science
- Horticulture
- Individualized Major
- Landscape Architecture
- Natural Resources
- Nutritional Sciences
- Pathobiology
- Resource Economics

School of Allied Health
- Cytotechnology
- Diagnostic Genetic Sciences
- Dietetics
- Individualized Major
- Medical Technology
- Pre Physical Therapy

School of Business Administration
- Accounting
- Business and Technology
- Finance
- Health Care Management
- Management
- Management and Engineering for Manufacturing[2]
- Management Information Systems
- Marketing
- Real Estate/Urban Economics
- Risk Management and Insurance

School of Engineering
- Biomedical Engineering
- Chemical Engineering
- Chemical Engineering/Materials Engineering
- Civil Engineering
- Civil Engineering/Materials Engineering
- Computer Engineering
- Computer Science
- Computer Science and Engineering
- Computer Science/Electrical Engineering
- Electrical Engineering
- Electrical Engineering/Computer Science
- Electrical Engineering/Mechanical Engineering
- Electrical Engineering/Materials Engineering
- Engineering Physics[3]
- Environmental Engineering
- Management and Engineering for Manufacturing[2]
- Mechanical Engineering
- Mechanical Engineering/Civil Engineering
- Mechanical Engineering/Electrical Engineering
- Mechanical Engineering/Materials Engineering
- Metallurgy and Materials Engineering

College of Continuing Studies
- Individualized Major

School of Family Studies
- Human Development and Family Studies
- Individualized Major

School of Fine Arts
- Acting
- Art
- Design and Technical Theatre
- General Program in Music
- Music
- Music Education in Fine Arts
- Puppetry
- Theatre Studies

College of Liberal Arts and Sciences
- Anthropology
- Applied Mathematical Sciences
- Art History
- Biological Sciences
- Biophysics
- Chemistry
- Classics and Ancient Mediterranean Studies
- Coastal Studies
- Communication Sciences
- Ecology and Evolutionary Biology
- Economics
- Engineering Physics[3]
- English
- Environmental Science
- French
- Geography
- Geology and Geophysics
- German
- History
- Individualized Major
- Italian Literary and Cultural Studies
- Journalism
- Latin American Studies
- Linguistics/Philosophy
- Linguistics/Psychology
- Mathematics
- Mathematics/Actuarial Science
- Mathematics/Statistics
- Middle Eastern Studies
- Molecular and Cell Biology
- Philosophy
- Physics
- Physiology and Neurobiology
- Political Science
- Portuguese
- Psychology
- Slavic and East European Studies
- Sociology
- Spanish
- Statistics
- Urban Studies
- Women's Studies

[1] Awarded for successful completion of 2-year program in Ratcliffe Hicks School of Agriculture.
[2] The Management and Engineering for Manufacturing major is offered jointly by the School of Business Administration and the School of Engineering, and leads to a Bachelor of Science degree.
[3] The Engineering Physics major is offered jointly by the College of Liberal Arts and Sciences and the School of Engineering, and leads to a Bachelor of Science degree in Engineering.

Continued on the following page

Neag School of Education
- Agricultural Education
- Athletic Training
- Elementary Education
- English
- Exercise Science
- Foreign Languages
- History and Social Studies
- Leisure Science
- Mathematics
- Music Education
- Natural Sciences
- Social Science of Sports and Leisure
- Special Education
- Sport Science

School of Nursing
- Nursing

School of Pharmacy
- Doctor of Pharmacy
- Pharmacy
- Pharmacy Studies

Ratcliffe Hicks School of Agriculture
- Animal Science
- Horticulture

Minors

- Agribusiness Management
- American Studies
- Anthropology
- Aquaculture
- Art History
- Biological Sciences
- Biomedical Engineering
- Chemistry
- Classics and Ancient Mediterranean Studies
- Communication Processes
- Criminal Justice
- Dairy Management
- Ecology and Evolutionary Biology
- Economics
- English
- Environmental Engineering
- European Studies
- Food Science
- French
- Geographic Information Science
- Geography
- Geology and Geophysics
- German
- Gerontology
- History
- International Studies
- Italian Cultural Studies
- Italian Literary Studies
- Landscape Design
- Latin American Studies
- Linguistics
- Marine Biology
- Mathematics
- Metallurgy and Materials Engineering
- Molecular and Cell Biology
- Nutrition for Exercise and Sport
- Oeanography
- Philosophy
- Physics
- Physiology and Neurobiology
- Political Science
- Portuguese
- Psychology
- Religion
- Slavic and East European Studies
- Sociology
- Spanish
- Sport Nutrition
- Statistics
- Theatre Production
- Theatre Studies
- Women's Studies

University Structure

The University includes the following schools, colleges, departments and campuses:

College of Agriculture and Natural Resources
- Agricultural and Resource Economics
- Animal Science
- Natural Resources Management and Engineering
- Nutritional Sciences
- Pathobiology and Veterinary Science
- Plant Science

School of Allied Health
- Applied Health Sciences
- Health Promotion and Allied Health Sciences
- Physical Therapy

School of Business Administration
- Accounting
- Finance
- Management
- Marketing
- Operations and Information Management

School of Dental Medicine

School of Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil and Environmental Engineering
- Computer Science and Engineering
- Electrical and Computer Engineering
- Mechanical Engineering
- Metallurgy and Materials Engineering

College of Continuing Studies
- General Studies

School of Family Studies

School of Fine Arts
- Art and Art History
- Dramatic Arts
- Music

Graduate School

School of Law

College of Liberal Arts and Sciences
- Anthropology
- Chemistry
- Communication Sciences
- Ecology and Evolutionary Biology
- Economics
- English
- Geography
- Geology and Geophysics
- History
- Journalism
- Linguistics
- Marine Sciences
- Mathematics
- Modern and Classical Languages
- Molecular and Cell Biology
- Philosophy
- Physics
- Physiology and Neurobiology
- Political Science
- Psychology
- Sociology
- Statistics

Neag School of Education
- Curriculum and Instruction
- Educational Kinesiology
- Educational Leadership
- Educational Psychology

School of Medicine

School of Nursing

School of Pharmacy

Ratcliffe Hicks School of Agriculture

School of Social Work

Regional Campuses
- **Avery Point**
- **Hartford**
- **Stamford**
- **Torrington**
- **Waterbury**

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.

Wayne A. Locust, *Director of Undergraduate Admissions*

The University of Connecticut recruits and admits men and women who will profit from the educational opportunities offered in its various schools and colleges. Admission selection procedures identify those students whose credentials indicate potential success in gaining from the University a sound preparation for a satisfying, useful life and a challenging career.

Prospective students must submit to the Office of Undergraduate Admissions:

- Completed admission application: instructions for completing and submitting the application are included with the application.
- Results of the Scholastic Assessment Test 1 (SAT1) sent directly from the Educational Testing Service in Princeton, NJ; or of the American College Testing (ACT) from the ACT National Office in Iowa City, IA.
- Official transcripts of all post secondary work completed must be sent directly from the registrar's office at the previous schools attended, whether or not credit is desired.
- Completed residency affidavit used to classify applicants as Connecticut or out-of-state students.

The applicant is notified of the decision by mail after receipt of all necessary information.

The University of Connecticut subscribes to the Statement of Principles of Good Practice of the National Association of College Admissions Counselors. 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;
- or present a copy of a State Equivalency Diploma.

The applicants' grades should place them in the upper range of their high school graduation class, and they must submit satisfactory scores on the SAT or ACT. Several of the schools and colleges of the University have additional special requirements or recommendations as listed.

Admission With Advanced Standing

Advanced Placement and Credit (AP)

See *Academic Regulations* section of this Catalog.

Connecticut High School Cooperative Program

Selected Connecticut secondary schools with specially selected members of the staff will offer regular University courses at the freshman-sophomore level to superior students. The content of the courses will be determined by the appropriate University department and the examinations must be approved by these departments. Qualified high school students who are admitted to this program and who successfully complete such courses will receive the regular University credit for them. Persons interested in this cooperative program should contact Michael Menard, Program Manager of the Connecticut High School Cooperative Program, University of Connecticut, 348 Mansfield Road, Unit 2171, Storrs, CT 06269-2171, Telephone (860) 486-1045.

Required Courses for Freshman Admission

	English	Math	Foreign Language	Lab Science	Social Science	Other	Total
College of Agriculture & Natural Resources	4	3 [a]	2 [b]	2 [c]	2	3	16
College of Liberal Arts	4	3 [a]	2 [b]	2	2	3	16
School of Allied Health (Upper Division) [e]	4	3 [a]	2 [b]	2 [d]	2	3	16
School of Business Administration	4	3 [a]	2 [b]	2	2	3	16
School of Education (Upper Division)	4	3	2 [b]	2	2	3	16
School of Engineering	4	3 1/2 [a]	2 [b]	2 [f]	2 1/2	2 1/2	16
School of Family Studies	4	3	2 [b]	2	2	3	16
School of Fine Arts [g]	4	3	2 [b]	2	2	3	16
School of Nursing	4	3	2 [b]	2 [h]	2	3	16
School of Pharmacy	4	3 [a]	2 [b]	2 [d]	2	3	16
Ratcliffe Hicks School of Agriculture [i] (Two Year Associate Degree)	4	3	0 [j]	2	2	5	16

[a] Recommend 4 years
[b] Strongly recommend 3 years of a single foreign language (See Note 1, below)
[c] Recommend 4 years
[d] Recommend 3 years
[e] Recommend Health related experience
[f] Chemistry or Physics required
[g] Music, Acting, and Puppetry majors *require* auditions; Art majors require a portfolio; and Design/Technical Theatre major *requires* an interview
[h] Recommend 1 year of Physics
[i] College preparatory level courses are recommended but not required for Ratcliffe Hicks admission.
[j] Foreign language not required for admission or graduation from Ratcliffe Hicks; however, foreign language will be required for students who transfer into the baccalaureate program.

Note: **1.** Completing three years of a single foreign language in high school meets the graduation requirement for all the University's Schools and Colleges.
2. See the sections on the Schools of Allied Health Professions, Education, and Pharmacy for information about Upper Division Admission requirements and application procedures.

Testing for Course Placement/Credit

Most new students must take one or more standardized achievement tests to assess the appropriateness of enrolling for courses in fields such as mathematics and foreign language at an advanced level. Also, certain departments offer standardized achievement tests to determine course placement. In some cases, i.e. chemistry, students may receive credit and/or grades for the courses for which exemption is granted at the time of matriculation. The Department of Counseling Services administers these tests during the spring and summer to provide results for the student's initial registration.

Deferred Admission

The Undergraduate Admissions Office offers a one year deferred admission to students who have applied and been accepted as freshmen. This policy benefits that student who desires to attend the University but who, for personal and/or financial reasons, wishes to postpone admission. An approved deferral guarantees admission for either of the subsequent two semesters. During the deferred period, a student may not accumulate in excess of nine credits at another institution. Requests for deferral must be in writing and should be received at the Undergraduate Admissions Office no later than one month prior to the start of the semester for which the student was admitted. Transfer students may not defer their admission; however, they may reactivate their application for admission for consideration for either of the two subsequent semesters. Contact Undergraduate Transfer Admissions for information.

Transfer Admission

A transfer student is one who has enrolled at an accredited post secondary institution 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 or official GED/SED
- SAT or ACT scores (Waived if student is 25 or older or has completed three full-time semesters at the time of application)
- Application fee of $50 (non refundable)

Priority in admission to the Storrs Campus is given to those 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 Lower Division consideration only if the following conditions are met:

(a) 24 full-time transferable semester hours

(b) 2.5 cumulative grade point average (4.0 scale)

Prospective transfer students are advised that only a limited number of transfer students will be admitted to the majors of Allied Health, Business Administration, 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.

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

Minority Students

The University recognizes the importance of intercultural understanding in education. To this end, the University has undertaken a program to encourage African-American, Puerto Rican, Hispanic, Asian, Native American and other underrepresented students to attend this institution. Questions should be directed to the Undergraduate Admissions Office.

The facilities of 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, linguistically, and financially prepared for University work in this country.

International students requesting admission information receive an application that includes detailed instructions about required supporting material (official academic transcripts, personal essay, financial affidavit, TOEFL and SAT or ACT scores). Prospective international students should begin application procedures one year before intended matriculation. The closing date for **completed applications** is March 1st for the fall semester and October 15 for the spring semester. However, international students who are interested in transferring from another institution can only apply for the fall semester. Prospective students may submit correspondence to University of Connecticut, Undergraduate Admissions Office, 3121 Hillside Road, Unit 3088, Storrs, CT 06269-3088 U.S.A.

Students with Disabilities

The University of Connecticut is committed to achieving equal educational opportunity 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: http://vm.uconn.edu/~stusr2/policies.html

Services for Students with Disabilities

The Center for Students with Disabilities (CSD) assists students to maximize their potential while helping them develop and maintain independence. Our philosophy is one that promotes self-awareness, self-determination, and self-advocacy in a comprehensively accessible environment. 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. Services offered include:

- Pre-admission counseling and new student orientation.
- Individualized academic accommodations and counseling.
- Residential accommodations and counseling.
- Financial aid counseling.
- Personal assistance training and referral.
- Assistive technology.
- Transportation and parking services.
- Referral and liason services to state agencies.
- Information and referral source to all University and community programs and services.

For more information, contact Donna M. Korbel, Director, CSD, Wilbur Cross Building, Unit 4174, Storrs, Connecticut 06268-4174; Voice/TDD (860) 486-2020, Fax: (860) 486-4412.

Students With Specific Learning Disabilities

Through the University of Connecticut's Program for College Students with Learning Disabilities (UPLD), students with specific learning disabilities may receive support services including direct instruction in learning strategies and assistance in arranging appropriate accommodations. To access UPLD services, students are required to submit documentation that meets the University's Guidelines which are included in the *Policies and Procedures Regarding Students with Disabilities*.

For information, contact Dr. Joan McGuire, Director, University Program for College Students with Learning Disabilities, University of Connecticut, 249 Glenbrook Road, Unit 2064, Storrs, CT 06269-2064; Voice (860) 486-0178.

Early Admission Program for High School Juniors

Each year, the University of Connecticut admits a limited number of high school juniors who show unusual promise of success at college work. Such students must meet the following requirements:

1. Secondary school principals must certify that applicants possess outstanding scholastic ability. While no specific rules guide the principal's judgment, the University, nevertheless, emphasizes that it expects to admit under this program only students who are unusual intellectual leaders and who will be Honors Program students at the University after admission. The principal must indicate that each applicant is of sufficient maturity and stability to make that applicant a reasonable scholastic risk compared with the average preparatory school graduate.
2. Each applicant shall have completed a minimum of fourteen college preparatory units in an approved high school. The preparatory units should ordinarily include at least three units of English, three of mathematics, two (preferably 3) of a single foreign language, two of a laboratory science, two of social studies (including one year of U. S. history), and two of other course work.
3. Each applicant must show outstanding ability by performance on either the SAT or ACT.

Adult Students

The University especially encourages application from adults who wish to enroll in university-level classes and earn a baccalaureate degree 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 six 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 Hartford, Groton, Stamford, Torrington, or Waterbury. The Regional Campuses offer evening courses at all locations, are within easy commuting distance, and provide a quality university education at a reasonable cost.

New England Regional Student Program

The University of Connecticut participates in a regional cooperative program controlled by the New England Board of Higher Education. 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, the Lowell Technological Institute, and the public two-year colleges and technical institutes. The University of Connecticut charges 50 percent above in-state tuition for those students admitted under the New England Regional Student Program.

The purpose of the program is to expand opportunities in higher education for New England residents by making equally available to all students those programs not commonly offered at every institution. This practice reduces duplication of courses and thus uses most efficiently the higher educational facilities in each state.

Students may obtain detailed information about this exceptional program through the University of Connecticut's Undergraduate Admissions Office, or from any high school guidance counselor, or from the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111 (617) 357-9620.

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

Programs	Eligible State Residents
College of Agriculture & Natural Resources	
Landscape Architecture	ME, NH, VT
Pathobiology	MA, ME, RI, VT
*** School of Allied Health**	
Cytotechnology	RI, VT
Diagnostic Genetic Sciences	ME, MA, NH, RI, VT
Dietetics	ME, VT
School of Business Administration	
Health Systems Management	ME, MA, RI
Management and Engineering for Manufacturing	ME, MA, NH
Risk Management and Insurance	ME, MA, NH, RI, VT
Real Estate & Urban Economic Studies	ME, MA, NH, RI, VT
College of Liberal Arts and Sciences	
Acturarial Science	ME, MA, RI, VT
Biophysics	MA, RI, VT
Classics and Ancient Mediterranean Studies	ME
Coastal Studies	ME, MA, NH, RI, VT
Geology and Geophysics	ME, MA, RI
Italian Literary and Cultural Studies	ME, NH, VT
Latin American Studies	ME, NH
Middle Eastern Studies	ME, NH, RI, VT
Physiology and Neurobiology	ME, MA, NH, RI
Portuguese	ME, NH, RI, VT
Statistics	MA, RI
School of Engineering	
Biomedical Engineering	MA, ME, VT
Chemical Engineering	VT
Engineering Physics	RI, VT
Management and Engineering for Manufacturing	ME, MA, NH
Metallurgy and Materials Engineering	ME, MA, NH, RI, VT
School of Fine Arts	
Acting	ME, MA, NH, VT
Puppetry	ME, MA, NH, RI, VT
Technical Theater	ME, NH, VT
School of Pharmacy	
Pharmacy	ME, MA, NH, VT

* These Schools and Colleges and their respective programs are Upper Division only, i.e, students enter these programs at the Junior level. Freshman and Sophomore years are not offered at reduced tuition.

Information about Associate Degree Programs available at a reduced rate to New England Residents can be found on the following page.

Associate Degree Programs

Ratcliffe Hicks School of Agriculture	
Animal Science [1]	MA, ME, RI, VT
Horticulture	RI
[1] Equine and Dairy/Livestock options	

College of Continuing Studies

Bachelor of General Studies

The Bachelor of General Studies (BGS) program is a junior-senior year university degree program administered by the College of Continuing Studies. Applicants to the program must have earned an associate's degree or completed at least the first two years of college (i.e., 60 semester credits) at a regionally accredited institution. In addition, applicants must complete special application procedures that include an individual interview and a written statement of educational objective. BGS students do not have traditional majors. Admission to the program is determined by several factors including, but not limited to, an assessment of the student's prior education, educational goals, and the ability of the University to assist the individual. Further information can be obtained from the BGS Counselor at any University campus by calling one of the following:

Avery Point	(860) 405-9190	Stamford	(203) 251-8550
Storrs	(860) 486-4670	Torrington	(860) 626-6800
Waterbury	(203) 575-8260	West Hartford	(860) 570-9195

Non-Degree Study

The Non-Degree Study Program of the University of Connecticut enables qualified individuals to register in regular credit courses for academic credit without being admitted to an undergraduate or graduate degree program. Non-degree students often are individuals taking credit courses prior to applying for admission to one of the University's schools or colleges. They may also be students from other universities or colleges taking credit courses at the University of Connecticut for transfer back to their own institutions. Or they may be individuals taking credit courses for personal or professional reasons.

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 may register in 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 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 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 2.5 may petition for a change of classification from non-degree student status to regular status as a student seeking a bachelor's degree. This petition for degree seeking status must be made to and approved by the dean of the school or college in which the undergraduate degree is to be earned. Students are urged to check with the dean to determine appropriate courses to take within the 24 credits. If fewer than 24 credits have been completed, a non-degree student must apply for admission as would any other prospective student for an undergraduate degree. If admitted to regular status, a determination will be made at the 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 6 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. Note that a former degree student who has been academically dismissed from the University or who has been suspended needs special written permission to register — even as a non-degree student. Consult the appropriate semester course schedule for more detailed instructions on this regulation.

For further information on non-degree study at any campus of the University of Connecticut or on how to register as a non-degree student, contact the University of Connecticut, Non-Degree Study Program, One Bishop Circle, Unit 4056-C, Storrs, CT 06269-4056, Telephone: (860) 486-3832, Fax: (860) 486-3845, E-mail: conted3@uconnvm.uconn.ed

Fees and Expenses Information

Bursars Office:

http://www.bursar.uconn.edu/

Guide to Admissions Information on the Internet

Undergraduate Admissions:

http://vm.uconn.edu/~beahusky/

College of Continuing Studies:

http://www.ce.uconn.edu

Financial Aid

The primary purpose of student financial aid is to provide assistance to students who otherwise would be unable to pursue their education. The basic philosophy of student financial aid is that the primary responsibility lies with the parents (of dependent students) and the student to pay for higher education expenses, to the extent they are able, as determined by the federal methodology.

What is Financial NEED?

Need is defined as the difference between the cost of education and what the parents and student might reasonably be expected to contribute to college costs. This contribution (Expected Family Contribution or EFC) is determined by using the federal methodology as administered by the U.S. Department of Education. The EFC is calculated based on data provided on the Free Application for Federal Student Aid (FAFSA). The figure determines a student's eligibility for need-based financial aid only.

Need Reduction Gap

Due to limited funding the University of Connecticut is unable to meet 100% of a student's established financial need. Therefore, a predetermined amount will be subtracted from a student's need prior to awarding financial aid.

How to Apply for Financial Aid

Complete the **Free Application for Federal Student Aid (FAFSA) or Renewal FAFSA**. The FAFSA is available from high school guidance counselors or any college financial aid office. If you have Internet access, you can file a FAFSA (or a Renewal FAFSA, if you are eligible and still live at your 2000-2001 address) at:http://www.fafsa.ed.gov

Application for all need-based financial aid programs begins with submission of the FAFSA. UConn uses only the FAFSA for the awarding of federal, state, and University funds.

Mail early enough after January 1 so that your FAFSA is received at the federal processor by the deadline of March 1. Applications not received and logged in by March 1 will be considered late. Please note that on-time status will not be determined by postmark dates or postage receipts, and late applicants will be considered only for Federal Pell Grant and Federal Stafford Loan funds. Do not wait for final income tax figures. Use estimated figures if necessary to ensure "on-time" application status. If requested, be prepared to send copies of federal tax returns for yourself and your parents to the UConn Office of Student Financial Aid Services.

Read the instructions carefully and answer all the questions. List 001417 under "Federal school code," and the University of Connecticut under "Name of college." In the "College street address and city" space, list Storrs. Indicate CT in the "State" space.

If you are a spring semester **transfer student** and you attended another college or university in the semester just prior to enrolling at UConn, please submit a paper **Financial Aid Transcript** from that school to the UConn Office of Student Financial Aid Services. FAT forms are available at any college financial aid office and must be submitted whether or not a student received financial aid at the previous institution.

Award Notification Letter

The Office of Student Financial Aid Services mails an award notification to you which indicates the types and amounts of aid offered and asks you to accept or decline each award, then return your reply copy. Be prepared to follow through with any additional requests for information.

Verification

Verification is the federal process which requires the comparison of data reported on the FAFSA with income tax returns and other requested documents. The Office of Student Financial Aid Services will notify you if you have been selected to submit income documentation.

Satisfactory Academic Progress (SAP) Guidelines

SAP is the University policy based on federal regulations which requires that all aid applicants maintain a designated grade point average (GPA) and satisfactorily complete a percentage of the number of credit hours attempted in each award year. A complete text of this policy is available from the Office of Student Financial Aid Services.

For More Information

An excellent, detailed source of information regarding federal aid programs and the financial aid process is *The Student Guide*, available at the University of Connecticut Office of Student Financial Aid Services, 233 Glenbrook Road, Unit 4116, Wilbur Cross Building, Storrs, CT 06269-4116, (860) 486-2819. If you have access to the Internet, please visit our web site at:

http://www.ucc.uconn.edu/~wwwfaid

An additional brochure, *Financing Your UConn Education*, which contains pertinent information specific to UConn's financial aid programs, is also available from the Office of Student Financial Aid Services.

If you have any questions or need assistance, contact the office. Please have your social security number available when calling. A Client Services staff member will assist you.

Types of Financial Aid Available

Federal Loan Programs

Federal Stafford Loans (FSL) are offered to students attending the University at least half-time. "Subsidized" FSL eligibility is based on financial need. Interest is subsidized by the federal government. If a student does not qualify for a subsidized FSL, he/she may borrow an "Unsubsidized" FSL. The student is responsible for the interest which accrues on the loan and has the option to either pay the interest while in school or defer payment of the interest until principal payments begin six months following graduation.

Annual loan limits for dependent undergraduate students are: $2,625 for freshmen (0-23 credits), $3,500 for sophomores (24-53 credits), $5,500 for other undergraduates (54+ credits). Eligible independent undergraduate students may receive up to $4,000 additional Unsubsidized FSL in the first and second years, and $5,000 additional Unsubsidized FSL in the third year and beyond.

Students requiring less than an academic year to graduate will have eligibility prorated in accordance with federal regulations.

Federal Perkins Loans are offered to eligible full-time students. These funds are awarded in classification order. Typically all funds are exhausted after freshmen and sophomore classes are awarded. These funds must be repaid.

Federal Parent Loans for Undergraduate Students (PLUS) enables parents with good credit histories to borrow for each dependent child who is enrolled at least half-time. The yearly loan limit is the cost of education minus any financial aid a student receives. If a parent is denied a Federal PLUS Loan (documentation required each academic year), the dependent student would then be eligible to receive an additional Unsubsidized Federal Stafford Loan.

Both FSL and PLUS are made copayable to the student/parent and the University of Connecticut and disbursed in at least two payments. Up to four percent is deducted from the amount borrowed (1% insurance and 3% origination fee).

Alternative Loan Options If need-based financial sources are not sufficient to cover a student's educational expenses, a variety of alternative loans options are available.

Grants

Federal Pell Grants are offered to qualified students pursuing their first undergraduate degree. They do not require repayment.

Federal Supplemental Education Opportunity Grants are offered to full-time undergraduates with exceptional financial need (typically Pell Grant recipients). They do not require repayment.

University Grants and Tuition Remission Grants are offered to eligible full-time undergraduates pursuing their first undergraduate degree. These funds do not require repayment.

University of Connecticut Scholarships are offered to incoming students through the Office of Admissions. These are merit-based and all students are considered according to grade point average, SAT scores and rank in class. The Office of Admissions notifies students if they are eligible for any of these awards. Upper class students with high academic achievement should inquire at their academic departments for scholarships within their field of study. The University of Connecticut Foundation and Alumni Office also offer numerous scholarships. Applications can be obtained by contacting their offices directly.

Please note: if a student receives any award or scholarship from a local high school or other outside agency, he/she must notify the Office of Student Financial Aid Services in writing. The student's financial aid package may be subject to change.

Part-time Employment

Federal Work Study (FWS) is a federally funded financial aid work program for students with a demonstrated financial need. **Unlike other forms of financial aid, a Federal Work Study award is not applied to a student's fee bill; students receive bi-weekly paychecks for hours worked.**

Students awarded Federal Work Study may work in positions at the Storrs and regional campuses or at approved, non-profit, state, municipal or federal agencies. Off campus Community Service positions are also available.

The Student Labor Program is a work program open to all University of Connecticut students and is designed to supplement regular staff with students seeking part-time employment.

The Office of Student Financial Aid Services advertises available positions through a job referral system. Students identify their job choices and are given a list of supervisors seeking candidates for those jobs. Students then arrange interviews with prospective employers to discuss the details of the job.

For more information about part-time employment contact the University of Connecticut Student Employment Staff, 233 Glenbrook Road, Unit 4141, Wilbur Cross Building, Storrs, CT 06269-4141, (860) 486-3474. For a complete listing of on campus jobs, you can access our web site at:

www.ucc.uconn.edu/~wwwjobs

Veterans Administration Educational Assistance and Tuition Waiver Program

The Office of Student Financial Aid Services provides information concerning benefits under the various educational assistance programs provided by the Veterans Administration. Students who attend the University and receive educational assistance under the following chapters must contact the Office of Student Financial Aid Services prior to the beginning of each semester: Chapter 31 (Vocational Rehabilitation Training Act for disabled veterans); Chapter 35 (Dependents Educational Assistance Act: children, wives, and widows of totally disabled and deceased veterans – service connected deaths); Chapter 1606 (Montgomery G.I. Bill – Selected Reserve); Chapter 30 (Montgomery G.I. Bill – Active Duty). Veterans must notify the Office of Student Financial Aid Services every semester of their registration for certification of enrollment. In addition, any changes in veteran status (credit load, withdrawal, number of dependents, etc.) must be reported.

Additionally, veterans may qualify for a tuition waiver under the State of Connecticut tuition waiver program. Veterans must provide a certified form DD214 (separation of service) and must be recognized as a minimum one year resident of Connecticut at the time of admission or readmission to the University. Please see the tuition waiver criteria in the Fees and Expenses section of the *Catalog*.

Veterans seeking fee waiver applications or assistance should contact the Office of Student Financial Aid Services, 233 Glenbrook Road, Unit 4116, Wilbur Cross Building, Storrs, CT 06269-4116, (860) 486-2819.

These University of Connecticut websites make policies available.

Student Conduct Code: http://www.dosa.uconn.edu/contents.html

Family Education and Privacy Act: http://www.registrar.uconn.edu/ferpannu.html

Other University websites provide information.

Student Financial Aid Services

Financial Aid
http://www.ucc.uconn.edu/~wwwfaid

Veterans
http://vm.uconn.edu/~wwwvets/

Student Employment
http://vm.uconn.edu/~wwwjobs/

General Information

Dean of Students Office
http://www.dosa.uconn.edu/

Athletics
http://www.uconnhuskies.com/

Student Activities and Union Programs
http://www.saup.uconn.edu/

Recreational Services
http://www.recreation.uconn.edu/

Library Services
http://www.lib.uconn.edu/

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*, the *Student Handbook*, the *Directory of Classes* and departmental plans of study.

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

The deans of the schools and colleges distribute individual academic evaluations to the students to help them plan their academic careers. The evaluations show which requirements have, and have not, been fulfilled. The academic dean keeps a copy and student advisors receive a copy.

Academic Center for Entering Students. The Academic Center for Entering Students (ACES) provides academic advising for all students entering the College of Liberal Arts and Sciences. Entering students might have one of several possible major designations. A significant portion of students will choose to be Exploratory majors upon entering the University, and will spend some time investigating any number of possible academic interests. Others will pursue admission to one of the university's schools or colleges as either a "Pre" or "Shadow" student. Some will designate an interest in one of the academic majors offered within the College of Liberal Arts and Sciences. The goal of the Academic Center for Entering Students is to pair every ACES student with an appropriate major(s) and assign him or her to a school or college as early as possible in the academic career. Each ACES student is assigned an ACES advisor who will work with the student until he or she declares a major and moves to one of the University's schools or colleges. The advisors at ACES, along with advisors from the university's schools and colleges and all of the University's student support services, work to ensure that both students and academic programs reach their full potential. The ACES advisors work with students to discuss their goals, interests, and strengths and to pursue their academic interests accordingly.

Career Services. Career Services assists students in identifying strengths, interests, and special talents, all of which are important in identifying career goals. Establishing goals provides a focus for both career and academic planning. Through internship and cooperative education opportunities, students are encouraged to continue their education and prepare for either employment or graduate school opportunities.

Center for Academic Programs. The Center for Academic Programs houses three major federal programs, also know as "TRIO" programs, whose primary purpose is to prepare qualified participants for successful entry into, retention in, and completion of postsecondary education.

Student Support Services provides programming for students' retention in and graduation from the University through its Pre-Freshman Summer Program and through continuing Undergraduate Support Services.

Upward Bound/ConnCAP is designed to make education opportunities available to qualified high school students in order to assist them to complete high school successfully and gain admission to college.

Educational Talent Search identifies young people with potential at the secondary education level. The program encourages them to continue in and graduate from secondary schools and then to enroll in programs of post-secondary education, and encourages high school dropouts to return to school.

School/College	Advisory Center Location (Storrs Campus)	Contact(s)
Academic Center for Entering Students	Goodyear Hall, First Floor	Steve Jarvi
Agriculture and Natural Resources (including Ratcliffe Hicks)	W. B. Young Building, Room 211	Pat Jepson
Allied Health	Koons Hall, Room 102/102A	Ellen Darrow, Judy Tiberio
Business Administration	School of Business Administration Building, Room 121	Janice Clark
Continuing Education	Bishop Center	Laurel Rabschutz
Education	Gentry Building, Room 231	Steve Smith
Engineering	Engineering II Building, Room 326	Marty Wood
Family Studies	Family Studies Building, Room 115	Mary Alice Neubeck
Fine Arts	Von der Mehden	Mary Ellen Junda
Nursing	Storrs Hall, Room 227	Eva Gorbants
Pharmacy	Hewitt Building, Room 151	Donna Fournier

Center for Students with Disabilities. The Center for Students with Disabilities (CSD) assists students to maximize their potential while helping them develop and maintain independence. Our philosophy is one that promotes self-awareness, self-determination, and self-advocacy in a comprehensively accessible environment. 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. Services offered include:

- Pre-admission counseling and new student orientation.
- Individualized academic accommodations and counseling.
- Residential accommodations and counseling.
- Financial aid counseling.
- Personal assistance training and referral.
- Assistive technology.
- Transportation and parking services.
- Referral and liaison services to state agencies.
- Information and referral source to all University and community programs and services.

Counseling Program for Intercollegiate Athletes. Student athletes commit a large percentage of their personal time to University-sponsored athletic activities. For this reason, the University recognizes the need for a support program to assist student athletes in achieving their academic goals. Counselors meet regularly with student athletes and also serve as liaison between a student's academic advisor, coach, and academic support personnel. Tutors and study hall are provided as required.

Counseling Services. Counseling Services sponsors a variety of retention initiatives. Staff offers one-on-one counseling, drop-in counseling services at designated locations, and various other skills programs and workshops that focus on academic, personal, and social survival at the University. Students either self-identify as seeking help or are referred by community members. Mentor training is provided for students within the various schools, colleges and programs upon request (e.g., College of Agriculture and Natural Resources, Honors Program). The Department of Counseling Services also offers free peer tutoring in conjunction with the Department of Residential Life in the following subjects: Math 101-115, Chemistry 127 & 128, Physics, 101, 121, 122, 131 and 132, PNB 264 & 265, Statistics 100 and 110, Spanish, French, Portuguese, German and Italian.

Dean of Students Office. Dean of Students (DOS) Office serves in the capacity of ombudsman for the campus community, chief advocate for students, organizational home for all campus judicial matters, and administrator of campus policy and student status changes. The DOS Office seeks to promote positive growth experiences for students through the development of leadership, dispute resolution, and self-advocacy skills. The DOS Office also functions in a leadership role in building community around campus and in establishing expectations of student conduct. As part of its new expanded role, the DOS Office will enhance the student experience and address issues of retention through ongoing assessment, analysis, interpretation, and response to changing student needs. Perhaps most importantly, the DOS Office has established itself as "the place to go when you don't know where else to go."

Engineering Diversity Program. The Engineering Diversity Program (EDP) provides academic support and outreach activities designed to increase the number of African-American, Hispanic, Native American, Puerto Rican and women engineering students.

Bridge is a free summer program designed to prepare talented underrepresented populations and women for the first-year experience as an engineering student.

Project Elevate provides group study sessions and supplemental instruction for freshmen and sophomores by utilizing undergraduate and graduate peer tutors and facilitators.

Pre-engineering is a pre-college Saturday morning engineering enrichment opportunity for middle and high school students.

Multiply your Options is a one-day conference designed to introduce mathematics, science and engineering careers and female role models who have chosen these careers to middle school girls.

Faculty of the Future provides financial support to encourage undergraduate engineering students to pursue graduate school by connecting them to research opportunities.

First Year Experience. The First Year Experience offers opportunities for new students who are (a) looking for a way to get a head start on academic success, (b) seeking support to explore specific academic interests while still meeting core curriculum requirements or (c) having difficulty making the transition to a university setting, overwhelmed by a large campus or, academically challenged and possibly on academic probation.

Knowing the "smart" way to approach academic and personal challenges can make a big difference in the undergraduate experience at a university. FYE University Learning Skills (ULS) (INTD 180), a one-credit seminar, brings students together weekly to interact and adjust to the new expectations they will be facing at UConn. A team of faculty, professional staff, and advanced undergraduate students who know their way around have designed each ULS. New students learn about University resources and facilities, enhance their academic and interpersonal skills, and work on time management issues. In addition, students will get to know a faculty member, a professional staff person, and an advanced undergraduate to whom they can turn for advice and support in the future.

Usually students have to wait until they are in a particular major and have spent several years at UConn to take a seminar. FYE Faculty-Student Seminars (INTD 182) which meet for one hour per week, involve guided research, writing, and provide plenty of opportunity for participation. The faculty who teach the seminars enjoy working closely with students and help participants enhance their ability to engage actively in the academic life of the University and to learn independently.

Math Learning Center. The Math Learning Center is staffed by undergraduate and graduate math students from actuarial, applied, and pure math concentrations. The facility is open all day every day and provides a quiet place to study, and during certain hours one-on-one and small group tutoring is available.

The Math Learning Center is open to students who need assistance with math. The purpose of the Center is to help students with specific questions about their work. Any UConn student in any discipline is welcome to visit the Math Learning Center with questions, however, the services provided are primarily directed toward all 100-level math courses and some 200-level courses. Current enrollment is not a requirement for tutoring assistance.

National Scholarship Information Office. The National Scholarship Office provides information to all undergraduates, who are interested in the major national scholarships such as the Truman, Rhodes, Marshall, and Mellon. Efforts to distribute information and guide students toward success in these national competitions are coordinated by Kathy Usher, Assistant Director of the Honors Program. This website will provide additional information for interested students: www.honors.uconn.edu/natsinfo.html

Peer Tutoring. A Living/Learning Program of the Department of Counseling Services, in cooperation with the Department of Residential Life, provides free peer tutoring services to University of Connecticut students in three residence halls and one foreign language house. Graduate and undergraduate students provide free academic assistance to students in 100's level Physics, Math, Statistics, Chemistry, Anatomy and Physiology 264 & 265 courses, and Foreign Languages. This service is offered Sunday through Wednesday evenings from 7:30 PM – 10:30 PM during the academic year.

Program for College Students with Learning Disabilities. The University's Program for College Students with Learning Disabilities (UPLD) is a comprehensive program available to assist qualified students with LD to become independent and successful learners within the regular University curriculum. The services are designed to complement, but not duplicate, the University's existing campus services and programs.

In order to access services, students must refer themselves to UPLD and submit documentation that verifies eligibility under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Documentation must meet established University Guidelines for Documentation of a Specific Learning Disability, must be current, comprehensive, and provide clear and specific evidence and identification of a learning disability. In the case of a student whose disability does not include a specific LD (e.g., ADD/ADHD), support services are available from the Center for Students with Disabilities (CSD).

Three types of program services, Direct Instruction, Monitoring, and Consultation, are offered along a Continuum leading to independence. Students can work with a trained staff of learning specialists in individual structured sessions that meet on a weekly, bi-weekly, or monthly basis. As students increase their independence and skills, the level of services may be reduced. There is no cost for services, and services are available for as long as the student needs them. Participation in the program is optional, and students are encouraged to reflect on their need for UPLD services.

Students with specific learning disabilities can also receive reasonable individual accommodations and auxiliary aids by submitting documentation verifying eligibility and need to the Director of UPLD. If students are seeking accommodations only, the Consultation level on the UPLD Continuum is the appropriate service. Students requesting testing accommodations are strongly encouraged to contact UPLD within the first two weeks of each semester.

Project 3000 by 2000. Project 3000 by 2000 is a Health Professions Partnership Initiative with the University of Connecticut Health Center, Wesleyan University and central Connecticut State University. Project 3000 by 2000 is designed to increase the number of disadvantaged and underrepresented students enrolled in medical, dental and biomedical sciences, allied health, nursing, and pharmacy programs. The program is a six-week, non-credit pre-collegiate summer residential experience that integrates an extensive introduction to college-level mathematics, English, biology and chemistry with seminars related to the health professions and clinical experiences at the UConn Health Center. A study skills course focusing on problem solving, test taking, orientation to the University and freshman resources is also a part of the pre-collegiate experience.

Student Mental Health Services. The Student Mental Health Services offers students an opportunity to discuss, in a confidential and non-judgmental setting, whatever personal concerns they might have. Those experiencing occasional, mild difficulties often benefit from a few individual sessions with a therapist. More severe problems may require additional sessions. Both individual and group therapy are offered. In some cases, psychiatric medications may also be helpful, particularly for individuals who are clinically depressed. By clarifying the causes of their problem, developing some additional strategies for mobilizing their resources, and having the understanding of a professional therapist, they can be relieved of unnecessary distress.

Many students are self-referred, while others are referred by friends, RAs, professors or family members. Some of the problems they are dealing with include:

- Relationships and communication issues (boyfriends, girlfriends, friends, roommates)
- Parent and family conflicts
- Illness or death of a family member or close friend
- Adjustment to college life
- Low self-esteem
- Assertiveness and decision making
- Sexual orientation or coming out
- Physical or sexual assault or harassment
- Unwanted pregnancy
- Coping with medical illness
- Uncertainty about leaving school
- Depression or mood swings
- Anxiety or panic attacks
- Eating disorders
- Out of control thoughts or behaviors
- Insomnia or excessive sleep
- Difficulty with attention and concentration
- Lack of motivation
- Suicidal thoughts

Student Mental Health provides a variety of services within the limits of its professional resources. If, after assessment, it is determined in a student's best interest to be referred elsewhere, assistance will be given in finding specific outside treatment alternatives.

Study Abroad/Study Away. The Study Abroad/Study Away Office is responsible for developing and administering academic programs abroad and in the U.S., including the National Student Exchange (NSE). The University of Connecticut offers a wide variety of programs abroad for students of liberal arts, social sciences, engineering, business and economics in the following countries: Argentina, Australia, Austria, Brazil, Canada, Chile, China, Costa Rica, Czech Republic, Denmark, Dominican Republic, England, France, Germany, Ghana, Hungary, Indonesia, Ireland, Israel, Italy, Japan, Mexico, The Netherlands, Poland, Portugal, Russia, South Africa, Spain, Sweden, Switzerland, Thailand and Vietnam. The University also sponsors the

Semester-At-Sea program. Some of the overseas programs require language proficiency, some offer intensive language study starting at the beginning level, while others provide core courses taught in English in combination with language study.

Students interested in a U.S. study away experience may attend one of the 160 different institutions in the U.S. that are part of the NSE, or the Biosphere Earth Semester in Arizona.

Students who enroll in approved study away programs continue to earn University of Connecticut credits that can be used for graduation requirements, and many of the programs offer courses that can be counted towards the major. The office works closely with academic departments throughout the University to ensure approval of the courses. While away, students remain registered at the University of Connecticut and are therefore eligible for their normal financial aid.

In addition to the academic coordination of the NSE and the forty officially sponsored overseas programs, the Study Abroad/Study Away office provides counseling services to all students wishing to study away and maintains a library of foreign study reference materials and catalogs of NSE member institutions.

Study Skills. To facilitate the development and success of each student, the Department of Counseling Services provides specialized assistance designed to help students enhance their abilities to succeed academically. Some students who enter the university face a greater challenge of successfully negotiating the academically rigorous demands of this institution than others. UConn isn't just harder than high school, it's fundamentally different. For that reason, academic success requires students to make major adjustments in their study-related skills, strategies, and attitudes. Students are taught techniques which help them to better prepare for and take examinations, improve memory and concentration, motivation, reading and writing skills, and how to manage stress.

The Writing Center. The Writing Center provides students with one-to-one help with their writing. Staff work with writers at every point in the writing process. Writing Center Tutors are available to assist students who need help writing and revising essays, generating or organizing ideas, or understanding the readings required for writing assignments.

UConn American English Language Institute (UCAELI). The Institute's primary goal is to provide international students with an exceptionally supportive intensive English language program. Coinciding with the University calendar, two 8-week sessions are offered each fall and spring. In addition, two 6-week sessions are offered in the summer. The program consists of 23 hours of instruction per week for levels of proficiency from beginning to advanced. Students take entrance placement tests and exit proficiency tests each session. A TOEFL Preparation course and Institutional TOEFL exam are also offered each session. UCAELI students have access to an Internet-ready computer lab for coursework and self-study.

Advanced students, upon approval of the director, may elect to take undergraduate or graduate courses in combination with their UCAELI courses.

Departments within UConn may also register conditionally admitted or fully enrolled students for full-/part-time, ESL, skill-specific courses at UCAELI. Tutoring for non-native English speaking students may also be arranged.

UConn Connects. The UConn Connects Program, one of the most successful student support programs at the University, serves undergraduate students who are on academic probation. By matching each student with a facilitator (recruited from the ranks of student, faculty, and staff), the program helps students locate and utilize the resources, skills, and personnel who can help transform academic struggle into academic success. Through mutually agreed upon meetings, students and their facilitators work on time management, study skills, and a wide range of other issues crucial to academic achievement at the University. Facilitators are kept abreast of program offerings, tutoring assistance, and other resources of value to their students.

Undergraduate Research and Creative Activity Office. The Undergraduate Research and Creative Activity Office was established to provide a broad range of enrichment activities designed to make research and creative activity available to all undergraduates. The Office provides research-related opportunities and information to students interested in pursuing a deeper learning experience. Opportunities for undergraduate research are only limited by the student's imagination. Research can be conducted independently, on a team, directed by a UConn faculty, within the university or in an outside facility. The Office maintains a Web Page containing a library of research sites, a collection of research abstracts, research guidelines and proposals, faculty and student contacts, and funding availability. In addition, updated information regarding National Undergraduate Research Conferences will also be listed as well as the University's own Frontiers of Undergraduate Research and Creativity Activity and Summer Undergraduate Research Competitions. The web page may be accessed via: http://www.ugradresearch.uconn.edu

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 an annual notification in the *Student Handbook* and sends a notification via e-mail.

Graduation Rate. The Student Right to Know Act 1990 requires each institution to make available the graduation rates, within six years, of entering freshmen classes. For the University of Connecticut Fall 1993 entering freshmen, the graduation rates by the summer of 1999 were: entered at Storrs 68.3%; entered at a regional campus 38.4%. 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.

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) 486-4199. All requests should include full name, social security number, dates of attendance, complete and accurate addresses of transcript recipients including ZIP codes, and the requester's address and telephone number in the event that there is a problem with the request. All requests, INCLUDING FAXES, MUST BE SIGNED.

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.

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.

Transcripts are sent out ONLY by U.S. Postal Service first class mail, Priority Mail, or Express Mail. For Priority/Express mail service, the request must be accompanied by a pre-paid and pre-addressed envelope(s). Alternate carriers (e.g. UPS, FedEx) are not an option.

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. Requests are processed in the order in which they are received in one to five business days. The University cannot honor telephone or e-mail requests for transcripts.

There is no service fee for Official Transcripts.

Unofficial Transcripts. Students can obtain an unofficial transcript by presenting a photo I.D. in person 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.

Student Identification Number. A student's identification number is the student's social security number. If this number 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.

Detailed and updated information about many of the topics in this section is available on the Internet.
Refer to the Internet Index on page 201.

Scholarships
http://www.ucc.uconn.edu/~beahusky/schlprog.htm

International Affairs
http://www.ia.uconn.edu/

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 for all Baccalaureates

The Board of Trustees awards the degrees of Bachelor of Arts, 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 DGPA. The University requires that all students have an Upper Division cumulative grade point average (DGPA) 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 DGPA required. The undergraduate grade point system is two-tiered. The Lower Division ends after the semester in which the student has earned 60 credits. The Upper Division commences from that point. Graduation is based on the Upper Division cumulative grade point average.

Residence Requirement. The University requires that all students complete the last two semesters of their work at the University of Connecticut, but the school or college may require the student to complete more work at the University. Waivers require the permission of the department head, the academic dean and the Vice Provost for Undergraduate Education.

Credits earned "in residence" include all University of Connecticut credits, without regard to the campus or where the student lives. Whereas credits from other institutions may count toward the degree, graduating students must have earned at least 30 degree credits in residence.

Students may not take courses from other institutions during the last two semesters unless: 1) they have completed acceptable academic work in the armed services (the Transfer Admissions Office must receive the transcript within two years of the student's discharge); 2) in the judgment of the department head, academic dean and Provost, work at another institution will enrich their program; 3) personal reasons compel them to leave the University for all or part of the final year (they must have permission to take courses elsewhere from the department head, academic dean and Vice Provost for Undergraduate Education).

Students wanting to transfer credits from another school in the final two years should discuss their plans with their advisor. They should note the residence requirements in their school or college and get permission in advance from any others who may be involved in the transfer.

General Education Requirements

Also: Distribution Requirements or Core Requirements

The University Senate voted these requirements to develop verbal and quantitative skills, curiosity, versatility, critical judgment, moral sensitivity and research skills for all undergraduates. Students will learn of other cultures, how to fit their culture in a wide historical context and how scientific theories relate to experiments.

Every student must meet these University-wide requirements, but students should consult the baccalaureate degree requirements listed by their school or college. All the baccalaureate degrees include the requirements listed below, but the school or college may have added to them. Likewise, the school or college may have deleted some of the courses from which the student may choose. The school or college may refer the student to *Academic Regulations* when the requirements and choices duplicate those listed here.

The Bachelor of General Studies program is a junior-senior level program for mature part-time students. The Dean of the College of Continuing Studies may exempt them from the Foreign Language requirement (Group 1) and the one-semester laboratory science requirement (in Group 8).

† Students entering the University with credit for ENGL 105 can complete the Academic Writing requirement by completing ENGL 109 or 110 or 111. Students entering the University with credit for ENGL 105 and ENGL 109 will be exempted from the ENGL 110/111 requirement.

GROUP 1

Foreign Languages: 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. With anything less than that, the student must take one year (2 semesters) of college level study in a single language.

GROUP 2

Academic Writing: All students must take English 110 or 111. Additionally, all students must take two W courses, which may also satisfy other requirements. (Note: English 110 or 111 is a prerequisite to all W courses.) Students with Advanced Placement English scores of 4 or 5 and students passing ENGL 250 will be exempted from the 110 or 111 requirement. †

GROUP 3

Mathematics: All students must enter with a competency level equivalent to that obtained in Mathematics 101, as evidenced by a passing grade on the Q-Course Readiness Test,*** or take Mathematics 101 as a remedial course without credit toward graduation. Additionally, all students must take two Q courses and one C course, which may also satisfy other requirements. (Note: Mathematics 101 or a passing grade on the Q-Course Readiness Test is a prerequisite to all Q courses.) One Q course must be a mathematics or statistics course unless the student attains a high pass on the Q-Course Readiness Test.

GROUP 4

Literature and the Arts: All students must take two courses: one which emphasizes major works of literature which could be elected from English *or* Foreign Languages (in English translation or in the foreign language), and one which emphasizes major achievements in art, and/or music and/or the dramatic arts.

Literature category

CAMS 103	Classical Mythology
*CAMS 211	Greek Drama
*CAMS 221	Survey of Classical Latin Literature
CAMS 244	Ancient Fictions
CLCS 101	Classics of World Literature I
ENGL 112/112W	Classical and Medieval Western Literature
ENGL 113/113W	Renaissance and Modern Western Literature
ENGL 127/127W	Major Works of English and American Literature
ENGL 205	British Literature I
ENGL 206	British Literature II
ENGL 210	Poetry
ENGL 212	The Modern Novel
ENGL 216	The Short Story
ENGL 219	Drama
ENGL 230/230W	Shakespeare I
*FREN 261	Introduction to Literature I
*FREN 262	Introduction to Literature II
FREN 270W	French Literature and Civilization in English
GERM 240W	German Literature in Translation
GERM 252	Studies in Early German Literature
GERM 253	Studies in German Literature Around 1800
GERM 254	Studies in 19th Century German Literature
GERM 255	Studies in 20th Century German Literature
ILCS 101	The Italian Renaissance
*ILCS 243	Main Currents of Italian Literature through the Renaissance
*ILCS 244	Main Currents of Italian Literature after the Renaissance
ILCS 255W	Dante's Divine Comedy in English Translation
PORT 140	Major Works of Portuguese and Brazilian Literature in Translation
RUSS 231	Masterpieces of Modern Russian Literature in Translation
RUSS 232	Masterpieces of 19th Century Russian Literature in Translation
SPAN 187	Major Works of Hispanic Literature in Translation
*SPAN 281	Great Works of Spanish Literature from its Origins to the Golden Age
*SPAN 282	Literature of Crisis in Modern Spain

* Indicates foreign language prerequisite.

** 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.

***A quantitative skills test administered by the University.

Arts category

ANTH 252	Native American Arts
ART 135	Art Appreciation
ARTH 137	Introduction to Art History I
ARTH 138	Introduction to Art History II
ARTH 141	Introduction to Latin American Art
ARTH 191	Introduction to Architecture
ARTH 256	Native American Arts
ARTH 285/285W	African Art
DRAM 101	Introduction to the Theatre
DRAM 110	Introduction to Film
DRAM 130	History of Drama I
DRAM 230/230W	Women in Theatre
DRAM 231/231W	African-American Theatre
DRAM 282/282W	Trends in ContemporaryTheatre
FREN 171	French Cinema
GERM 171	The German Film
GERM 281	German Film and Culture
ILCS 149	Cinema and Society in Contemporary Italy
ILCS 260W	Italian Cinema
MUSI 190	Non-Western Music
MUSI 191	Music Appreciation
MUSI 193	Introduction to Music History I
MUSI 194	Introduction to Music History II
MUSI 285	Music History and Literature
WS 104	Introduction to Women's Studies in the Arts

GROUP 5

Culture and Modern Society: All students must take History 100 or History 101, and a course which emphasizes non-Western or Latin American cultures.

Non-Western/Latin American category

ANTH 100	Other People's Worlds: Asia, Africa, the Americas
ANTH 222	Peoples and Cultures of South America
ANTH 223	Pre-Colonial Africa
ANTH 225	Contemporary Africa
ANTH 226	Peoples and Cultures of North America
ANTH 227W	Contemporary Mexico and Central America
ANTH 230	Peoples of the Pacific Islands
ANTH 238	Peoples and Cultures of the Middle East
ENGL 120	Major Works of Eastern Literature
ENGL 218	Literature and Culture of the Third World
GEOG 160	World Regional Geography
HIST 106	The Roots of Traditional Asia
HIST 108	Modern World History
HIST 205	The Modern Middle East from 1700 to the Present
HIST 222	History of Pre-Colonial Africa
HIST 223	History of Modern Africa
HIST 281	Latin America in the Colonial Period
HIST 282	Latin America in the National Period
HIST 285	Cuba, Puerto Rico and the Spanish Caribbean
HIST 288W	East Asia since the Mid-Nineteenth Century
LAMS 190/190W	Perspectives on Latin America
PHIL 263	Oriental Philosophy and Religion
PHIL 264	Classical Chinese Philosophy and Culture
POLS 143	Introduction to Non-Western Politics
POLS 203W	Women in Political Development
POLS 228W	East Asian Governments and Politics
POLS 229	Chinese Government and Politics
POLS 239W	Politics in Africa
POLS 279/ 279W	South Asia in World Politics
SOCI 226/226W	Modern Africa
SOCI 227/227W	Revolutionary Social Movements Around the World
* SPAN 201	Ibero-American Civilization and Culture
WS 124	Changing Roles of Women and Men: A Global Perspective
WS 203W	Women in Political Development

* Indicates foreign language prerequisite.

GROUP 6

Philosophical or Ethical Analysis: All students must take one course in philosophical and/or ethical analysis.

LING 101	Language and Mind
PHIL 101	Problems of Philosophy
PHIL 102	Philosophy and Logic
PHIL 102C	Philosophy and Logic
PHIL 103	Philosophical Classics
PHIL 104	Philosophy and Social Ethics
PHIL 105	Philosophy and Religion
PHIL 106	Non-western and Comparative Philosophy
POLS 106	Introduction to Political Theory
SCI 240	The Nature of Scientific Thought

GROUP 7

Social Scientific and Comparative Analysis: All students must take one course in social science and/or comparative analysis.

ARE 110	Population, Food, and the Environment
ARE 150	Principles of Agricultural and Resource Economics
ANTH 106	Introduction to Anthropology
ANTH 220/220W	Social Anthropology
COMS 102	The Process of Communication
ECON 101	Essentials of Economics
ECON 102	Principles of Economics (Intensive)
ECON 111	Principles of Macroeconomics
ECON 112	Principles of Microeconomics
GEOG 104	Introduction to Geography
GEOG 200	Economic Geography
HIST 121	Women in History
HDFS 190	Individual and Family Development
LING 102	Language and Environment
POLS 121/121W	Introduction to Comparative Politics
POLS 132/132W	Introduction to International Relations
POLS 173/173W	Introduction to American Political Processes
PSYC 133	General Psychology II
PSYC 135	General Psychology II (Enhanced)
SOCI 107/107W	Introduction to Sociology
SOCI 115/115W	Social Problems
SOCI 125/125W	Race, Class and Gender
WS 103	Introduction to Women's Studies in the Social Sciences

GROUP 8

Science and Technology. All students must take two courses in science and technology, at least one of which must include a semester of laboratory. (Laboratory courses are printed in **boldface type**.) At least one of these two courses must be a course in chemistry, biology, geology or physics.

ANSC 160	The Science of Food (Also offered as NUSC 160)
BIOL 102[1]	Foundations of Biology
BIOL 103[1]	The Biology of Human Health and Disease (Also offered as PVS 103)
BIOL 107	Principles of Biology
BIOL 108	Principles of Biology
BIOL 110	Introduction to Botany
CHEM 101	Chemistry for an Informed Electorate
CHEM 122	Chemical Principles and Applications
CHEM 127Q-128Q	General Chemistry
CHEM 137Q	General Chemistry
CHEM 138Q	General Chemistry
GEOG 205	Introduction to Physical Geography
GEOL 101	Introductory Environmental Geology
GEOL 102	Introductory Geology
GEOL 111	The Age of the Dinosaurs
MARN 170	Introduction to Oceanography
NUSC 160	The Science of Food (Also offered as ANSC 160)
NUSC 165	Fundamentals of Nutrition
PHAR 150	Toxic Chemicals and Health
PHYS 101Q[2]	Elements of Physics
PHYS 103Q	Physics of the Environment

[1] BIOL 103/PVS 103 and BIOL 102 may not be combined to satisfy the Group 8 requirement.

[2] PHYS 101Q and PHYS 107Q may not be combined to satisfy the Group 8 requirement.

PHYS 104Q	Physics of the Environment with Laboratory
PHYS 107Q[2]	Physics of Music
PHYS 121Q-122Q	General Physics
PHYS 131Q-132Q	General Physics with Calculus
PHYS 140Q	Introduction to Modern Physics
PHYS 141Q	Fundamentals of Physics I
PHYS 142Q	Fundamentals of Physics II
PHYS 151Q	Physics for Engineers I
PHYS 152Q	Physics for Engineers II
PHYS 155Q	Introductory Astronomy
PLSC 150	Agricultural Technology and Society
PSYC 132	General Psychology
PVS 103[1]	The Biology of Human Health and Disease (Also offered as BIOL 103)
SCI 110	Humans and the Changing Global Environment

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.

Graduation

Tentative and Final Plans of Study. Except for students in the schools of Nursing, Pharmacy and Allied Health, 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 to insure the student has met all requirements. The Office of the Registrar will notify the student if a problem is discovered with the final Plan of Study.

Application for Degrees. Based on the Registrar's records, in October the Registrar will mail applications for degrees to all probable Spring candidates and in March to all probable summer and fall candidates. Candidates who do not receive applications at these times should consult the Office of the Registrar by the beginning of the semester in which they expect the degree.

To graduate, candidates must return the completed application by the due date on the application to the Office of the Registrar. 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, (4) receive information about and tickets for the Commencement ceremony.

[1] BIOL 103/PVS 103 and BIOL 102 may not be combined to satisfy the Group 8 requirement.

[2] PHYS 101Q and PHYS 107Q may not be combined to satisfy the Group 8 requirement.

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 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 (May), August 31 and December 31. Candidates meeting the requirements before the conferral date and needing verification may ask for a "Completion Letter" from the Office of the Registrar.

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.

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. Graduates who have not received their diploma by the end of the periods noted above should inform the Office of the Registrar.

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. 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. A maximum of 3 credits toward the minor may be transfer credits of courses equivalent to University of Connecticut courses. 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. The minor is then recorded on the student's final transcript. All available minors are described in the Academic Degree Programs section of this *Catalog*.

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. A student pursuing two or more degrees concurrently must designate one degree the primary degree. The Dean of Students answers the petitioner in writing.

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 134 credits while Arts and Sciences degrees require at least 120 credits. The Engineering degree has the higher minimum-credit requirement, so the total is 134 + 30, or 164. (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 200-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.

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

For students who apply for an additional degree: (1) the total GPA combines all A-F credits and grade points of both degrees, and (2) the Upper Division Cumulative GPA combines all A-F credits and grade points in the Upper Divisions. All credits earned after completing the semester in which the student earned 60 credits are Upper Division credits.

Course Information

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

- 01-99 courses in the Ratcliffe Hicks School of Agriculture. Baccalaureate students may not register for these courses.
- 100-199 courses primarily intended for Lower Division students.
- 200-299 courses primarily intended for Upper Division students.
- 300 and above courses primarily intended for Graduate students.

Lower Division students may enroll in one 200-level course in addition to those 200's foreign language or mathematics courses they may take, provided: (a) their advisor recommends the course and they have the permission of the instructor and their academic dean; (b) the 200-level course does not cause them to postpone required courses.

Students registering for their fourth semester may enroll in 200-level courses not "open to sophomores" provided: (a) they will have at least 54(62 for Engineering and Pharmacy students) credits by the end of the semester; (b) they have the instructor's consent. Students without the required credits who wish to take 200-level courses not "open to sophomores" must have the consent of the instructor and their academic dean.

Unless their school or college has more stringent requirements, undergraduate seniors with a cumulative grade point average of 2.6 or above may take 300-level courses. Other undergraduates must have the permission of the instructor and the student's academic dean to enroll in a 300-levelcourse.

Skill Codes. The University faculties require students to develop writing, quantitative and computing skills. Courses including one or more of these skills have a letter following the course number showing the skill(s) taught.

- W-courses have major writing assignments aimed at teaching the student to write clearly. All W-courses have English 105 or 110 or 111 as a prerequisite.
- Q-courses require the student to know and use algebra, or a higher form of mathematics. Passing the Q-course Readiness test or Mathematics 101 is prerequisite to any Q-course.
- C-courses give students hands-on experience in at least one major computer application.
- J-courses teach writing and quantitative skills.
- S-courses teach writing and computing skills.
- V-courses teach quantitative and computing skills.
- Z-courses teach writing, quantitative and computing skills.
- P-courses teach some writing skills, but fewer than a W-course.

Consent Courses. Many University courses require consent of the instructor for enrollment. The course directory section of this *Catalog* and the *Directory of Classes* specify the required signatures.

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.

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.

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:

- Math 101
- Only 6 credits from Phil 101, 102, 103, 104, 105, 106
- Not both Stat 100 and Stat 110
- Only 2 credits for Math 215 after passing Math 227

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 all cases of credit-restricted courses, the transcript will show full credit earned because the restricted credits still count toward full-time status determination and in calculation of grade point averages. Only degree credits, credits used to meet degree requirements, will be reduced.

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.

Earning Course Credits by Examination. The student should obtain a Petition for Course Credit by Examination from the Office of the Registrar and take it 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 Bureau of Educational Research 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; 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.

Students may not earn credits by examination for any course they have failed, by examination or otherwise.

Students may not earn credits by examination for English 103, 104,105,109 or for 100 level foreign language courses. Schools and Colleges may exclude other courses from course credit by examination.

Students may not 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 Table on Guidelines for Evaluation of CB Advanced Placement Examinations on the following page.

Guidelines for Evaluation of CB Advanced Placement Examinations

AP Exam	Score	UConn Course Equivalent Granted	Credits Granted
Art History	4, 5	ARTH 137, 138	6
Biology	4, 5	BIOL 107, 108	8
Chemistry	4, 5	CHEM 127Q, 128Q	8
Computer Science	4, 5	CSE 110C	3
Economics			
Macroeconomics	4, 5	ECON 111	3
Microeconomics	4, 5	ECON 112	3
English (Either English/Comp. or English Lit./Comp.)	4, 5	ENGL 105, 109	6
German	3	Placement into 200's level course	No credit
	4, 5	GERM 233, 234	6
American History	4, 5	U.S. History 100 level	3
European History	4	European History 100 level	3
	5	HIST 101	3
Math AB	4, 5	MATH 115Q	4
Math BC	3	MATH 115Q	4
Math BC	4, 5	MATH 115Q, 116Q	8
Music	3	Music Theory 100 level	3
	4, 5	Music Theory 100 level	6
Physics B*	4, 5	PHYS 121Q, 122Q	8
Physics C*	4, 5	PHYS 151Q, 152Q	8
Psychology	4, 5	PSYC 132, 133	6
Romance and ** Classical Languages	4, 5	Language 200 level	6
Statistics	4, 5	Statistics Q 100 level	3

* Students receiving a 4 in Physics B or Physics C must consult with a designated department member to determine if credit will be allowed.

** Students who have already earned course credit in Romance Languages through the UConn Coop Program will not receive AP credit in this category.

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.

Immunization Requirement. The University Division of Health Services sends health report forms to entering students. Their 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.

Placement Testing. All entering students who have not earned college credits in mathematics or statistics must take a test in high school algebra ("Q-course Readiness Test") before registering. Students failing the test must take Mathematics 101, a remedial course with no credit toward graduation. Students should review their course work in algebra before taking the Q-course Readiness Test. Depending on the student's preparation and course of study, some schools and colleges require entering students to take additional tests in mathematics, foreign languages and English.

Undergraduate Schedule Revision Regulations - Adding Classes	
Semester Period	**Add**
First and second weeks of classes	Touchtone Telephone Registration
Third and fourth weeks of classes	Advisor, Instructor, and Department Head offering course
After the fourth week	All of the above and the Dean

Undergraduate Schedule Revision Regulations - Dropping Classes		
Semester Period	**Single Drop**	**Two or More Drops**
First and second weeks of classes	*Touchtone Telephone Registration with NO "W" grade	*Touchtone Telephone 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 aware of the rules of their individual schools and colleges for using the Touchtone Telephone Registration System.**

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 a student's schedule must be filed with the Registrar. To drop more than one course during the third through the 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.

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 and Pharmacy	19	21 If 5th semester or above and earned 2.6 SGPA or above the previous semester
All other schools	17	18 If earned 2.6 SGPA or above the previous
For a six-week Summer Session, the maximum is 8 credits.		

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.

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 have the permission of the Dean of Students 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.

Adding or Dropping Courses. Detailed instructions for adding and dropping courses appear in the *Directory of Classes*. Students must consult with their academic advisor prior to adding or dropping courses.

A student may add and drop courses from the time that registration opens through

the second week of the semester without special permission. Courses dropped during this period are not recorded on the student's record.

During the third and fourth weeks of the semester, a student may add courses through the Office of the Registrar with consent of the student's course instructor, advisor, and the head of the department offering the course. After the fourth week of the semester, the permission of the student's dean is also required.

If a student drops a course after the second week of the semester, a "W" for withdrawal is recorded on the transcript. From the third through the ninth week of the semester, a student must obtain the advisor's signature to drop one course. To drop more than one course during that period, a student must obtain both the advisor's and the dean's signature.

To drop a course after the ninth week, the student needs the advisor's recommendation and the permission of the dean of his or her school or college. The dean only grants permission to drop a course after the ninth week for extenuating circumstances beyond the student's control. Exceptions are not made for the student's poor academic performance.

Section Changes. Student section changes may be arranged within the department and then filed with the Registrar.

Consent courses. For consent courses, students must get the required consent(s) before adding the course. (See course descriptions)

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, then 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.

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 AUD.

All students planning to audit a course must get an Audit Card from the Registrar, 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 AUD marks on their academic records.

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

Repeating Courses. Unless the Catalog course description states that students may repeat the course for credit, no student shall receive credit toward the degree from the same course more than once.

With the written consent of the instructor and the student's academic dean, students may repeat a course already passed to improve their grasp of the subject. The student will earn no additional credits toward the degree. However, the credits count as part of the student's course load and the student record will include both marks. Also, the grade point average will include the credits and grade points for both marks.

The parenthetical cross-references:
(Formerly offered as . . .),
(Also offered as . . .),
following a course title indicate that a student may not count the credits for both courses toward a degree.

The same 3 digit numerics are not repeatable, i.e. 107, 107W.

Independent Study, Special Topics 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, have it signed and deliver it to the Registrar. 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.

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.

Denial of Space for Non-Attendance. Instructors may deny an enrolled student a place in a classroom when the student attends no class nor laboratory during the first two weeks of the semester. When the instructor denies a student a place in the classroom, the student is still enrolled in the course. Students who continue to absent themselves from class without dropping or withdrawing from the course risk failing the course.

Grading

Grades, Grade Points, Credits, and Skills

Explanation	Final Grades	Grade Points	Course Credit	Skill
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@	na	yes	no
Pass/Fail Failure	F@	na	no	no
Satisfactory	S	na	yes	no
Unsatisfactory	U	na	no	no
Audit	Aud	na	no	no
Withdrawal	W	na	no	no
Continuing Registration	na	na	na	na

Undergraduate Marks: Relation of marks, points, course credits,

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 semester GPA (SGPA) includes all courses graded A-F in a semester or a summer session. The division GPA (DGPA) averages all courses graded A-F in the Lower or Upper Division. The total GPA (TGPA) averages all courses graded A-F in Lower and Upper Divisions. Lower Division students have fewer than 60 credits; Upper Division students have 60 or more credits.

If a student fails a course and then repeats it successfully, the Registrar records the grades and the grade points for both attempts. Note that given an F for a 3-credit course, the points for the course are 0 (0 x 3). Thus, for any grade point average, when a student fails a course, while the point-total does not increase, the credit-total dividing the point-total does increase.

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.

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. If the student completes the work by the end of the third week of the next, registered semester, the instructor will send the Registrar a grade for the course. Otherwise, the Registrar will convert the I to I F. On the academic record, the permanent letter grade submitted for an I follows the I, e.g., I becomes I B. 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 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, registered semester. If by the end of the third week of the next, registered semester the instructor does not send a grade to the Registrar, the Registrar will change the X to X F or X U.

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

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

- L: recorded when the instructor is late in reporting final grades for an entire section.
- 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.

NOTE: 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, L, 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 of registration. 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, L, N, Y do not prevent the calculation of either the semester or the cumulative grade point average. However, in such cases the grade point averages are placed in parentheses on the academic record.

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.

S and U. In a few courses, with the permission of the Senate Committee, Scholastic Standards, 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 without informing the instructor. Since the instructor does not know whether a student has placed a course on Pass/Fail, 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 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 Dean of the College of Continuing Studies to place a course on Pass/Fail. The Dean 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 College of Agriculture and Natural Resources, students may not elect the Pass/Fail option for any course used to meet the English requirement, the group distribution requirements, the course requirements for a major, any course specifically required for a given major, or any other course declared by the College of Agriculture and Natural Resources to not be appropriate for Pass/Fail grading.
2. In the Ratcliffe Hicks School of Agriculture students may not use the Pass/Fail option.
3. In the School of Allied Health Professions, courses taken on Pass/Fail cannot be used to fulfill specified course requirements.
4. In the School of Business Administration, students may not elect the Pass/Fail 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.
5. In the School of Education, students may not elect the Pass/Fail option to fulfill School of Education graduation requirements, University distribution requirements, courses offered in the School of Education which are required for certification as a teacher, major area course work within the School of Education, nor for the 24-36 credits of major course work, as required by specific programs.
6. In the School of Engineering, no course taken on Pass/Fail may be counted for credit toward graduation or be used to meet any course requirement.
7. In the School of Family Studies, courses in the major field and related field cannot be taken on Pass/Fail. No 100-level courses in Family Studies, required as prerequisites to a major, may be taken on Pass/Fail.
8. In the School of Fine Arts, courses taken on Pass/Fail cannot be used to fulfill the English requirement, the distribution requirements or any course requirement in the student's major department or related field(s).
9. In the College of Liberal Arts and Sciences, courses taken on Pass/Fail cannot be used to fulfill the College requirements or the 36 credits in the area of concentration (major and related groups).
10. 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.

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. Without special permission from the dean, the instructors of Undergraduate courses must give a written examination at the end of the semester. Independent study courses, seminars, practicums, laboratory and similar courses do not require final examinations if the instructor had approval from the dean before the semester began. Instructors may give seniors oral final

examinations. Instructors of courses numbered 300 and above give written final examinations at their discretion.

Instructors determine the weight assigned to the final examination in computing the final grade.

Final Examinations for Courses Given at Non-standard Times. In undergraduate courses scheduled by arrangement or at non-standard times, instructors give the final examinations during the last class meeting or meetings. 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. If, due to extenuating circumstances, a student cannot take a final examination as announced in the Final Examination Schedule, the student must ask permission from the Dean of Students Office to reschedule the examination. When the student has permission to reschedule, the instructor will schedule it at a time agreeable to both. (See X under Grading System.)

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. The Dean of Students Office will select one of the examinations for rescheduling and notify the instructor, usually with a letter given to the student.

Grade Reports. Instructors of undergraduate courses notify students of their mid-semester progress before the end of the eighth week of the semester. Instructors intend the marks to help students evaluate their progress. Students with low marks should consult with the instructor and their advisor. The instructor and department head have responsibility for notifying students. The Registrar does not receive the marks and they do not become a part of the permanent record.

At the end of each semester, the instructor sends course grades to the Registrar, and the Registrar notifies students of their final grades.

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, senior. However, semester standing may be related to these traditional terms as indicated below.

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 below have been earned.

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)

Lower and Upper Division Status. Students are in the Lower Division until they have earned at least 60 credits. Students are in the Upper Division the semester after they have earned 60 or more credits. Note that the graduation grade-point requirement is based on Upper Division credits.

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 fewer than a full-time course load per semester can be determined eligible for Dean's List status. The Office for Students with Disabilities will notify the Registrar each semester regarding students who are eligible.

Scholastic Probation. Scholastic probation is an identification of students whose scholastic performance is below University standards. The student and the student's counselor or advisor 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 completed their first Lower Division semester and who have earned less than a 1.6 semester grade point average. Students shall be considered in the Lower Division until they have earned at least 60 credits. Division semester standing is determined by the number of calendar semesters completed.
2. Students who have completed their second Lower Division semester and who have earned less than a 1.8 semester grade point average for that semester.
3. Students who have completed their third Lower Division semester and who have earned less than a 1.9 semester grade point average for that semester.
4. Students who have completed their fourth Lower Division semester or more and who have earned less than a 2.0 semester grade point average for that semester.
5. Students who have completed their first Upper Division semester or more and who have earned less than a 2.0 semester grade point average or Upper Division cumulative grade point average. Students shall be considered in their first semester in Upper Division after they have earned 60or more credits unless an exception is made by the dean of their school or college on recommendations of their academic counselors.
6. All full-time students as determined by initial registration, who have earned fewer than 9 credits during the last semester for which they were enrolled unless they fall below 9 credits because they were granted permission to drop courses.
7. All part-time students who at the end of the semester have earned less than 60% of the credits for which they were initially registered unless they fall below the 60% minimum because they were granted permission to drop courses.

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.

Warning letters will be sent to students who have completed their first, second, or third Lower Division semesters with less than a 2.0 semester grade point average.

Except for students who have been dismissed at the end of the spring semester, credits and grade points earned in a summer session of the same calendar year will be counted as part of that spring semester.

Dismissal. Students who fail to meet the minimum scholastic standards for two consecutively registered semesters, or for three in the same division, or for a total of four in their academic career, are 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.

A student who attains less than one-half of the stated scholastic probation minimum standards at the close of any semester is subject to dismissal.

The scholastic records of those students subject to dismissal are reviewed by Dean of Students Office and the School/College. For extraordinary reasons, students may be allowed to continue at the University on restricted scholastic probation. A student who has been dismissed from the University for academic reasons may not register for courses as a non-degree student without the approval

of the dean of the College of Continuing Studies, who will inform the dean of the student's previous school or college about the decision made.

Students who are subject to dismissal but who are permitted to continue may not hold office in any University registered club or organization or serve on any University committee, and they may not take part in any activity related to extracurricular public musical or dramatic performances or public athletic contests and may be subjected by the Dean of Students to other conditions for their continuance.

No students who have earned the minimum number of credits required for graduation, but who have earned fewer than twice as many grade points as the number of calculable credits for which they have been registered in the Upper Division, may continue in the University without the consent of the Dean of Students on the recommendation of the major department heads and academic deans.

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

Dismissed students are not permitted to live in residence halls the semester following their dismissal.

Students who have been dismissed may, during a later semester, request an evaluation for readmission to the University by applying to the Dean of Students Office. Any dismissed student planning readmission to the University should contact the Dean of Students Office to discuss their individual academic situation. Readmission will be considered favorably only when the evaluation indicates a strong probability for academic success. Readmission can occur only after one regular semester has elapsed since the student was dismissed. In their first regular semester after readmission, dismissed students may not hold office in any University registered club or organization or serve on any University committee, and they may not take part in any activity related to extra-curricular public musical or dramatic performances or public athletic contests and may be subjected by the Dean of Students to other conditions for their continuance.

Supplementary Scholastic Standards. In addition to the minimum scholastic standards described above and applicable to all University students several of the schools have supplementary requirements as follows:

1. The School of Allied Health Professions requires a division grade point average of not less than 2.2 in order to gain admission to the junior year program course sequence and/or Upper Division. Thereafter students will be dismissed if there is a semester in which they earn a grade point average below 2.2; their division grade point average drops below 2.2 at any time.
2. Students admitted to the School of Business Administration must earn a minimum 2.2 grade point average by the end of the semester in which they earn a minimum of 24 credits of graded coursework at the University of Connecticut to be guaranteed continuation in the School. Students must also earn a minimum 2.6 grade point average in all of their Lower Division courses, including having made substantial progress toward completing those courses which are prerequisites to the entry level business courses, in order to be guaranteed continuation to the Upper Division/ Junior Year in the School of Business Administration. Students accepted to the School of Business Administration must maintain a minimum grade point average of at least 2.0 in their semester grade point average, their divisional grade point average and in all calculable credits in the School of Business Administration courses for which they have been registered. Students who fail to maintain the minimum grade point average in any of these areas are subject to dismissal from the School of Business Administration. 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 semester and meet the 2.0grade point average for the semester, division, and business courses or be subject to having their acceptance rescinded.
3. To be admitted to the Upper Division in programs in Kinesiology (Neag School of Education), a student must complete the Lower Division with at least a 2.0 cumulative grade point average. Kinesiology students are required to enroll in a minimum of nine credits of course work required by the program guidelines each semester of full-time study, unless upon the recommendation of their advisor and the department head, an exception is granted by the dean of the school.
4. The School of Engineering requires a cumulative grade point average of at least 2.0 in all courses in Mathematics, Physics, Chemistry and Engineering applicable toward the degree in order for a student to be admitted to the junior year in his/her selected major.
5. Fine Arts students are required to enroll in a minimum of six credits in major department courses (Art, Dramatic Arts or Music) each semester of full-time study unless, upon recommendation of their department head, an exception is granted by the dean of the school. Students must maintain at least a 2.3 cumulative grade point average in all major department courses (Art, Dramatic Arts or Music) until completion of degree requirements. Students who fail to comply with the minimum credit requirement or maintain the minimum grade point average are subject to dismissal from the school.
6. A student in the School of Nursing must have a cumulative grade point average of at least 2.5 in those courses listed in the Lower Division course sequence, and a grade of C+ (2.3) or better in the following courses: Chemistry 127, 128; Philosophy 212; Science 240, or Nursing 202;Physics 101; and Biology: PNB 264, 265 in order to gain admission to the junior year. 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 School of Nursing for which another course in the School is a prerequisite unless that student has earned a grade of C (2.0) or better in that prerequisite course. No student may progress to the 2ndsemester junior year until all required 1st semester junior year courses have been completed. No student may progress to the senior year until all courses in the junior year sequence have been completed. No nursing course may be repeated more than once (for a total of two times). Students will be dismissed if there is more than one semester in which they earn a semester grade point average below 2.0 in required nursing courses. A cumulative grade point average of 2.0 or above in all required nursing courses is required for graduation.
7. Admission to the School of Pharmacy professional program is competitive, with strong emphasis on the cumulative grade point average in Biology 107,Biology: MCB 203 and 229; Chemistry 127, 128, 243 and 244; Math 115, and Physics 121, or their equivalent, with no grade less than C. Thereafter, 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. A cumulative grade point average of 2.0 or above in all required Pharmacy courses is required to enroll in clinical clerkships/rotations; a cumulative grade point average of 2.0 or above in all Pharmacy/University courses is required for graduation.
8. Students in the Ratcliffe Hicks School of Agriculture are eligible for dismissal if their first semester grade point average is less than 1.2.

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 an Assistant to the Dean of Students, 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 final examinations officially begin. (See the University Calendar for dates.) Students who officially withdraw will not receive credits, or "F's" 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. It is understood that when such permission is sought the Dean 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.

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. The attention of such students is called to the fact that special permission is needed to count courses taken more then eight years before graduation.

All students withdrawing from the University for any reason must complete the proper forms through the Dean of Students Office.

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 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) and is entered on the student's official transcript. 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 and frequently a representative of the student's school or college. Leaves are granted only to students in good academic standing, 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.

Readmission. A student seeking readmission to the University must apply to the Dean of Students Office. Applications for readmission are accepted beginning February 15th and ending on July 1st for the fall semester, and beginning September 15th and ending on December 1st for the spring semester. 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 Vice Provost 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.

Disciplinary expulsion or Suspension. Disciplinary expulsion or suspension may be incurred as a result of unsatisfactory conduct. This action is recorded on the permanent academic record of the student. For complete rules, regulations and procedures, consult The Student Code.

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. 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, the CLAS Academic Services Center.

Change of Campus. Students wanting to change from Storrs to a regional campus should contact the Office of the Registrar on the Storrs campus. Regional campus students wanting to change to Storrs or another regional campus should consult their regional campus registrar or office of Student Affairs.

Transfer Credits for Continuing Students. Students wanting 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 get a Request to Transfer Credit Form from the Transfer Admissions Office and submit an official transcript of the work as soon as it is completed. Ordinarily, the student must complete the last two semesters at the University of Connecticut. (See Residence Requirement) Transfer credits must have a grade of "C-" (1.7 on 4.0 scale) or above. 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.

Honors Programs

The University offers several honors programs to able, highly motivated students. Some of the programs involve extensive study and research in one of the major fields; all give recognition to superior academic achievement. The Dean's List and Cum Laude designation are awarded to students who rank high in their schools or colleges. The Degree with Distinction requires special study for one year. The Honors Scholar Program is a rigorous, two- to four-year academic opportunity. Graduation as a University Scholar is the highest academic honor that the University of Connecticut bestows on undergraduate students.

Honors Scholar Program. The Honors Scholar Program is designed to provide a nationally competitive academic program for capable students. The two-to-four year program (with a six year option in Pharmacy) enriches the academic experience of students in all majors by offering the challenges of more in-depth study and considerable opportunity for independent projects or research. This is a program for students who are both scholastically capable and educationally ambitious. Participation in the program influences the quality and character of a student's education. The Honors Scholar Program is an educational process, not just a labeling function.

The Honors Scholar designation ranks higher than the Distinction designation. The Honors Scholar Program, especially at the Upper Division level, is more flexible than the Distinction Program. Each department is responsible for an Upper Division program that is meaningful for that discipline.

Admission and Retention: Qualified entering freshmen at Storrs are invited to join the Honors Program upon acceptance to the University. Selection is based on ability as measured by Scholastic Aptitude Test scores and high school class rank, and the nature and number of academic high school courses. Other incoming students may apply and will be considered on a space available basis. Students need not begin in the program as freshmen. Undergraduate students who are doing well academically are encouraged to apply for the program, and faculty should also refer qualified students to the program. A student must be identified as an Honors Scholar before the start of the junior year (fifth year in Pharmacy). Exceptions are sometimes made by the Honors staff with consent of the Honors Programs Board of Associate Directors. To remain in good standing, students in the Honors Scholars Program must have a TGPA of at least 3.0 during their first and second semesters and, thereafter, a TGPA of at least 3.2.

Curriculum: Honors Scholar students follow the curriculum requirements of their major, but utilize honors courses and honors projects in their plan of study. Honors courses instructors teach their subject with unusual breadth and depth, asking from the student extra preparation as well as self-motivation. Honors students are challenged to demonstrate creative and imaginative analysis of problems and issues, and to write and speak well. Honors students are not, however, graded against higher scholastic standards. Because the caliber of students in Honors courses is higher, the grade distribution in Honors courses is also expected to be higher than the normal grade distribution of non-Honors courses.

Lower Division Honors Certificate. The University of Connecticut will award the lower division Honors Certificate to students who during their freshman and sophomore years earn a minimum of 18 honors points, have a TGPA of at least 3.2 at the end of their sophomore year, and attend at least two Mini-Courses or Journeys seminars. One academic Honors credit is equal to one honors point. Successful completion with Honors credit of INTD 198, Freshmen Honors Seminar, is equal to three honors points (may only be taken once). Successful completion of the Honors Experience is equal to three honors points (may be used once). Students may take part in the Honors Experience by participating in and documenting their involvement in at least ten activities (in addition to the two required Mini-Courses or Journeys seminars) with at least one activity from each of the five categories: Cultural Activities; Multicultural/Diversity Activities; Community Service Activities; Honors Activities; and University Activities. Students who desire to use the Honors Experience must keep a journal of their activities on the reporting forms available through the Honors Programs Office. This will provide a timely summary of their activities as a requirement of the lower-division Honors Certificate. Only one Honors Experience may be applied toward the Lower Division Honors Certificate.

Upper Division Program: Before the junior year (fifth year in Pharmacy) Honors Scholars must be recommended by their departments to pursue further honors work in their majors. During the junior-senior years students are required to complete at least twelve credits of honors work in major 200-level courses, including at least three credits in independent study aimed toward an honors thesis. Honors credit for Upper Division course work is generally attained by independent honors projects associated with 200-level courses, honors seminars in the major, graduate level course work, and/or independent research. Students who have TGPAs of at least 3.2 at the conclusion of the undergraduate programs and who complete satisfactorily their departments' Upper Division honors requirements will graduate with the designation of Honors Scholar in their major field.

University Scholar Program. Each year the Associate Directors of the University's Honors Programs select up to 30 juniors for admission into the University Scholar Program. This prestigious program is for motivated students who wish to pursue nontraditional programs of study of their own creation. Graduation as a University Scholar is the highest academic honor that the University of Connecticut bestows on undergraduate students.

Once selected, a University Scholar candidate is allowed to pursue an academic program tailored to his or her unique intellectual interests and abilities. The program can be interdisciplinary within a single college; it can be a mixture of courses from different colleges, which could lead to a dual degree; it can include graduate studies in addition to undergraduate courses. A three-person faculty committee supervises a University Scholar candidate's program. The Associate Directors, in consultation with the student's committee and, under exceptional circumstances, sometimes can waive certain college and departmental requirements for a University Scholar candidate, in order to give the student sufficient flexibility in scheduling to explore unique interests in depth. The University waives the General University Fee for every University Scholar candidate for the remainder of his or her undergraduate program.

Every summer, the Director of the Honors Program invites fifth-semester (ninth-semester in the School of Pharmacy) students with outstanding scholastic records to apply for this program. The Associate Directors determine the GPA cutoff for the issuance of invitations. Students should have at least 54 calculable credits at the University of Connecticut and are expected to be enrolled in the University Scholar Program for the last three semesters at the University. Interested students must complete an application form and write an essay that describes (1) a subject matter, topic, or issue that greatly interests him or her, and (2) the set of courses that would enable the student to explore his or her interests in depth. In October, a committee of the Associate Directors selects recipients for the award according to the creativity, clarity, detail, and thoughtfulness of the applicants' proposed research projects and programs of study.

Participation in the University Scholar Program is noted on students' permanent records.

Degree with Distinction Program. The Degree with Distinction is offered at the discretion of Departments wishing to recognize exceptional mastery of a discipline. While the award does not demand the degree of rigor and amount of commitment that are required of University Scholars and Honors Scholars, it does require scholarly work significantly beyond the normal requirements for graduation. Students who graduate as University Scholars or Honors Scholars may not also receive the Degree with Distinction. The designation is entered on the diploma and transcript and is announced at Commencement exercises.

Requirements: A Degree with Distinction candidate must work closely with a faculty sponsor who will help design a program of study appropriate for the student. Every successful candidate must attain upon graduation:

1. a grade point average in major courses of at least 3.5, and
2. a total grade point average of at least 3.2.

Finally, every candidate must complete a project, defined by the Department, that demonstrates a high level of competence within the discipline. Possible Distinction projects include extensive literature-review essays, artistic compositions, and/or original laboratory research. Students must have their project proposals approved by their faculty sponsor and the Department's Honors Advisor, and must submit an application before the fourth week of the next-to-last semester. These are minimum University-wide requirements. Every Department has the right to add further Distinction requirements, such as a comprehensive examination. The definition of major courses is left to the Department, but ordinarily includes 200-level and above courses.

Nomination: Students interested in the Degree with Distinction Program should discuss their options with their Departments' Honors Advisors, and may obtain applications at the Honors Programs Office. Applications are due at the Honors Programs Office by the fourth week of the semester before the candidate is to graduate. Enrollment in the Honors Scholars Program is not required for participation in the Degree with Distinction Program.

Detailed and updated information about many of the topics in this section is available on the Internet.
Refer to the Internet Index on page 201.

Office of the Registrar
http://www.registrar.uconn.edu/

International Affairs
http://www.ia.uconn.edu/

Undergraduate Catalog
http://www.catalog.uconn.edu/

Study Abroad/Study Away
http://www.ucc.uconn.edu/~wwwsab/

College of Agriculture and Natural Resources

Kirklyn M. Kerr, B.S., D.V.M., M.S., Ph.D., *Dean,College of Agriculture and Natural Resources*
Suman Singha, Ph.D., *Associate Dean, College of Agriculture and Natural Resources*
Patricia Jepson, M.A., *Academic Advisory Center Director*

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 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 and Natural Resources is supported by both federal and state appropriations and contributions from the private sector.

The College maintains livestock, greenhouses, forested lands, gardens, orchards, and other related operations to supplement and enhance instruction, research, and service programs. The Northeastern Research Center for Wildlife Diseases, the Center for Environmental Health, the Water Resources Center, and the Food Marketing Policy Center are also integral parts of the College of Agriculture and Natural Resources.

The following departments offer undergraduate instruction in the College: Agricultural and Resource Economics, Animal Science, Natural Resources Management and Engineering, Nutritional Sciences, Pathobiology, and Plant Science. 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.

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

Scholarships. Over $150,000 in scholarships and awards are available to students in the College of Agriculture and Natural Resources.

Faculty Advisors. Faculty advisors are assigned to students upon entry into the College of Agriculture 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 for the Baccalaureate that will meet educational and career goals.

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 degree credits; (2) earned at least a 2.0 grade point average for the total number of calculable credits for which they have been registered; (3) earned at least a 2.0 grade average for all calculable Upper Division course work; (4) met all the requirements of the University of Connecticut and the College of Agriculture and Natural Resources.

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 fourth week of classes of the semester in which a student expects to graduate.

General Education Requirements

All students in the College of Agriculture and Natural Resources must meet the University-wide General Education Requirements (GER) as described in the Academic Regulations section of this *Catalog*. Students must select approved courses to meet requirements.

36 Credit 200-Level Requirement for All Majors

Students in all majors in the College of Agriculture and Natural Resources must successfully complete at least 36 credits of **200-level 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 200 or above
2. be approved by the student's advisor and department head
3. be taken at the University of Connecticut[1]
4. be taken in two or more departments
5. include at least 15 credits from departments in the College of Agriculture and Natural Resources.
6. have a combined grade point average at least 2.0
7. not include more than 6 credits of independent study or internship
8. not be taken on Pass/Fail

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, professional service, education, communications, product development, international development, environmental protection, and community resource development. Students interested in agricultural education should refer to the School of Education section of this *Catalog*. 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 Bachelor of Science degree.

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

Agriculture and Natural Resources

This interdisciplinary major is designed for students who want broad training in agriculture and natural resources. Students work with their advisors to develop a personalized program of study.

Agronomy

This major offers two areas of concentration. Turfgrass Science includes the management of lawns, golf courses, athletic fields, roadsides, erosion control sites, and other areas where grasses are grown. The Soil Science option prepares students for professional certification. Courses focus on soil identification and suitability for different uses. (For detailed information, please refer to www.canr.uconn.edu/plsci)

Agronomy majors must pass the following courses:

Biology 110
Chemistry 122 or 127
Plant Science 213 or MCB 259
Plant Science 250
In addition, agronomy majors must earn a minimum of 9 credits from courses in Biology[2], Chemistry, Computer Science, Geology and Geophysics, Mathematics[3], Physics, Statistics[4].

Animal Science

This major provides seven options leading to the B.S. degree: Pre-professional (veterinary medicine or graduate training), Biotechnology, Business/Service, Equine Sciences, Food Science, Environmental Health, and Production Management. Minors in Dairy Management and in Food Science are also available. (For detailed information, please refer to: www.canr.uconn.edu/ansci)

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[1] Transfer students should refer to the "Transfer Students" statement included in this section.
[2] Students may not receive more than 12 credits for courses in Biology at the 100's level.
[3] Math 101 cannot be used to meet this requirement.
[4] See Statistics section for credit restrictions.

Animal Science majors must pass the following courses:

Group A. (All of the following): ANSC 120, 216, 217, 219, 295, PVS 200, BIOL 107, CHEM 122 or 127Q

All students must pass a total of 4 courses from Groups B and C. This must include at least one course from Group B and at least 2 courses from Group C.

Group B: ANSC 235, 254, 269, 273, 275

Group C: ANSC 222 or ANSC 222W, 224, 226, 229, 253 or 253W. Either MCB 203, 204 or 229 can fulfill one of the Group C requirements.

The Department of Animal Science offers a minor in Dairy Management and in Food Science. These are described in the *Minors* section of this *Catalog*.

Environmental Science

The major in Environmental Science 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 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 science and related fields.

Environmental Science majors must pass the following core requirements:

A. 100's Level Course Work (49-52 credits)
BIOL 107, 108 or 110
CHEM 127, 128
ECON 112 or ARE 150
GEOL 102
MARN 170
MATH 115, 116 or 112, 113, 114
PHYS 131, 132 or 121, 122, 123
STAT 100, 110 or 220

B. 200's Level Course Work (30-31 credits)

Environmental Policy and Law
Select one course from:
ARE 234(W) -Environmental and Resource Policy
NRME 240 - Environmental Law

Environmental Economics
ARE 235 - Environmental and Resource Economics

Atmospheric Science
Select one course from:
NRME 241 - Meteorology
NRME 271 - Environmental Meteorology

Terrestrial Systems
GEOL 251 - Earth Surface Processes

Hydrosphere Dynamics
Select one course from:
EEB 247 - Limnology
GEOL 234 - Introduction to Ground Water Hydrology
MARN 220Q - Environmental Reaction and Transport
MARN 270 - Descriptive Physical Oceanography
NRME 211 -Watershed Hydrology

Ecological Interactions
EEB 244(W) - General Ecology

Human Impact
GEOG 236 - Human Modifications of Natural Environments

Environmental Health
ANSC 226 - Environmental Health

Chemical and Microbial Reactions
Select one of the following two-course options:
1. CHEM 243, 244 (Organic Chemistry)
2. CHEM 141 (Organic Chemistry) and MCB 229 (Fundamentals of Microbiology) or MCB 203 (Introduction to Biochemistry)
3. CHEM 141 (Organic Chemistry) and GEOL 235 (Chemical Hydrogeology).

In addition to these core requirements, all students majoring in Environmental Science must also fulfill the requirements of a concentration in a discipline associated with the program before graduation. Approved concentrations are listed below: all consist of 4 or 5 courses in a specialized field, including a field course or an internship experience.

Resource Economics (Agricultural and Resource Economics) - Students must pass the following courses: ECON 218(Q), ARE 257, ARE 297. Additionally, students must pass at least two of the following: ARE 238, 255(W), 285, 215C

Environmental Health (Animal Science) - Students must pass courses in the categories listed:
Molecular and Cellular Biology: Choose any two: MCB 200, 211, 215, 229
Animal Science: Students must pass the following: ANSC 221, 224, 225
Other Departments: choose one of the following: NUSC 236, PVS 200, PVS 297, PHAR 241, PHAR 281, PNB 250(W)

Natural Resources (Natural Resources Management and Engineering) - Students must pass five courses from the following group: NRME 204, 205, 210, 214, 217, 237, 239W, 242, 260P, 287

Soil Science (Plant Science) - Students must pass the following courses:PLSC 205, 250, 259C
In addition, students must select two courses from the following: NRME 260P, PLSC 253(W), 258, 372, 375, 377, 378

Environmental Sciences also offers the following concentrations through the College of Liberal Arts and Sciences. For complete descriptions of their requirements, refer to the Environmental Science description in the *College of Liberal Arts and Sciences* section of this *Catalog*:
Environmental Chemistry (Chemistry)
Environmental Biology (Ecology and Evolutionary Biology)
Environmental Geography (Geography)
Environmental Geoscience (Geology)
Marine Science (Marine Science)

Horticulture

The Horticulture major offers courses in the commercial production of vegetables and fruits, propagation and production of woody and herbaceous ornamental plants, and the identification, uses, and maintenance of plants in landscapes and gardens. The Plant Biotechnology option includes micropropagation and the application of molecular methods to genetic improvement of plants. (For detailed information,please refer to www.canr.uconn.edu/plsci)

Horticulture majors must pass the following courses:
Biology 110 Chemistry 122 or 127Q
Plant Science 250 Plant Science 238
Plant Science 213 or Biology (MCB 259)
One of the following:
Agricultural and Resource Economics 150 or 215C
Economics 112 or 113 Accounting 131
One of the following:
Plant Science 260, 261, or 231 Biology (EEB 272)
Natural Resources Management and Engineering 214
Two of the following:
PLSC 203, 204, 257, or EEB 288 or equivalent
Two of the following:
Plant Science 212, 225, 227, 240, 240W, 244, 245, 263, 264, 289, or 292

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.canr.uconn.edu/plsci)

Landscape Architecture majors must pass the following courses:
Biology 110
Chemistry 122 or 127Q
Plant Science 250
Plant Science 213 or MCB 259
Plant Science 252, 255, 256, 260, 261, 262, 263C, 265, 266, 267, 271, 275, 276, 277, 280, 281, 290W, 293

Accreditation and space restrictions necessitate that the number of students in the Landscape Architecture program be limited. All students admitted into the Landscape Architecture program will be evaluated at the end of their third semester (or middle of their sophomore year). Students will be allowed to continue in the program based upon their TGPA, successful completion of recommended courses during their first and second semester, and grades earned in the introductory Landscape Architecture courses offered during the third semester (PLSC 255: Landscape Design Drawing, and PLSC 275; Landscape Design). Students who do not meet these requirements may want to consider other majors including Horticulture or the turf option in Agronomy. (For detailed information, please refer to www.canr.uconn.edu/plsci)

A minor in Landscape Design is described in the *Minors* section.

Natural Resources

This major, offered by the Department of Natural Resources Management and Engineering is concerned with the application of scientific principles and modern technology to the understanding and management of natural resources and the systems of which they are a part. Students can pursue a general interdisciplinary set of courses, or concentrate in a specific discipline such as air, fisheries, forest, water, or wildlife resources, or geographic information science and remote sensing. (For detailed information, please refer to: www.canr.uconn.edu/nrme)

Natural Resources majors must pass the following courses:
Natural Resources Management and Engineering 100, 239W, 242, 252, 256, 295
Plant Science 250
Biology (EEB) 244 or 244W
Mathematics 113 or 115
One course in Chemistry
One course in Statistics
One course in Physics or Geology

Students must also earn an additional 12 credits in NRME courses, numbered 200 or above.

Nutritional Sciences

Options in this major are: Dietetics, Preprofessional Program in Nutritional Biochemistry, Nutrition for Exercise and Sport, Food Science, and Nutrition Fundamentals. The Didactic Program in Dietetics at the University of Connecticut is currently granted Developmental Accreditation by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 216 Jackson Blvd., Chicago, IL, 60606-6995 or phone (312) 899-4876. Other areas where Nutritional Sciences graduates may be employed include nutrition education in the community and in schools, sport nutrition centers, cooperative extension, food companies, and food service management. (For detailed information, please refer to: www.canr.uconn.edu/nusci)

Nutritional Sciences majors must successfully complete the following courses:
Nutritional Sciences 165
Nutritional Sciences 200
Chemistry 127 and 128, or Chemistry 122
Chemistry 141, or 243 and 244
Biology (PNB) 264 and 265, or Biology 107, 108 and (PNB) 250
Biology (MCB) 203 or 204 or 229

In addition to the courses listed above, a minimum of 8 credits, numbered 200 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 8-credit requirement. Specific course recommendations are listed in the *Programs Available* brochure in the department.

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.canr.uconn.edu/patho)

Pathobiology majors must pass the following courses:
PVS 297
One course in Microbiology: MCB 229
One course in Biochemistry: MCB 203 or MCB 204
One course in Genetics: MCB 200, MCB 213, or ANSC 217
One course in Nutrition, Immunology, or Cell Biology: ANSC 216, NUSC 165, MCB 210, MCB 211, or MLS 208W
Three of the following courses: PVS 200, 202, 235, 248, 252, 256, 296

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. Options in this major are: Agribusiness Management or Environmental Economics and Policy. These prepare students for a wide variety of careers in the business and government sectors, or to pursue graduate studies.

Resource Economics majors earn a minimum of 15 credits, numbered 200 or above, from courses in the Department of Agricultural and Resource Economics, and a minimum of 9 credits, numbered 200 or above, from recommended courses outside the Department. (For detailed information, please refer to: www.are.uconn.edu/)

A minor in Agribusiness Management is described in the *Minors* section.

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 of approved 200 level courses. Requirements for declaring and completing an Individualized Major are listed below:

- Students must be in good academic standing with a minimum GPA of 2.0 to declare an Individualized Major.
- Students must submit a proposed statement of purpose and identitfy three faculty members who are willing to serve as an advisory committee.
- An Individualized Major has a minimum of 36 credits from 200 level courses which must:
  - be from two or more departments
  - include at least 18 credits from departments in the College of Agriculture 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 2.0
  - include no more than 6 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 and Natural Resources

Double Major Option. Students may elect to complete requirements for two major fields of study offered by the College of Agriculture 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. Once an approved declaration has been submitted to the Degree Auditor, the student must complete the requirements for both majors in order to graduate. Withdrawal of the Double Major Declaration requires the approval of the Associate Dean. 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 200-level course work *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 200 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 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.

The College of Agriculture and Natural Resources offers Minors in Agribusiness Management, Aquaculture, Dairy Management, Food Science, Landscape Design, and Nutrition for Exercise and Sport. All of these are described in the *Minors* section of this *Catalog*.

Pre-veterinary Medicine Programs. Prerequisites for entry into a professional curriculum in veterinary medicine may be obtained by majoring in Animal Science or Pathobiology. The Animal Science major is most appropriate for students interested in biotechnology, physiology, nutrition, genetics, behavior, or production and management. Pathobiology is appropriate for students interested in biomedical science, medical biotechnology, ecology of diseases, anatomy, microbiology, or diseases of wildlife.

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.

Transfer Students. Transfer students can use transfer credits to meet General Education requirements and 100-level course requirements in a specific major. Transfer students may apply a maximum of six credits of 200-level work toward the 36 credit requirement for a major. 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 200-level course work at the University of Connecticut, including at least 15 credits in College of Agriculture and Natural Resources courses.

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 require approval of the Vice Provost for Undergraduate Education and Instruction.

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.

College of Agriculture and Natural Resources Website

http://www.canr.uconn.edu/

School of Allied Health

Joseph W. Smey, Ed.D., P.T., *Dean, School of Allied Health*
Cynthia H. Adams, Ph.D., *Associate Dean, School of Allied Health*
Ellen Darrow, B.A., *Director, Academic Advisory Center*

Major Programs of Study

Cytotechnology
Diagnostic Genetic Sciences
Dietetics
Individualized Major
Medical Technology
Physical Therapy: Integrated BS/MS

Health

In addition to pre-entrance University requirements, students admitted to the School of Allied Health 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 programs are required to have Hepatitis B Immunization. In compliance with the OSHA Bloodborne Pathogen Standard the School of Allied Health will provide annual mandatory educational sessions for all students. Students who fail to provide written documentation that they have met the above stated health and OSHA requirements will ***not*** be allowed in the clinical setting.

CPR

A current certificate in cardio-pulmonary resuscitation (professional level) is a prerequisite for entry into the Upper Division for all programs and must be kept current until graduation.

Clinical Experiences

Each of the curricula of the School require education experiences in clinical settings. Assignment to clinical placements is contingent upon completion of the appropriate prerequisite course work and the judgement of the faculty of the preparedness of the student for safe practice.

Fees and Expenses

Students can expect fees to approximate those of other University students. However, the professional courses have added expenses for texts, uniforms and clinical travel. Students are responsible for their own transportation to the clinical agencies. 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.

During periods spent full-time in the affiliated areas off-campus, it is the responsibility of the students to find living quarters and to provide their own maintenance.

Insurance

It is mandatory that all students in the Upper Division carry comprehensive health insurance, either privately or through the University.

All students in the professional phase of their curriculum are *required* to carry specific professional liability insurance under the blanket University policy. Students will automatically be billed for this on the University fee bill.

Academic Requirements

The School of Allied Health requires a cumulative grade point average of not less than 2.2 in order to gain admission to the junior year program course sequence and/or Upper Division. It should be noted that admission to programs in the School of Allied Health is competitive. Thereafter students will be dismissed if there is a semester in which they earn a grade point average below 2.2; their Upper Division grade point average drops below 2.2 at any time. A "C" or better in all courses in the School of Allied Health, is required for graduation. No student may take a course in the School of Allied Health for which another course in the School is a prerequisite unless that student has earned a grade of "C" or better in that prerequisite course.

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 at least 120 credits, (2) earned at least a 2.2 grade point average for all calculable Upper Division course work, (3) met all requirements of the School of Allied Health.

The requirements which must be met are stated in detail in the plan of study current at the time of the student's entry into the junior year program or the time of the student's admission or readmission to the School, whichever is later.

Exemptions and Substitution

Students who desire to be excused from any of the requirements, or to substitute other courses for those prescribed, should consult the director of the program in which the student is enrolled. Such exemptions or substitutions must be approved by the Director of the Academic Advisory Center.

Admission

The School of Allied Health is an upper division professional school. Admission is competitive. To apply, students must have earned a minimum of 60 credits, completed all University General Education requirements, and satisfied the prerequisite science courses of the program 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*. However, physical therapy students must begin their course work *during the Summer* following their admission. The Physical Therapy program **DOES NOT** admit transfer students.

University General Education Requirements

The University General Education requirements are listed in detail in the *Academic Regulations* section of this *Catalog*. The course requirements listed below **IN EACH SPECIFIC PROGRAM** are those of the School of Allied Health and as indicated in each group satisfy the University's General Education requirements.

Cytotechnology Program

Cytotechnology is a laboratory specialty in the field of cytology. Cytotechnologists aide in the early detection of cancer by examining specimens from various body sites to distinguish normal, abnormal, and cancer cells.

The Cytotechnology Program is offered in conjunction with the UConn Health Center which holds accreditation through the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the United States Department of Education (DOE). Graduates are eligible to take the certification examination administered by the American Society of Clinical Pathologists (ASCP) immediately upon graduation.

Curricula in Cytotechnology

University General Education Requirements

Group 2. Expository Writing
- A. Allied Health 241W - Research for the Health Professional
- B. Medical Laboratory Sciences 208(W) - Immunology for the Medical Laboratory Sciences

Group 3. Mathematics
- C. Required Q courses:
  1. Math 109Q - Algebra & Trigonometry
  2. Statistics 110V - Elementary Concepts of Statistics
- D. Required C course: Statistics 110V - Elementary Concepts of Statistics

Group 8. Science and Technology
- A. Chemistry 122 - Chemical Principles and Applications
- B. Biology 107 - Principles of Biology

Major Requirements

Related Science Courses

A. Chemistry 141 - 142 - Organic Chemistry
B. Biology Option: Biology 103 - The Biology of Human Health & Disease *or* a course in Anatomy and Physiology *or* Biology 108 - Principles of Biology *or* a Biology course pre-approved by the Cytotechnology Program Director
C. Pathobiology 296 - Histologic Structure & Function
D. Pathobiology 297 - Principles of Pathobiology

Professional Courses

A. **Allied Health**
241W - Research for the Health Professional
243 - Health Care Issues for the Health Professional
244 - Management for the Health Professional
B. **Medical Laboratory Sciences**
200 - Basic Laboratory Techniques in Medical Laboratory Sciences
206 - Anatomy & Physiology for the Medical Laboratory Sciences
208(W) - Immunology for the Medical Laboratory Sciences
C. **Cytotechnology**
220 - Cancer and Your Health
221 - Introduction to Cancer and Diagnostic Cytology
243 - Cytology and the Female Genital Tract
244 - Cytology of the Respiratory Tract
245 - Cytologic Techniques
246 - Cytology of the Alimentary Tract
247 - Cytology of the Miscellaneous Fluids
248 - Cytology of Aspiration Biology
249 - Senior Seminar in Cytotechnology
250 - Clinical Practicum

Diagnostic Genetic Sciences Program

Diagnostic Genetic Sciences encompass two diagnostic fields: Medical Cytogenetics and Molecular Diagnostics. Medical cytogenetic technologists study blood, bone marrow, tissue and amniotic fluid for both normal and abnormal chromosome variations that are associated with malformation. Molecular diagnostic technologists evaluate and investigate DNA and RNA with regards to disease, identity, cancer and forensics.

The Diagnostic Genetic Sciences Program is approved by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Graduates are eligible to take the certification examination administered by the National Credentialing Agency for Laboratory Personnel (NCA) immediately upon graduation.

Curricula in Diagnostic Genetic Sciences

University General Education Requirements

Group 2. Expository Writing

A. Allied Health 241W - Research for the Health Professional
B. Medical Laboratory Sciences 208(W) - Immunology for the Medical Laboratory Sciences

Group 3. Mathematics

A. Required Q courses:
1. Math 109Q - Algebra & Trigonometry *or* Passing Score on Calculus Readiness Test
2. Statistics 110V - Elementary Concepts of Statistics
B. Required C course: Statistics 110V - Elementary Concepts of Statistics

Group 8. Science and Technology

A. Chemistry 122 - Chemical Principles and Applications *or* Chemistry 127Q-128Q - General Chemistry
B. Biology 107 - Principles of Biology

Major Requirements

Related Science Courses

A. Chemistry 141 - 142 - Organic Chemistry *or* 243 & 244 - Organic Chemistry
B. Biology Option: Biology 103 - The Biology of Human Health & Disease *or* a course in Anatomy and Physiology *or* Biology 108 - Principles of Biology *or* a Biology course pre-approved by the Diagnostic Genetic Sciences Program Director
C. MCB 200 - Human Genetics
D. MCB 203 - Introduction to Biochemistry
E. MCB 210 - Cell Biology
F. MCB 229 - Fundamentals of Microbiology

Professional Courses

A. **Allied Health**
241W - Research for the Health Professional
243 - Health Care Issues for the Health Professional
244 - Management for the Health Professional
B. **Medical Laboratory Sciences**
200 - Basic Laboratory Techniques in Medical Laboratory Sciences
208(W) - Immunology for the Medical Laboratory Sciences
C. **Diagnostic Genetic Sciences**
222 - Medical Cytogenetics
223 - Laboratory in Cytogenetics
234 - Diagnostic Molecular Technologies
235 - Laboratory in Molecular Diagnostics
242 - Chromosome Imaging
246 - Contemporary Issues in Human Genetics
280 - Bone Marrow Cytogenetics
281 - Peripheral Blood Cytogenetics
282 - Practicum in Staining and Karyotyping
283 - Practicum in Photomicroscopy/Imaging
284 - Variable Topics in Cytogenetics
285 - Research in Cytogenetics
286 - Prenatal Cytogenetics

Dietetics Program

The Coordinated Program (CP) in Dietetics combines theory in the classroom with supervised practice in clinical, community, and food service sites off campus to prepare students to sit for the National Registered Dietitian Examination (RD). Dietitians assess nutritional needs, plan individualized dietary plans, provide counseling and evaluate nutritional care for individuals and groups.

The Dietetics Program is currently granted accreditation by the Commission on Accreditation/Approval for Dietetics Education of the American Dietetic Association. Students are eligible to take the national registration examination administered by the Commission on Dietetic Registration of the American Dietetic Association immediately upon graduation.

Curricula in Dietetics

University General Education Requirements

Group 2. Expository Writing

A. Allied Health 241W - Research for the Health Professional
B. Dietetics 210S - Community Nutrition

Group 3. Mathematics

A. Required Q courses:
1. Chemistry 127Q-128Q - General Chemistry
2. Statistics 110V - Elementary Concepts of Statistics
B. Required C course: Statistics 110V - Elementary Concepts of Statistics

Group 7. Social Science and Comparative Analysis

A. Sociology 107 - Introduction to Sociology *or* Sociology 115 - Contemporary Social Problems *or* Psychology 135 - General Psychology II

Group 8. Science and Technology

A. Chemistry 127Q-128Q - General Chemistry
B. Nutritional Sciences 165 - Fundamentals of Nutrition

Major Requirements

Related Science Courses

A. MCB 203 - Introduction to Biochemistry
B. MCB 229 - Fundamentals of Microbiology
C. PNB 264 - 265 - Human Anatomy & Physiology
D. Chemistry 141 - 142 - Organic Chemistry
E. Nutritional Sciences 200 - Nutrition and Human Development
F. Nutritional Sciences 212 - Principles of Food Science
G Nutritional Sciences 233 - Food Composition & Preparation
H. Nutritional Sciences 235 - Food Composition & Preparation Lab

Professional Courses

A. **Allied Health**
- 241W - Research for the Health Professional
- 242 - Counseling & Teaching for the Health Professional
- 244 - Management for the Health Professional

B. **Dietetics**
- 204 - Food Service Systems
- 208 - Introduction to Nutritional Care I
- 208 - Introduction to Nutritional Care II
- 210S - Community Nutrition
- 235 - Applied Dietetics
- 238 - Advanced Nutrition for the Clinical Practitioner
- 244 - Practicum in Food Service Management
- 247 - Seminar in Dietetics
- 248 - Applied Clinical Dietetics
- 250 - Dietetic Practice

Individualized Major Program

The Individualized Major is a unique opportunity to create a major that is not currently offered at the University of Connecticut. Requirements for declaring and completing an Individualized Major in the School of Allied Health are listed below:

To declare an Individualized Major, students must be in good academic standing and have a cumulative grade point average of not less than a 2.2 entering the upper division. Thereafter, students will be dismissed if they have one semester in which their grade point average is below 2.2 or if their Upper Division grade point average drops below 2.2 at any time (See School of Allied Health *Academic Requirements*).

Students must submit a proposed statement of purpose and identify three faculty members who are willing to serve as an advisory committee.

Students should submit proposals after they have earned at least 30 credits, but prior to their final 30 credits of study.

An Individualized Major has a minimum of 36 credits from 200 level courses which must be from two or more departments and include at least 18 credits in courses offered by the School of Allied Health. A "C" or better in all courses in the School of Allied Health is required for graduation (See School of Allied Health *Academic Requirements*). Courses for the Major must include no more than 6 credits of Independent Study and Internship. All courses must be approved by the student's Advisory Committee. All credits must be earned at the University of Connecticut. Any exceptions require permission by the Director of the Academic Advisory Center. None of the course can be taken on Pass/Fail.

A 2.2 grade point average for all calculable Upper Division course work is required for graduation (See School of Allied Health *Academic Requirements*).

For further information and application forms, contact the Director of Individualized Studies, Family Studies Building, Room 302 or phone (860) 486-3631.

Medical Technology Program

Medical Technologists apply biological and chemical principles to perform, interpret, and correlate laboratory analyses on body fluids and tissues. Medical Technologists are responsible for selecting appropriate methods and implementing quality assurance for tests designed to promote health and prevent, diagnose, and treat diseases.

The Medical Technology Program is offered in conjunction with Hartford Hospital which holds accreditation through the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Graduates are eligible for certification examinations administered by the National Credentialing Agency for Medical Laboratory Personnel (NCA) or the American Society of Clinical Pathologists (ASCP) immediately upon graduation.

Curricula in Medical Technology

University General Education Requirements

Group 2. Expository Writing
- A. Allied Health 241W - Research for the Health Professional
- B. Medical Laboratory Sciences 208(W) - Immunology for the Medical Laboratory Sciences

Group 3. Mathematics

A. Required Q courses:
1. Math 109Q - Algebra & Trigonometry
2. Chemistry 127Q-128Q - General Chemistry
3. Statistics 110V - Elementary Concepts of Statistics

B. Required C course: Statistics 110V - Elementary Concepts of Statistics

Group 8. Science and Technology
- A. Chemistry 127Q-128Q - General Chemistry
- B. Biology 107 - Principles of Biology

Major Requirements

Related Science Courses

A. Chemistry 141 - 142 - Organic Chemistry *or* 243, 244, 245 - Organic Chemistry

B. Biology Option: Biology 103 - The Biology of Human Health & Disease *or* a course in Anatomy and Physiology *or* Biology 108 - Principles of Biology *or* a Biology course pre-approved by the Medical Technology Program Director

C. MCB 203 - Introduction to Biochemistry

D. Related Science Requirement - MCB - Human Genetics *or* Physics 101Q - Elements of Physics *or* other 200 level Biology *or* Chemistry course *or* 100 level Physics course pre-approved by the Medical Technology Program Director

Professional Courses

A. **Allied Health**
- 241W - Research for the Health Professional
- 243 - Health Care Issues for the Health Professional
- 244 - Management for the Health Professional

B. **Medical Laboratory Sciences**
- 200 - Basic Laboratory Techniques in Medical Laboratory Sciences
- 206 - Anatomy & Physiology for the Medical Laboratory Sciences
- 208(W) - Immunology for the Medical Laboratory Sciences

C. **Medical Technology**
- 210 - Infectious Disease Process I
- 213 - Clinical Immunology and Virology
- 250 - Clinical Chemistry and Instrumentation
- 251 - Clinical Chemistry Laboratory
- 252 - Infectious Disease Process II
- 260 - Theory of Phlebotomy
- 261 - Phlebotomy Laboratory
- 264 - Hematology
- 266 - Clinical Microbiology
- 267 - Clinical Microbiology Laboratory
- 269 - Clinical Immunology Laboratory
- 270 - Transfusion Services
- 272 - Urinalysis
- 273 - Urinalysis Laboratory
- 274 - Hematology Laboratory
- 275 - Transfusion Services Laboratory
- 280 - Seminar in Medical Technology

Physical Therapy Program

Physical therapists restore function and prevent disability following disease, injury or loss of a body part. The Physical Therapy Program is an integrated bachelor's master's (BS/MSPT) program. The student receives a B.S. in Allied Health with a major in pre-physical therapy at midpoint of the professional program. The student is not eligible to take the licensure examination as a physical therapist until completion of the M.S. portion of the degree (consult the *Graduate Catalog* for the M.S. component of the program).

The program in Physical Therapy is accredited by the American Physical Therapy Association. Graduates of the Master's in Physical Therapy are eligible to take the physical therapy licensure examination and meet the requirements of each state licensing agency.

Curricula in Physical Therapy

University General Education Requirements

Group 2. Expository Writing
- A. Allied Health 241W - Research for the Health Professional
- B. Physical Therapy 308W - Integrative Seminar II

Group 3. Mathematics

C. Required Q courses:
1. Chemistry 127Q-128Q - General Chemistry

2. Statistics 110V - Elementary Concepts of Statistics
3. Physics 121Q-122Q - General Physics

D. Required C course: Statistics 110V - Elementary Concepts of Statistics

Group 7. Social Scientific and Comparative Analysis

A. Psychology 135 - General Psychology II

Group 8. Science and Technology

A. Chemistry 127Q-128Q - General Chemistry
B. Psychology 132 - General Psychology I

Major Requirements

Related Science Courses

A. Biology: PNB 264 - 265 Human Anatomy and Physiology

Professional Courses

A. **Allied Health**
241W - Research for the Health Professional
242 - Counseling and Teaching for the Health Professional
243 - Health Care Issues for the Health Professional

B. **Physical Therapy**
210 - Fundamentals of Assessment
212 - Fundamentals of Treatment: Acute Care
213 - Human Anatomy
215 - Human Anatomy Laboratory
217 - Human Physiology
220 - Tissue Dysfunction
221 - Pharmacology for Physical therapy
222 - Musculoskeletal Dysfunction
240 - Clinical Kinesiology
260 - Functional Neurology and Movement
307 - Integrative Seminar I
308W - Integrative Seminar II
314 - Principles of Rehabilitation
316 - Acute Care Practicum

Postbaccalaureate Certificate Programs

The Dietetic Internship is a certificate program administered by the School of Allied Health Dietetics Program in collaboration with Hartford Hospital. The internship provides the student with the opportunity to achieve performance requirements for entry-level dietitians through a minimum of 900 hours of supervised practice. The Dietetic Internship is accredited by the American Dietetic Association Commission on Accreditation/Approval for Dietetics Education, a specializing accrediting body recognized by the Council on Post Secondary Accreditation and the United States Department of Education. Upon completion of the Dietetic Internship the student is eligible to take the national registration examination administered by the Commission on Dietetic Registration of the American Dietetic Association. Students must pass this examination in order to be a Registered Dietitian.

The Diagnostic Genetic Sciences Track Certificate Program is open to individuals with baccalaureate degrees in the medical laboratory sciences or the biological or natural sciences and who meet the course prerequisites for admission to the clinical practicum component. The Diagnostic Genetic Sciences Track Certificate Program prepares students for the Certification Examination in Cytogenetics offered by the National Credentialing Agency for Laboratory Personnel (NCA). Upon successful completion of the Certificate Program, students are immediately eligible to sit for this exam. This examination is sanctioned by the Association of Genetic Technologists (AGT).

The Molecular Diagnostic Genetics Track Certificate Program is open to individuals with bacculaureate degrees in cytogenetics, medical technology, or the biological or natural sciences, and who meet specified course prerequisites and academic standards. Upon completion, students receive a certificate from the School of Allied Health and are eligible to sit for the certification examination in molecular genetics offered by the National Credentialing Agency for Laboratory Personnel (NCA). This examination is sanctioned by the Association of Genetic Technologists (AGT).

The Cytotechnology Certificate Program is open to individuals who have earned a baccalaureate degree and who have completed the chemistry, biological science, and math prerequisites prior to admission to the clinical practical component of the program. The Cytotechnology Certificate Program prepares students for the National Certification Examination in Cytotechnology given by the American Society of Clinical Pathologists. Upon successful completion of the Certificate Program, students are immediately eligible to sit for this examination leading to certification.

School of Allied Health Website

http://www.alliedhealth.uconn.edu/

School of Business Administration

Thomas G. Gutteridge, Ph.D., *Dean, School of Business Administration*
Robert E. Hoskin, Ph.D., *Associate Dean, School of Business Administration*
Janice E. Clark, M.A., *Assistant Dean for Undergraduate Programs*
Judy Nilson, M.B.A., *Assistant Dean for Administration*

Undergraduate education in business administration is designed to impart general knowledge and, in particular, knowledge of resource administration. 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*.

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 Administration 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 Risk Management and Insurance major is a regional program for students from all other New England states except Rhode Island; the Health Care Management major is designated a regional program for all other New England states except New Hampshire and Vermont. To implement this policy, first priority in admission to the school is given to qualified applicants who are residents of Connecticut. Second priority is given to qualified applicants from those New England states which are members of the compact. Regional students will pay a reduced tuition.

Accreditation. The School of Business Administration is fully accredited by the AACSB - International Association for Management Education, a specialized accrediting body recognized by the Council on Post Secondary Accreditation and the U.S. Department of Education.

Admission and Degree Requirements

Admission Requirements. See Admission to the University. The School of Business Administration admits qualified students into the School directly as freshmen. Students not admitted into the School of Business Administration at the time of entry to the University may apply for admission through School of Business Administration procedures. Decisions will be based on several criteria including the applicant's academic record, courses completed, and space availability.

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

Students 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 Administration should have made substantial progress toward completing the Lower Division requirements, particularly those courses which are prerequisites for the Common Body of Knowledge/Entry Level Business courses. Number of credits earned, grade point average and space availability will also be considered in the admissions decision.

Transfer applicants not accepted directly into the School of Business Administration at the time of entry to the University may apply for admission through the School of Business Administration 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. or M.S. in Accounting program to consider a graduate, rather than another undergraduate, degree.

All applicants to the School of Business Administration 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 current course work for which applicants were registered at the time of application. Note: Students not in the School of Business are not eligible to take more than 27 credits of coursework offered by the School of Business.

Scholastic Standing Requirements. Students admitted to the School of Business Administration must earn a minimum 2.2 grade point average by the end of the semester in which they earn a minimum of 24 calculable credits of graded coursework at the University of Connecticut to be guaranteed continuation in the School. Students must also earn a minimum 2.6 grade point average in all lower division courses, including having substantial progress toward completing those courses which are prerequisites to the entry level business courses, in order to be guaranteed continuation to the Upper Division/Junior Year in the School of Business Administration. Students must maintain a minimum of 2.0 for their semester grade point average, a 2.0 for their divisional grade point average, and a 2.0 grade point average in all calculable credits in School of Business Administration courses for which they have been registered. Students who fail to maintain the minimum grade point average in any of these areas are subject to dismissal from the School of Business Administration.

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 grade point average for all calculable Upper Division course work; (3) earned at least a 2.0 grade point average for all calculable credits in School of Business Administration courses for which they have been registered; (4) earned at least 50 percent of the business credit hours required for the business degree at the University of Connecticut; (5) earned at least 24 credits in 200-level courses in the School of Business Administration at the University of Connecticut, with no more than three of these credits in independent study courses and no more than three of these credits in field internship courses; (6) met all the requirements of the School of Business Administration.

The degree in business administration requires a minimum of 120 degree credits of course work. At least 60 credits presented for the degree must be comprised of courses other than business administration, including general education course work: no more than 9 credits of economics and no more than 6 credits of statistics may be counted as part of these 60 credits.

Stamford and Waterbury/Tri-campus Campuses Programs. Students at the Stamford and Waterbury/Tri-campus campuses have the opportunity to complete all of the Lower Division requirements and the Common Body of Knowledge courses of the Upper Division requirements before transferring to the Storrs campus. All curricular options (majors) except Business and Technology require additional work at 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 dean of the school. Such exemptions or substitutions must be approved by the dean of the school.

Transfer Credits. The transfer of credits for 200-level (Upper Division) courses offered in the School of Business Administration on the basis of work done at schools that do not offer the baccalaureate or schools not accredited by the AACSB - International Association for Management Education, 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 Administration, 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 Administration, whichever is later.

Curricula in Business Administration

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 Academic Regulations section of this *Catalog*.

II. School of Business Administration Requirements

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 may also be used to fulfill University General Education requirements (indicated by *).

Note: Please refer to page 42 to find the Curricula in Management and Engineering.

Accounting
ACCT 131

Foreign Language
All students must have (1) passed the third year level in high school in a single foreign language, ancient or modern,[1]* *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.

Expository Writing
ENGL 110* or ENGL 111*, or ENGL 105* and ENGL 109*

Quantitative Analysis
MATH 105Q* and MATH 106Q*[2] (*Preferred Sequence*)
STAT 100V* *or* 110V*

Culture and Modern Society
HIST 101*
ANTH 100* *or* GEOG 160*

Philosophical or Ethical Analysis
PHIL 101* *or* PHIL 102* *or* PHIL 103* *or* PHIL 104* *or* PHIL 105* *or* PHIL 106* *or* SCI 240*

Social Scientific and Comparative Analysis/Practice
ECON 111* and 112*
COMS 102* *or* 105[3]

Non-Laboratory Science
PSYC 132*

Additional Requirements

Business students must also meet the University General Education requirements of *two "W" courses*, *Group 4 Literature and Arts*, and *Group 8 Laboratory Science*. These requirements are not met by any of the Business requirements listed above.

A minimum of 60 credits used toward graduation requirements must be comprised of non-business courses, including general education course work. No more than 9 credits of economics and no more than 6 credits of statistics may be counted as part of these 60 credits.

Required Courses and Sample Sequence

Freshman Year First Semester

Mathematics 105[2]
English 105
Psychology 132
Group 4 (Arts)
Elective

Freshman Year Second Semester

Mathematics 106[2]
English 109
Philosophy 101 or 102 or 103 or 104 or 105 or 106 or SCI 240
Communication Science 102 or 105
Elective

Sophomore Year Third Semester

Economics 111
Accounting 131
Statistics 100 or 110
Geography 160 or Anthropology 100
W Course

Sophomore Year Fourth Semester

Economics 112
History 101
Group 4 (Literature)
Group 8 (Laboratory Science in Chemistry or Biology or Geology or Physics)
Elective

Upper Division Requirements

No School of Business Administration students should enroll in any 200-level, Upper Division business courses until they have passed the Lower Division requirements.

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, except for Management 290

ACCT 200 - Principles of Managerial Accounting (to be taken no later than fifth semester)
BLAW 271 - Business Law *or* BLAW 275[4] - Business, Law and Society
FNCE 201 - Financial Management
MGMT 201 -Introduction to Management and Organization
MGMT 272[5] - Career Development in Business
MGMT 290 - Strategy, Policy and Planning
MKTG 201 - Introduction to Marketing Management
OPIM 203 - Business Information Systems
OPIM 204 - Operations Management

Computer Equipment. A laptop computer requirement is being phased in for business students starting in Fall, 2001. Laptops will be required in upper division courses starting in the student's junior year. **Consult the School of Business website: http://sba.uconn.edu/ for the latest information before purchasing a machine.**

Accounting

The undergraduate (four year) program consists of the Bachelor of Science (B.S.) degree in Business Administration with a major in Accounting. The B.S. degree combines a general background in business with an appropriate number (currently seven 3-cr. plus one 1-cr., ACCT 205, Introduction to a Profession) of upper level accounting courses to prepare students for successful entry into an accounting career.

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 299's) and internship (ACCT 289's) as a requirement for graduation.

A student majoring in accounting must have taken at least two-thirds of the following 200-level accounting course credits at the University of Connecticut or an accounting program accredited by the American Assembly of Collegiate Schools of Business.

ACCT 201 - Intermediate Accounting I
ACCT 202 - Intermediate Accounting II
ACCT 203 - Advanced Accounting
ACCT 205 - Introduction to the Profession
ACCT 221 - Cost Accounting
ACCT 243 - Assurance Services
ACCT 260 - Federal Income Taxes
BLAW 277 - Business Transactions and the Law

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 (C.P.A.) or Certified Management Accountant (C.M.A.). Students preparing for the C.P.A. examination should also apply for the M.S. in Accounting Program. The M.S. in Accounting is a 30-credit program designed to meet the 150-hour education requirement for the CPA exam in Connecticut. Students preparing for the C.M.A. examination should consult with their accounting advisor regarding the appropriate elective courses to take.

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[1] When the years of study have been split between high school and earlier grades, the requirement is met if the student has passed the third year level course.
[2] May also take one of the following combinations: MATH 115Q* and 116Q* *or* MATH 112Q* and 113Q* and 114Q*, *or* MATH 120Q* and 121Q* *or* MATH 115Q* and 105*, *or* MATH 112Q* and 113Q* and 105, *or* MATH 112 and 105 and 106.

[3] COMS 105 is **required** for Accounting majors.
[4] BLAW 275 is **required** for Accounting majors.
[5] Not required for Accounting majors.

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 auditing or accounting work.

Participation in these programs 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 and Technology

The business and technology major is only open to students at the Stamford and Waterbury/Tri-campus campuses. The objective of the major in business and technology is to provide a business degree with a special emphasis in the application of information technology. Functional area concentrations (three courses) are also possible in selected areas based on the availability of courses.

Courses required in the major are:

OPIM 205 - Data Base Management
OPIM 206 - Business Application Programming
OPIM 207 - Internet Technologies and Electronic Commerce
MGMT 250W - Management Communications
Plus three 3 credit School of Business electives at the 200 level beyond the common body of knowledge courses.

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, real estate, and insurance.

FNCE 203 - Applications in Financial Management

Any two from the following:
FNCE 202 - Investment and Security Analysis
FNCE 204 - Financial Risk Management
FNCE 205 - Global Financial Management
FNCE 206 - Financial Services

Any two additional from the following:
FNCE 202 - Investments and Security Analysis
FNCE 204 - Financial Risk Management
FNCE 205 - Global Financial Management
FNCE 206 - Financial Services
FNCE 217 - Economics for Global Business Decisions
FNCE 221 - Risk Management and Insurance
FNCE 223 - Health Insurance
FNCE 224 - Social Insurance
FNCE 225 - Life Insurance and Retirement Security
FNCE 228 - Risk Management: Property and Liability Exposures
FNCE 230 - Real Estate Principles
FNCE 232 - Real Estate Investments
FNCE 233 - Real Estate Finance
FNCE 234 - GIS Applications and the Use of the Internet in Real Estate Markets
FNCE 298 - Special Topics
HSMG 280 - Introduction to Health Care Management
HSMG 281 - Health Care Analysis
HSMG 282 - Health Care Information Technology
HSMG 283 - Advanced Topics in Health Care Management

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. The Health Care Management Program is a Full Member of the Association of University Programs in Health Service Administration (AUPHA) and is the only undergraduate Health Care Management Program in New England to maintain both AACSB accreditation and AUPHA full membership. This academic program has been designated by the New England Board of Higher Education as a New England Regional Student Program. Qualified residents from other New England states may enroll in the Health Care Management Program at reduced tuition since the major is not offered at other state universities in the region.

Admission to the Health Care Management Program as a major is competitive on a space available basis.

FNCE 221 – Risk Management and Insurance
HSMG 280 – Introduction to Health Care Management
HSMG 281 – Health Care Analysis
HSMG 282 – Health Care Information Technology
HSMG 283 – Advanced Topics in Health Care Management
HSMG 290 – Internship in Health Systems
OPIM 210 – Operations Research for Information Systems Analysis

Internships in Health Care Management. Students usually schedule their HSMG 290 course (6 credits) during the summer following the junior year of study. The internship component of the program provides students with the opportunity to obtain clinical experience within a health care facility. Students normally participate in conducting a health care management 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 Center for Health Care and Insurance Studies will provide considerable guidance in site selection.

Management

Students in this major gain an in-depth understanding of the problems and challenges that face today's managers and leaders. Students can select from one of three related areas: Entrepreneurship, International Business, or General Management

Entrepreneurship requires two Management courses, MGMT 234 (Management of Small Businesses and Venture Enterprises) and MGMT 291 (Small Business Consulting). In addition, it requires three Management, or School of Business Administration, or Economics Electives (nine credits, 200 level).

International Business requires one Management course, MGMT 225 (International Business). In addition it requires at least twelve credits from the following: MGMT 245 (Managerial Behavior in Cross Cultural Settings), BLAW 280 (International Business Law), MKTG 270 (Global Marketing Strategy), MGMT 293 (Foreign Study - 6 credits maximum), FNCE 205 (Global Financial Management), FNCE 293 (Foreign Study - 6 credits maximum), or MKTG 293 (Foreign Study - 6 credits maximum). Up to six of these credits may be a School of Business Administration or Economics Elective that is internationally oriented and approved by a faculty advisor.

General Management requires two Management Electives plus three Management or School of Business Administration or Economics Electives (nine credits, 200 level).

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.

OPIM 211 - Systems Analysis and Design
OPIM 220 - Business Software Development
OPIM 221 - Business Data Base Systems
OPIM 222 - Network Design and Applications
One 3-hour OPIM elective, from the following list:
OPIM 212, OPIM 223, OPIM 298
plus six additional credits, 200 level, beyond the Common Body of Knowledge from Accounting, Finance, Health Systems, Marketing, Operations and Information Management, Real Estate and Urban Economics, or Management; or from other subject areas approved by the Student's Academic Advisor.

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. Students considering a Marketing major are advised to complete PSYC 133 or PSYC 135 or SOCI 107 as part of their Lower Division course work, and are strongly encouraged to take Business Law (BLAW) 275 to fulfill the upper division BLAW requirement.

MKTG 208 – Consumer Behavior or 209 – Industrial Buyer Behavior
MKTG 280 – Marketing Research
MKTG 282 – Marketing Planning and Strategy or MKTG 270 – Global Marketing Strategy
and two additional three-credit Marketing or School of Business Adminis-

tration or Economics electives (200-level). A maximum of three (3) credits of Marketing 289 or 299 can be counted toward this requirement.
No Marketing major may count more than nineteen Marketing credits beyond Marketing 201 toward those credits presented for degree requirements.

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.

FNCE 230 - Real Estate Principles

Any two from the following:
FNCE 232 - Real Estate Investments
FNCE 233 - Real Estate Finance
FNCE 234 - GIS Applications and Use of the Internet in Real Estate Markets
BLAW 274 - Real Estate Law

Any two from the following:
FNCE 232 - Real Estate Investments
FNCE 233 - Real Estate Finance
FNCE 234 - GIS Applications and Use of the Internet in Real Estate Markets
BLAW 274 - Real Estate Law
FNCE 202 - Investments and Security Analysis
FNCE 203 - Applications in Financial Management
FNCE 204 - Financial Risk Management
FNCE 205 - Global Financial Management
FNCE 206 - Financial Services
FNCE 217 - Economics for Global Business Decisions
FNCE 221 – Risk Management and Insurance
ECON 259 – Urban and Regional Economics
MKTG 280 – Marketing Research

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 intern 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. The internship provides meaningful practical experience in the field of real estate and helps students clarify their career goals.

Risk Management and Insurance

The objective of this major is to provide students with an understanding of risk management techniques used by individuals and businesses. The special role played by insurance in the areas of life and property-liability risk exposures and in the management of pension and other employee benefit plans is emphasized as preparation for a career as an insurance professional. The Risk Management and Insurance major has been designated by the New England Board of Higher Education as a New England Regional Student Program. Qualified residents from other New England states may enroll in this program at reduced tuition since the major is not offered at some state universities in the region.
FNCE 221 – Risk Management and Insurance
FNCE 223 – Health Insurance
or
FNCE 224 – Social Insurance
FNCE 225 – Life Insurance and Retirement Security
FNCE 228 – Risk Management: Property and Liability Exposures
One from the following:
FNCE 202 – Investment and Security Analysis (formerly FNCE 208)
FNCE 206 – Financial Services
FNCE 223 – Health Insurance
or
FNCE 224 – Social Insurance
FNCE 230 – Real Estate Principles
FNCE 298 – Special Topics
and one additional three-credit Finance or School of Business Administration or Economics elective (200-level)

Curricula in Management and Engineering for Manufacturing

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 *Academic Regulations* section of this catalog.

II. School of Business Administration Requirements

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 may also be used to fulfill University General Education requirements.

Management and Engineering for Manufacturing

(jointly offered by the School of Business Administration and the School of Engineering)

Note: 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.

Expository Writing
ENGL 110* or ENGL 111*, or ENGL 105* and ENGL 109*

Quantitative Analysis
MATH 115Q and MATH 116Q *or* MATH 112Q, 113Q, and 114Q - MATH 210 and 211[6]
STAT 110V*

Culture and Modern Society
HIST 101*
ANTH 100* *or* GEOG 160*

Philosophical or Ethical Analysis
PHIL 104*

Social Scientific and Comparative Analysis/Practice
ECON 113*

Laboratory Science
CHEM 127* *or* 129Q*
PHYS 151Q* and 152Q*

Management and Engineering for Manufacturing majors are required to complete the following:
ACCT 131
ACCT 200
BLAW 271
CE 211[6], 212, and 287
CSE 123[6]
EE 220
ENGR 100[6]
FNCE 201
ME 221, 222, 227, 233, and 260W
MEM 151, 210, 211, 215W, 221, 225, and 231
MGMT 201, and 290
MKTG 201
MMAT 201
OPIM 203C, and 252
Technical Electives courses (6 credits)

The Technical Electives course must be 200-level or higher listed in the departments listed in the School of Business Administration and the School of Engineering as specified in the *Management & Engineering for Manufacturing Guide to Course Selection.* 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 296 – Manufacturing Internship, with instructor and advisor approval.

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* Courses required for the School of Business which may also meet a University General Education requirement are noted with an *.
[6] School of Engineering requirements. See *School of Engineering* section.

Other Educational Opportunities

Field Study Internships. Internship experiences provide Upper Division 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, and management. Individual internships may be arranged in other departments and majors within the School of Business Administration; these are subject to availability and departmental restrictions.

Insurance – Actuarial Science. Insurance majors who are interested in preparing for careers in actuarial science should consult the requirements under the Mathematics Department in the College of Liberal Arts and Sciences.

Study Abroad. Business Administration students with interest in International Trade and Marketing with special reference to East-West Trade and International Affairs have available to them a special joint School of Business Administration-Center for European Studies program. For detailed program description see the College of Liberal Arts and Sciences section.

Pre-Law Studies. Business Administration students who plan to apply for admission to a school of law may arrange for pre-legal curricular counseling through the assistant dean, School of Business Administration.

Cooperative Education Program. The School of Business Administration participates in the Cooperative Education Program which develops pre-professional off-campus employment opportunities for University students.

Master of Business Administration Program

General management-oriented courses of study leading to the Master of Business Administration degree are offered as a full-time day program on the Storrs campus and as part-time evening programs in Hartford and Stamford. Details of the programs may be obtained from the M.B.A. Director, School of Business Administration, 368 Fairfield Road, Unit 2041, University of Connecticut, Storrs, CT 06269-2041.

Master of Science in Accounting Program

The M.S. in Accounting is a 30-credit program. Five areas of specialization include: Financial Reporting and Assurance Services, Information Systems, Tax, Healthcare, and Financial Services. The M.S. Program is offered both on a full-time and a part-time basis. Details of the program may be obained from the M.S. in Accounting Director, School of Business Administration, 368 Fairfield Road, Unit 2041A, University of Connecticut, Storrs, CT 06269-2041.

Ph.D. Program in Business Administration

With areas of concentration in Accounting, Finance, Management and Marketing, the Ph.D. program in Business Administration aims to produce scholars able to make contributions to academic institutions as well as to government and business. Details of the program may be obtained from the Chairperson of the Ph.D. Admissions Committee, School of Business Administration, 368 Fairfield Road., Unit 2041, University of Connecticut, Storrs, CT 06269-2041.

Center for International Business Programs

The Center for International Business Programs is a focal point for international research and outreach activities. The Center 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.

Center for Real Estate and Urban Economic Studies (CREUES)

The Center for Real Estate and Urban Economic Studies 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.

Center for Health Care and Insurance Studies (CHCIS)

The Center for Health Care and Insurance Studies (CHCIS) is concerned with education, research and service in the areas of health systems, planning, design and management. The Center administers the undergraduate program in Health Systems and the graduate program in Health Care Management. It also cooperates with other units of the University in offering interdisciplinary programs in health care education and research. Over the last ten years the Center has been primarily concerned with developing systems designed to improve the delivery of health care services.

Institute for Development of Entrepreneurial Advantage

This Institute is dedicated to exploring various aspects of entrepreneurship. The Center has focused its activities in the areas of small businesses and family businesses. There is also a generalized program in entrepreneurship. Description of the three component parts of IDEA, the Family Business Program, the Small Business Institute, and the Thomas J. and Bette Wolff Family Program in Entrepreneurship follow.

Family Business Program

This program was created as a result of a business community-University of Connecticut School of Business Administration partnership to provide a resource for family businesses. The Center 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 Small Business Institute

The Small Business Institute provides free management consulting on all types of business problems for a growing number of small businesses and start-up ventures throughout Connecticut. During this past year, management consulting reports were provided for 70 clients.

Consulting teams are composed of MBAs enrolled in either the Small Business Management and Entrepreneurship course, the Business Policy, Strategy and Planning course, or the Small Business Consulting (Independent Study) course. In some cases, the graduate students are supported in their assignments by undergraduate students. Clients may be recommended for consulting by the United States Small Business Administration, students, alumni or small business people may contact the Director of the Institute directly.

Thomas J. and Bette Wolff Family Program in Entrepreneurship

The Wolff Program sponsors a series of luncheons between highly successful entrepreneurs and honors students interested in becoming entrepreneurs. The primary objectives of the series are to provide a forum for discussing the role of free enterprise in our American economy and to expose budding entrepreneurs to successful business role models.

This program also sponsors an annual lecture series which invites top entrepreneurs from the nation to speak before our students and alumni.

The support for this program is due to the generosity of one of our most distinguished alums, Mr. Thomas J. Wolff. The department is indeed proud to have such support.

Institute of Writing

The Institute of Writing was created in 1988 to encourage excellence in professional communication. As part of the School of Business Administration, its major responsibility is to teach both undergraduate and graduate students how to write, speak, think, and listen more effectively. In addition, the Institute sponsors a yearly prize for the best written legal brief in Connecticut, and holds seminars on legal and technical writing. It also conducts workshops for faculty on grant proposals. Outreach programs will expand in the future.

School of Business Administation Website

http://www.sba.uconn.edu/

College of Continuing Studies

Krista K. Rodin, Ph.D., *Dean*
Jeetendra R. Joshee, Ed.D., *Assistant Dean*
W. Matthew McLoughlin, Ph.D., *Assistant Dean*
Kenneth A. Fuchsman, Ed.D., *Director*

Bachelor of General Studies

- with individualized, interdisciplinary focus, or
- with pre-identified degree focus

Admission Requirements

The BGS program is an Upper Division or junior-senior level program of the University. Individuals seeking admission must have completed either an associate's degree or a minimum of 60 semester credit hours from a regionally accredited college or university. Applicants must also complete special application forms and be interviewed by a program counselor. Once admitted, BGS students must maintain a divisional grade point average of 2.0 or better and must register each semester for courses or for continuous registration.

Academic Requirements

All BGS students must complete a program of study consisting of at least 120 semester credits (included in this are the 60 credits awarded upon admission) which includes:
A. At least 30 credits of course work taken at any campus of the University of Connecticut; and,
B. At least 30 credits in junior-senior level courses (numbered in the 200 series at the University of Connecticut or approved as the equivalent level for transfer from other institutions); and,
C. The Bachelor of General Studies Summary Project, a three credit Upper Division course which may be applied to requirement A and B directly above. A BGS student may petition the Dean for a waiver of this summary project course and to substitute another course in its place.

Additionally, BGS students must fulfill the University's general education requirements in effect during the year of admission. General education requirements may be fulfilled with course credits transferred into UConn as well as with courses taken while in the program. A BGS student may petition for a waiver of Group 1 (Foreign Language) requirement and of the one semester laboratory science portion of the Group 8 (Science and Technology) requirement.

Ordinarily a BGS student is expected to complete degree requirements within eight years unless an extension of time to complete the program is given.

College of Continuing Studies Programs

Continuing Studies
- Bachelor of General Studies
- Non-Degree Study

Special Sessions and International Studies
- UConn Summer School
- Winter Intersession
- International Education Programs
- Evening and Weekend College

Professional Studies and Public Affairs
- Center for Learning and Advancement - Stamford
- English Language Institute - Stamford
- Labor Education Institute
- Institute of Public Service
- The Stock Market Game

Distance Education and Technology Services

Workforce Development Institute

Community School of the Arts

College of Continuing Studies Website

http://www.ce.uconn.edu

School of Engineering

Amir Faghri, Ph.D., *Dean, School of Engineering*
M. E. Wood, M.S., *Assistant Dean for Undergraduate Education*
David Jordan, Ph.D., *Director of Undergraduate Advising*

Degrees Offered and Accreditation

The School of Engineering offers four-year programs leading to
Bachelor of Science in Engineering (B.S.E.) degrees (134-credits) in
Biomedical Engineering
Chemical Engineering*
Civil Engineering*
Computer Science and Engineering*
Computer Engineering
Electrical Engineering*
Engineering Physics
Environmental Engineering
Mechanical Engineering*
Metallurgy & Materials Engineering
Bachelor of Science (B.S.) degree (120-credits) in Computer Science
Bachelor of Science (B.S.) degree (139-credits) in Management & Engineering for Manufacturing (jointly offered with the School of Business Administration)

The BSE programs shown above that are asterisked (*), are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). The BSE in Computer Science & Engineering is also accredited by the Computer Science Accreditation Board (CSAB). The BSE programs in Environmental Engineering, Computer Engineering, and Metallurgy & Materials Engineering, and the BS program in Management & Engineering for Manufacturing will be submitted for EAC/ABET accreditation at the next evaluation. The BS program in Computer Science will be submitted for CSAB accreditation at the next evaluation.

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. degree in Engineering 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 need the approval of the Director of Advising to change majors.

The School of Engineering also offers Minors in Biomedical Engineering, in Environmental Engineering, and in Metallurgy & Materials Engineering

Admission Requirements. See *Admission to the University*. All students admitted to the School of Engineering are required to take a placement examination in mathematics and a calculus readiness examination prior to registration for their first semester. Students who make unsatisfactory grades in these examinations may be required to take additional preparatory work that may not be counted toward graduation.

Admission to Junior Year. Students should declare their major as soon as possible, but no later than the second semester of their sophomore year. All students, to be admitted to their junior year in their selected major in the School of Engineering, must have a cumulative grade point average of at least 2.0 in all courses in mathematics, physics, chemistry, and engineering applicable toward the degree. For Management & Engineering for Manufacturing majors, the cumulative grade point average requirement also includes Management & Engineering for Manufacturing courses.

Scholarships. More than $160,000 in scholarships and awards is available annually to students in the School of Engineering.

Faculty Advisors. Faculty advisors are assigned to students entering the School of Engineering according to a student's major. Advisors assist students in their course selections, counsel them in meeting their educational and career goals, and advise them in non-academic issues.

School Academic Requirements.

Students in the School of Engineering must complete the following requirements:

Foreign Language

All students must (1) have passed the third year level in high school in a single foreign language or (2) complete one year (two semesters) of a single foreign language at the college level.

Expository Writing

ENGL 110 or ENGL 111

Culture and Modern Society

HIST 100 or HIST 101

Philosophical or Ethical Analysis

PHIL 104

Additionally, all majors are required to complete:

- University General Education requirements (see *Academic Requirements*)
- A *Plan of Study* form submitted prior to entering the junior year
- MATH 115Q and 116Q (or MATH 112Q, 113Q, and 114Q), ENGR 100 and CSE 123C
- The University writing (W) course requirement must be met through required major-specific W course work. Most programs have two W courses specified in the curriculum although in some curricula, an equivalent number of Partial Writing (P) courses are required.
- All majors, except BS in Computer Science majors, are required to complete
  CHEM 127Q (or CHEM 129Q)
  PHYS 151Q and 152Q
- All majors, except BS in Computer Science and BS in Management & Engineering for Manufacturing majors, are required to complete CHEM 128Q (or 130Q).
- All majors, except BS in Computer Science and BS in Management & Engineering for Manufacturing majors, are required to complete at least *two* courses in one of the departments listed in the General Education Groups 4 through 7. See the *Academic Regulations* section of this *Catalog*. At least *one* of these courses must be at the 200 level. Examples of course selections that meet this requirement are:
  ANTH106 (Group 7) & ANTH 226 (Group 5)
  ENGL 210 (Group 4) & ENGL 218 (Group 5)
  PHIL 104 (Group 6) & PHIL 263 (Group 5)
  HIST 101 (Group 5) & HIST 281 (Group 5)

Credit Restrictions. The following courses may not be counted for credit toward graduation in the School of Engineering: MATH courses numbered 112 and below; MATH 118; PHYS 101 and 103; CSE 101; STAT 100; and courses labeled "independent study" or "variable topics" (e.g. course numbered 298 or 299) taken in departments outside the School of Engineering. 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 of chemistry and physics at the 100's level 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. Full details, normal course sequences, and accreditation requirements can be found in the respective *Guide to Course Selection* for each major.

Bachelor of Science in Engineering in Biomedical Engineering

Biomedical Engineering majors are required to complete the following:
- CE 211
- BME 210, 221, 251, 252, 261W, 271W, 290, 291
- CHEM 240, 243
- ECE 201
- ENGR 166
- MATH 210Q, 211Q
- MMAT 201
- PNB 264
- STAT 224Q
- Professional Requirements (15 credits)
- Elective Courses (4 credits)

The professional requirements and electives are specified in the *Biomedical Engineering Guide to Course Selection.*

Bachelor of Science in Engineering in Chemical Engineering

Chemical Engineering majors are required to complete the following:
- CE 211
- CHEG 203, 211, 212, 223, 224, 237W, 239W, 243, 247, and 251
- CHEG Electives (6 credits minimum)
- CHEM 240, 243, 244, 256, 263Q, and 264Q*
- ENGR 166
- MATH 210Q and 211Q
- Professional Requirements (12 credits)
- Elective courses (5 credits)

*Students may select CHEM 232Q, MCB 203, MCB 204 or MCB 229 as a replacement for CHEM 264Q.

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.

Bachelor of Science in Engineering in Civil Engineering

Civil Engineering majors are required to complete the following:
- CE 211, 212, 222P *or* 262P, 234 *or* 260, 236, 240P, 254, 263, 271, 280W, 281, 287, 291, and 297
- ECE 220 and ME 233
- ENGR 166
- MATH 210Q and 211Q
- Professional Requirements courses (18 credits)
- Elective courses (9 credits)

CE 291 must be taken twice before CE 280W. Professional Requirements include *one* course each from *two* of these four technical areas:
- *Environmental and Water Resources Engineering* - CE 260, 262, 265, 266, 267, 268 and 279
- *Geotechnical Engineering* - CE 241 and 242
- *Structural Engineering* - CE 222, 234, 237, 238, and 239
- *Transportation Engineering* – CE 251, 255, 256, 274, 275 and 276

The Professional Requirements must satisfy engineering design credit and other distribution requirements as specified in the *Civil Engineering Guide to Course Selection.*

Bachelor of Science in Engineering in Computer Engineering

(jointly offered by the Departments of Computer Science & Engineering and Electrical & Computer Engineering)

Computer Engineering majors are required to complete the following:
- CE 211
- CSE 124C, 207, 208W, 221, 233, 243, 254, and 258
- ECE 201, 202, 204, 209W, and 242
- Cross-listed courses CSE/ECE 252, 257, 290, and 291
- MATH 210Q, 211Q, and 227Q
- STAT 224Q
- Professional Requirements courses (12 credits)
- Design Laboratory courses (6 credits)
- Elective courses (3 credits)

Further details and course sequences are given in the *Computer Engineering Guide to Course Selection.*

Bachelor of Science in Computer Science

Computer Science majors are required to complete the following:
- CSE 124C, 201, 230, 237, 254, 258 and 259
- MATH 227Q, and *either* 210Q *or* 211Q
- One of MATH 231Q, STAT 220Q, 224Q, or 230Q
- One two-semester laboratory course sequence from *either* chemistry (CHEM 127Q - 128Q, 129Q - 130Q, or 137Q - 138Q) *or* physics (PHYS 131Q - 132Q, 141Q - 142Q, or 151Q - 152Q)
- One additional science course (from BIOL 107Q, 108Q, or 110Q; CHEM 127Q, or 128Q; GEOL 102; PHYS 131Q, 132Q, 141Q, 142Q, 151Q, or 152Q) but not in the same department as the two-semester sequence
- One course from each of the three following groups:
  - *Computer Applications* – CSE 255, 275, or 282
  - *Computer Architecture* – CSE 228, 240 or 245
  - *Computer Languages* – CSE 233 or 244
- Two courses from CSE 261, 262, 263, 265, 268, and 269
- CSE 200-level courses (6 credits)
- A minimum of three 3-credit courses at the 200-level in a single related area forming a cohesive body of knowledge outside of Computer Science

Further details and course sequences are given in the *Computer Science Guide to Course Selection.*

Bachelor of Science in Engineering in Computer Science and Engineering

Computer Science & Engineering majors are required to complete the following:
- CE 211
- CSE 124C, 207, 208W, 221, 228, 230, 237, 243, 244, 254, 258, and 259
- Two CSE design laboratory courses
- MATH 210Q, 211Q, and 227Q
- One of MATH 231, STAT 220Q, 224Q, *or* 230Q
- ECE 201, 202, and 209W
- Professional Requirements courses (9 credits)
- Elective courses (9 credits)

Further details and course sequences are given in the *Computer Science & Engineering Guide to Course Selection.*

Bachelor of Science in Engineering in Electrical Engineering

Electrical Engineering majors are required to complete the following:
- CE 211
- CSE 207, and 208W
- ECE 201, 202, 204, 205, 209W, 232, 240, 241, 245, 261, and 262W
- CSE/ECE 290 and 291
- ENGR 166 or CSE 124C
- MATH 210Q and 211Q
- STAT 224Q
- Professional Requirements courses (12 credits)
- Design Laboratory courses (6 credits)
- Elective courses (7-8 credits)

Further details and course sequences are given in the *Electrical Engineering Guide to Course Selection.*

Bachelor of Science in Engineering in Engineering Physics

Offered jointly by the Physics Department of the College of Liberal Arts and Sciences and the School of Engineering

Engineering Physics majors can concentrate in either Electrical, Mechanical or Metallurgy and Materials Engineering. Students must satisfy the course requirements of both the College of Liberal Arts and Sciences and the School of Engineering to complete this degree.

Engineering Physics majors are required to complete the following:

PHYS 230Q, 242Q, 255Q, 257Q, 258Z, 261Q, 285Z
ENGR 295 (4 credits)
MATH 210Q, 211Q, and 272Q
Electrical Engineering - ECE 201, 202, 204, 209W, 228, 229, 232, 241, 245, and 261; CSE 207 and 208W; MATH 227Q; PHYS 271Q; STAT 224, Elective courses (2 credits).
Mechanical Engineering - ME 220, 227, 233, 234, 242, 250 and 253;CE 211, 287; STAT 224; ME Elective Courses (6 credits); PHYS Elective courses (3 credits); Elective Courses (6 credits).
Metallurgy and Materials Engineering - MMAT 243, 244, 255, 256, 265, 266, 267, 283 and 286W; CHEG 256; PHYS 273Q and 281Q; MMAT Elec tive Courses (6 credits); Elective Courses (3 credits).

The professional requirements and electives are specified in the *Engineering Physics Guide to Course Selection.*

Bachelor of Science in Engineering in Environmental Engineering

Environmental Engineering majors are required to complete the following:

CE 211, 251, and 263 (*or* ENVE 263)
ANSC 226
CHEG 211, 212, 223, 224, and 285
EEB 244W
ENGR 166
ENVE 110, 260 (*or* CHEG 281), 262, 265 *or* 267, 270, 279, 290, 291, and 299
MATH 210Q and 211Q
MCB 229
Professional Requirements courses (9 credits)

Professional Requirements include at least *one* course each to strengthen *three* of the following eight focus areas: Atmospheric Systems & Air Pollution Control, Environmental & Occupational Health, Environmental Chemistry, Environmental Systems Modeling, Hazardous Waste Management, Solid Waste Management, Water Supply & Resources, and Wastewater Management. The following courses may be used to meet the Professional Requirements:

ARE 234, and 235
EEB 238, and 247
MCB 203, 235, and 240
CHEG 247, 251, 280, and 283
CHEM 141, 232Q, 263Q - 264Q, 270W
CE 265, 268
GEOG 205, 206, 215, 237, and 286
GEOL 206, 234C, and 245
IMGT 210
MARN 244, and 280W
ME 239
NRME 204, 210, 236Q, 237, 239, 240, 260P, and 263
PHAR 150
SOCI 259W
PLSC 259C

The Professional Requirements are specified in the *Environmental Engineering Guide to Course Selection.*

School of Engineering Website

http://www.engr.uconn.edu/

Bachelor of Science in Management and Engineering for Manufacturing

Offered jointly by the School of Business Administration and the School of Engineering

Management & Engineering for Manufacturing majors are required to complete the following:

ACCT 131 and 200
ANTH 100 *or* GEOG 160
BLAW 271
CE 211, 212, and 287
ECON 113
ECE 220
FNCE 201
HIST 101
MATH 210Q and 211Q
ME 221, 222, 227, 233, and 260W
MEM 151, 210, 211, 215W, 221, 225, and 231
MGMT 201, and 290
MKTG 201
MMAT 201
OPIM 252
STAT 110V
Technical Electives courses (6 credits)

The Technical Electives course must be 200-level or higher listed in the departments listed in the School of Business Administration and the School of Engineering as specified in the *Management & Engineering for Manufacturing Guide to Course Selection.* 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 296 – Manufacturing Internship, with instructor and advisor approval.

Bachelor of Science in Engineering in Mechanical Engineering

Mechanical Engineering majors are required to complete the following:

CE 211, 212, and 287
ECE 220
ENGR 166
MATH 210Q and 211Q
ME 205, 220, 227, 233, 234, 242, 250, 253, 255, 260W, 262, 272P, and 273P
MMAT 201, and 202
ME Requirement (6 credits)
Professional Requirements (6 credits)
Electives (6 credits)

Details on the ME and Professional Requirements are specified in the *Mechanical Engineering Guide to Course Selection.*

Bachelor of Science in Engineering in Metallurgy and Materials Engineering

Metallurgy & Material Engineering majors are required to complete the following:

CE 211, 212, and 287
MATH 210Q and 211Q
MMAT 243, 244, 255, 256, 265, 266, 267, 276, 277, 283, 284, 285W, 286W, 287, and 288
ME 233 or CHEM 263Q
ENGR 166
ECE 220
CHEG 256
Professional Elective courses (9 credits from EE 246, ME 217, and 228, and MMAT 206, 207, 217, 219, 229, 232, 234, 236, and 238)
Technical Elective courses (6 credits from BIOL 107; CHEM 243, 244, 263Q, and 264Q; MCB 203; ME 218, 253, and 255; MATH 214Q, 215Q, 227Q, and 231Q; PHYS 216Q, and 262Q; and STAT 220Q, 221Q, and 224Q)
Elective courses (2 credits)

Selection of courses is detailed in the *Metallurgy & Materials Engineering Guide to Course Selection*.

School of Family Studies

Charles M. Super, Ph.D., *Dean, School of Family Studies*
Nancy W. Sheehan, Ph.D., *Associate Dean, School of Family Studies*
Mary Alice Neubeck, M.A., *Director of Undergraduate Studies*

The School of Family Studies focuses on human development within the context of families and the broader social environment. Courses focus on contemporary issues and research concerning individual development and family processes. Curriculum in the Human Development and Family Studies Program emphasizes the following areas: Early Childhood Development and Education, Childhood and Adolescence, Family Relations and Counseling, Family Social Policy and Planning, and Adult Development and Aging.

Admission Requirements. See *Admission to the University*.

Bachelor's Degree Requirements

On the recommendation of the faculty of the school and by vote of the Board of Trustees, students who meet the specified requirements receive the degree of Bachelor of Science. Those requirements include: (1) earned a total of 120 credits, (2) earned at least a 2.0 grade point average for all calculable Upper Division course work, (3) met the General Education Requirements, and major and related requirements.

University 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 bachelor's degree program. These are listed in the Academic Regulations section of this *Catalog.*

College Requirements

Students planning a major in Human Development and Family Studies must complete the following requirements. Students should note that these courses may also fulfill University General Education requirements.

Social Scientific and Comparative Analysis

HDFS 190 - Individual and Family Development
PSYC 135 (or 133) - General Psychology II Intensive
SOCI 107 - Introduction to Sociology

Science and Technology

PSYC 132 - General Psychology I

Human Development and Family Studies Major

The major in Human Development and Family Studies requires 48 credits in courses at the 200 level including 36 HDFS credits and 12 credits in courses related to but outside the major. No more than three credits are allowed for fieldwork, internship and peer counseling courses. Students are allowed much flexibility in tailoring their major to meet their particular interests and educational goals. Most student 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:

Credits

HDFS 201 – Diversity Issues in Human Development and Family Studies . 3
HDFS 202 – Human Development: Infancy through Adolescence 3
HDFS 204 – Human Development: Adulthood and Aging 3
HDFS 273 – Family Interaction Processes 3
HDFS 290 – Research Methods in Human Dev. and Family Studies 3

This major must include the completion of one of the following courses:

HDFS 264 – Legal Aspects of the Family 3
HDFS 274 – Public Policy and the Family 3
HDFS 276 – Planning and Managing Human Service Programs 3
HDFS 281 – Comparative Family Policy 3
HDFS 285 – Child Welfare, Law and Social Policy 3

This major also must include at least 18 credits from the following courses. These courses may include courses listed above which were not taken to meet that requirement (HDFS 264, 274, 276, 281, 285). No more than 3 credits from the following group of courses may be used toward completion of these 18 credits: HDFS 221,224, 228, 288, 292, 299.

HDFS 218 – Observational Child Study 3
HDFS 220 – Introduction to Programs for Young Children 3
HDFS 221 – Programs for Young Children:Introductory Laboratory 1
HDFS 222 – Integrated Curriculum in Early Childhood Education I 3
HDFS 223 – Integrated Curriculum in Early Childhood Education II 3
HDFS 224 – Child Development Laboratory: Practicum I 3
HDFS 225 – Analysis of Programs for Young Children 3
HDFS 227 – Supervised Practicum in Early Childhood Programs 9
HDFS 228 – Advanced Practicum in Early Childhood Programs 6
HDFS 230 – Current Topics in Early Childhood Education 3
HDFS 231 – Infancy 3
HDFS 234 – Social and Personality Development During Childhood 3
HDFS 240 – The Family-School Partnership 3
HDFS 245 – Parent-Child Relations in Cross-Cultural Perspective 3
HDFS 248 – Aging in American Society 3
HDFS 250 – Gender and Aging 3
HDFS 252 – Death, Dying, and Bereavement 3
HDFS 259 – Men and Masculinity: A Social Psychological Perspective 3
HDFS 260 – Woman: A Developmental Perspective 3
HDFS 264 – Legal Aspects of Family Life 3
HDFS 266 – Introduction to Counseling 3
HDFS 267 – Latino Health and Health Care 3
HDFS 268 – Latinos: Sexuality and Gender 3
HDFS 269 – Family Violence 3
HDFS 270 – Low Income Families 3
HDFS 271 – Black American Family Patterns 3
HDFS 272 – Family and Work 3
HDFS 274 – Public Policy and the Family 3
HDFS 275 – Family Pathology 3
HDFS 276 – Planning and Managing Human Services Programs 3
HDFS 277 – Issues in Human Sexuality 3
HDFS 278 – Family in Society 3
HDFS 279 – History of the Family 3
HDFS 280 – Material Culture in American Family Life 3
HDFS 281 – Comparative Family Policy 3
HDFS 284 – Adolescence: Youth and Society 3
HDFS 285 – Child Welfare, Law and Social Policy 3
HDFS 287 – Parenthood 3
HDFS 288 – Supervised Field Experience ..... Arr
HDFS 292 – Research Practicum in Human Dev. and Family Studies ..... Arr
HDFS 298 – Selected Topics in Human Dev. and Family Studies ..... Arr
HDFS 299 – Independent Study for Undergraduates ..... Arr

Individualized Major

Students who are not on scholastic probation and have a total GPA of 2.5 may apply for an individualized major program. The major consists of 36 credits, all numbered 200 or above, from HDFS and at least one other department. No more than 3 credits of internship or fieldwork from any school or college may be used towards the 36 credits. A minimum of 18 credits must be in HDFS. The student must follow the General Education Requirements of HDFS. Students should submit proposals after they have earned at least 30 credits, but prior to beginning their final 30 credits of study. The student must maintain an overall GPA of 2.5 and graduate with both a total and major GPA of 2.5.

For further information and application forms, contact the Director of the Individualized Major Program, Family Studies Building, Room 320 (860) 486-3631.

A minor in Gerontology is administered under the auspices of the Center on Aging and Human Development in the School of Family Studies. Please refer to its description in the Minors section of this *Catalog*.

School of Family Studies Website

http://vm.uconn.edu/~wwwsfs/

School of Fine Arts

David G. Woods, Ph.D., *Dean, School of Fine Arts*
Mary Ellen Junda, Ed.D., *Associate Dean, School of Fine Arts*
Ted Yungclas, B.S., *Assistant Dean, School of Fine Arts*

The School of Fine Arts encompasses the Departments of Art and Art History, 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 which must be satisfied as part of every bachelor's degree program. These requirements appear in the *Academic Regulations* section of this *Catalog*.

Selected art and art history, dramatic art and music courses may be used to satisfy the "W," "C," and "Q" course requirements and the Group 4 (Arts) requirement.

Supplementary Scholastic Standard. Fine Arts students must enroll in a minimum of six credits in major department courses (Art and Art History, Dramatic Arts, or Music) each semester of full-time study unless an exception is granted by the associate dean of the school, and must maintain a 2.3 minimum cumulative grade point average in all major department courses (Art and Art History, Dramatic Arts or Music).

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 Upper Division 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 the associate dean of the school.

Art and Art History

Degrees offered

Bachelor of Fine Arts
Bachelor of Arts in Art History

BFA Areas of Concentration

Communication Design
Illustration
Painting
Photography
Printmaking
Sculpture/Ceramics
Individualized

Admissions

Portfolio Review

Common Curriculum

All B.F.A. Students share a common curriculum of 39 credits:

Drawing: ART 130, 152
Foundation Courses: Studio Concepts: ART 111
Criticism and Interpretation: ART 113
Basic Studios*: Painting (ART 164), Photography (ART 166), Printmaking (ART 160), and Sculpture (ART 163),
Art History: Twelve credits in Art History, one a Lower Division offering to be taken in the first two years of study.
Senior Project: ART 297

*Note: All basic studios should be completed no later than the completion of the fifth term

Areas of Concentration

All concentrations consist of a minimum of 18 credits of Upper-Division courses, with requirements for the various areas as specified below.

Communication Design – Art 165, 260, 261C, 264, 269, 274, 276, 278
Illustration – Art 153, 204, 239, 240, 255, 261C, 271, 272 (repeated once), 274.
Painting – Art 153, 235, 236, 237, 238 and six additional credits in the 200-level courses in the painting area to be determined by student interest and faculty advisement.
Photography – Art 256, 262 (may be repeated once), 263 (may be repeated once), 265, 266 (may be repeated once); Art History 267, 268.
Printmaking – Art 153, 204, 221, 222, 226 (may be repeated up to 18 credits).
Sculpture – Art 153, 216, 217, 219, 220 plus 6 additional credits in any of the 200 level courses in the three-dimensional area to be determined by student interest and faculty advisement.
Individualized Studies: – A program of at least 36 credits (including Art 297) on the 200-level, drawn from two or more areas, designed under faculty advisement.

Remaining Credits. Any remaining credits of the required 78 in art and art history may filled by: repeating some courses where permitted, taking relevant concentration courses, or taking electives in studio art.

Independent Study. Open to upper division students with a minimum departmental grade point average of 3.0 and no outstanding incompletes for any other 299. A maximum of 6 credits total.

Internships and Co-ops. Upper division students with a minimum DGPA of 3.0 have an opportunity for a work placement in art for credit, either a Studio Internship (ART 295) or Co-operative Education in Art (ART 296).

Additional Graduation Requirements.

- Senior Project (C or better)
- Exhibited work in annual senior show

The Department of Art and Art History reserves the right to retain student work for exhibition purposes and classroom demonstrations.

Bachelor of Arts in Art History

A B.A. in Art History is offered jointly by the College of Liberal Arts and Sciences (in which the student must be enrolled and which grants the Bachelor of Arts Degree for the major) and the Department of Art and Art History (which provides the faculty and facilities for the program). Art History majors are assigned faculty advisors in the Department of Art and Art History. Majors must fulfill the College of Liberal Arts and Sciences requirements for the Bachelor of Arts degree as well as the requirements for Art History. Art History major requirements are listed in this *Catalog* under Bachelor of Arts Degree Requirements for the College of Liberal Arts and Sciences.

Minors. The department also offers a minor in Art History. It is described in the *Minors* section of this *Catalog*.

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 - 2 minute contemporary dramatic monologue
Prospective Design/Technical majors - interview
Prospective Puppetry Arts majors - audition and interview

Requirements - BFA

All students must complete the following core courses: Dramatic Arts 107 (three semesters except for Acting majors who shall complete two semesters, one each in costume construction and lighting). 108, 130, 131, 143, 163, and any two from 230, 231, 235, or 282.

In addition, completion of the following courses:

Acting major:
Dramatic Arts 120, 144, 149, 150, 153, 220, 222, 239, 240, 241, 243, 244, 249, 268, 269, 276, and 277. One credit of DRAM 259 in either set construction or set running, and three credits of DRAM 259 chosen from acting, assistant stage managing, dance, or managment. No more than two credits in any one area may be used to satisfy the 259 requirement.

Design/Technical major:
Dramatic Arts 200, 205, 207C, 209, 211, 213, 299 (6 credits), and any six additional courses from 201, 203, 206, 208, 212, 214, 215, 218C, 247, 248.

Puppetry major:
Dramatic Arts 120, 144, 200, 207C-208, 211, 212, 213, 214, 247-248, 278, 279. Four Dramatic Arts 259 credits to be selected from the following areas: acting, construction, costuming, lighting, painting, properties, puppetry performance, running crew.

Requirements - B.A. - Theatre Studies
Completion of the following courses: Dramatic Arts 107 (4 credits), 108, 130, 131, 143, 163, and any two from 230, 231, 235, or 282.
Completion of 18 additional credits in Dramatic Arts at the 200 level.
Completion of 12 credits at the 200 level in a related group outside the department. These courses should be closely related to the student's major, but need not be in a single department. These courses may be used to satisfy other University requirements if appropriate.

Minors. The department also offers minors in Theatre Production and Theatre Studies. A minimum grade of 2.0 must be maintained in all Minor courses. They are described in the *Minors* section of this *Catalog*.

Music

Degrees Offered
Bachelor of Music with an emphasis in performance or theory.
Bachelor of Arts in music: non-professional curriculum with a concentration in music.
Bachelor of Science in music education: a dual degree program that leads to a Bachelor of Science degree through the Neag School of Education and a Bachelor of Arts in Music from the School of Fine Arts. Students spend their first three years in the School of Fine Arts and the last two years in the Neag School of Education. For more information, see the Neag School of Education.
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.

Common Curriculum
1. Completion of the following courses: Music 101, 122, 145, 146, 245, 246, 284, 285, 286 and one additional 200 level music history course.
2. Convocation (MUSI 101), Private Lesson (MUSI 122 or 222), and Ensemble (MUSI 110, 111, or 112) is required each semester. B.M. Theory students need 7 semesters of private lessons; B.A. and B.M. keyboard students need 4 semesters of ensemble.
3. Four performances representing the student's primary instrument. (see specific guidelines under additional requirements.)
4. Completion of piano proficiency equivalent to Music 123 Class Piano Level 4.
5. Students with a keyboard emphasis must complete 4 semesters of Music 124 (B.M. and B.S. students must complete 4 semesters of Music 124 before promotion to 200 level applied study).

Additional Requirements – BA
1. 15 credits in related area, with a minimum of 9 credits in one department. (Courses may be used to fulfill general education requirements)
2. 9 credits outside Music Department in addition to general education requirements and related area.
3. Minimum of 52 credits of music courses, of which 20 must be at the 200's level.
4. Four performances in recital or convocation, as a soloist, chamber musician, or accompanist.

Additional Requirements – BM
1. Completion of Music 257 and 258.
2. 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 emphasis may appear as a soloist, chamber musician, or accompanist.
   In addition, completion of the following courses:
1. **Performance emphasis: Instrumental**
   a. Music 222 (4 semesters), Music 229, 232, 233 or 234, 297.
   b. Two of the four following courses: Music 251, 275, 277 or 279.
   c. Four semesters of 113, Small Ensemble.
   d. A half recital during the junior year as a prerequisite for Music 297. Promotion to Music 222 is a prerequisite for the half recital.
   e. A total of 81 credits in music.
2. **Performance emphasis: Vocal**
   a. Music 119 (4 credits), 126, 127, 128, 129, 222 (4 semesters), 232, 233, 281, 297, two courses from Music 225, 226, 227, or 228; 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 Music 297. Promotion to Music 222 is a prerequisite for the half recital.
   c. A total of 88 credits in music.
3. **Theory emphasis**
   a. Music 232, 251, 275, 277, 279Q, and one or two courses (minimum of 2 credits) from 138-238, 217, 239 or 292.
   b. Music 299 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.

Additional Requirements – for students seeking the Bachelor of Science in music education through the Neag School of Education:
1. Completion of Music 125 (5 credits).
2. Completion of the Upper Division requirements of the Neag School of Education, including EDCI 258, 266, and 277.
3. A minimum of 36 200's level credits in music consisting of the following courses: Music 222, 232, 233 or 234, 245, 246, 257, 273.
4. Completion of professional education courses as specified by the Neag School of Education for certification; and a designated special education course.
5. Four performances in recital or convocation, as a soloist, chamber musician, or accompanist.

School of Fine Arts Website

http://www.sfa.uconn.edu/

College of Liberal Arts and Sciences

Ross MacKinnon, Ph.D., Dean, *College of Liberal Arts and Sciences*
Ronald Growney, Ph.D., *Associate Dean, College of Liberal Arts and Sciences*
Veronica Makowsky, Ph.D., *Associate Dean, College of Liberal Arts and Sciences*

Admission Requirements

The college requires 16 high school units including:
- 4 years of English
- 3 years of mathematics, with 4 preferred
- 2 years of a single foreign language, with 3 preferred
- 2 years of a laboratory science
- 2 years of social science

The Transfer Admissions Office reviews credits from other institutions. Unless exempted by the Dean and the Vice-President, 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:

1. earn a total of 120 credits.
2. earn at least 45 credits numbered 200 or above.
3. meet the General Education and concentration requirements.
4. have an Upper Division cumulative grade point average of at least 2.0.

Bachelor of Arts (BA) & Bachelor of Science (BS)

Students may earn a Bachelor of Arts in most majors. Bachelor of Science candidates must major in Biology, Chemistry, Geology and Geophysics, Individualized, Mathematics, Physics, Psychology or Statistics.

The following areas are required of all students in the College of Liberal Arts and Sciences. These courses also fulfill University General Education requirements, if they are not taken pass/fail.

Foreign Language (Group 1)

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.

Expository Writing (Group 2)

ENGL 105 and 109 or either ENGL 110 or 111
Three "W" courses, two required at the 200 level. No student who has not passed the writing component may pass the course.

Mathematics (Group 3)

Passing score on Q-course readiness test or Math 101.
Three Q-courses and one C-course.
If not a high pass, one Q-course must be in mathematics or statistics.

Literature and the Arts (Group 4)

Literature one course from:
CAMS 103, 211*, 221*,244
ENGL 112, 113, 127, 205, 206, 210, 212, 216, 219, 230
FREN 261*, 262*, 270W
GERM 240W, 252*, 253*, 254*, 255*
ILCS 101, 243*, 244*
PORT 140
RUSS 231, 232
SPAN 187, 281*, 282*

Arts one course from:
ART 135
ARTH 137, 138, 141, 191, 285, ARTH 256/ANTH 252
DRAM 101, 110
FREN 171
GERM 171, 281
MUSI 191, 193, 194
WS 104

Culture and Modern Society (Group 5)

HIST 100 or 101

Western Culture one course from:
CAMS 101, 102, 243
ECON 201, 203
FREN 169, 210*, 211*
GEOG/URBN 130
GERM 251
HEB/JUDS 103
HIST 121, 206
INTD 294
ILCS 238*
JOUR 102
POLS 121
RUSS 241
SPAN 200*

Non-Western/Latin American Culture one course from:
ANTH 100, 222, 223, 225, 226, 227, 230, 238
ENGL 120, 218
GEOG 160
HIST 106, 108, 205, 222, 223, 281, 282, 285, 288
LAMS 190
PHIL 263, 264
POLS 143, 228, 229, 239, 279, POLS 203/WS 203
SOCI 226, 227
SPAN 201*
WS 124

Philosophical/Ethical Analysis (Group 6) one course from:
LING 101
PHIL 101, 102, 103, 104, 105, 106
POLS 106
SCI 240

Social Scientific and Comparative Analysis (Group 7)
Bachelor of Arts (BA) three courses from:
Bachelor of Science (BS) one course from:
ARE 110, 150
ANTH 106, 220
COMS 102
ECON 101, 111, 112, 113
GEOG 104, 200
LING 102
POLS 132, 173
PSYC 133/135
SOCI 107, 115, 125
WS 103

Bachelor of Arts Only *(Group 8)*

Laboratory Science one course from:
BIOL 107, 108, 110, BIOL 102 or 103 or PVS 103
CHEM 122, 127Q, 128Q, 129Q, 130Q, 137Q, 138Q
GEOL 102
PHYS 101Q or 107Q, 104Q, 121Q, 122Q, 131Q, 132Q, 141Q, 142Q, 151Q, 152Q, 155Q

An additional course from ***Laboratory Science*** or one of the following ***Science*** courses:
CHEM 101
GEOG 205
GEOL 101,111
MARN 170
PHYS 103Q
PSYC 132
SCI 110

* Indicates foreign language prerequisite

Bachelor of Science Only (BS)

Science (Group 8)
All of the following:
One of the Chemistry sequences: 127Q, 128Q; or 129Q, 130Q; or 137Q, 138Q
One of the Mathematics sequences: 112Q, 113Q, 114Q; or 115Q, 116Q; or 120Q, 121Q and one of the following: MATH 210Q, 211Q, 220Q, 221Q, BIOL 107, BIOL 108
One of the Physics sequences: 121Q, 122Q, 123Q; or 131Q, 132Q; or 141Q, 142Q; or 151Q, 152Q

Field of Concentration.

1. Major and related groups. At least 24 credits numbered 200 or above in one department make up the major group. Only courses taken at the University of Connecticut meet the requirement. Exceptions may be made by the Dean. Students must earn a grade point average of 2.0 or better in the 24 credits making up the major. At least 12 credits in courses closely related to the major, but outside the major department, make up the related group.
2. Double Major Program. Students may earn a double major by fulfilling all the major requirements of any two majors within the College. Candidates shall choose one major as their primary major and receive the degree appropriate to that major. A plan of study must be filed for each major.
3. Individualized major. The major and related are combined to total 36 credits. Students must earn a grade point average of 2.5 or better in these 36 credits. At least 18 credits shall come from CLAS departments. To earn a Bachelor of Science degree, students must fulfill the corresponding general education requirements and 24 of the 36 credits must be from CLAS departments which offer the Bachelor of Science degree. Students may apply for an individualized major after the first 30 credits and must apply before the last 30 credits.

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 – stressing 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 majors must take the following courses: a 100 level Anthropology course, as well as, ANTH 214, 220, 233, and 244. Students must take at least one course in an ethnographic area (ANTH 221, 222, 223, 225, 226, 227W, 228, 229, 230, 238, 241, 242W, 243, 270).

In addition, majors must take at least three Upper Division anthropology courses two of which are not ethnographic area courses. We strongly recommend that majors take ANTH 212 and a course in methodology. These two courses should be taken during the student's senior year, if possible. Students may choose from a wide variety of related courses in other departments.

A minor in Anthropology is described in the *Minors* section.

Art History

The Department of Art and Art History in the School of Fine Arts offers a major in art history through the College of Liberal Arts and Sciences. In addition to satisfying the requirements of the College, majors must complete two 100-level courses in the following: ARTH 137, 138, 140, 141, and 191, and eight 200-level courses in the history of art with at least one 200-level course from each of the following areas:

A. Ancient: ARTH 243, 246, 280*
B. Medieval: ARTH 257, 258, 259, 262, 280*
C. Renaissance-Baroque: ARTH 250, 251, 273, 278*
D. Modern-Contemporary: ARTH 209, 252, 253, 254, 267, 268, 275*, 276*, 279*, 281, 282, 291, 292
E. Non-Western: ARTH 256, 275*, 276*, 277, 278*, 279*, 284, 285, 286, 287, 288, 289

In addition, art history majors must take two studio art courses on any level for which they meet the prerequisite. Students interested in this major should arrange for a counselor 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.

A minor in Art History is 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 (numbered in the 100's) are shared by the three departments and are listed under General Biology (BIOL). Courses above the 100's level 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 100's 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 should take BIOL 107 and 108, but majors interested primarily in botany may wish to take BIOL 110 in addition or may substitute BIOL 110 for BIOL 108. Students wishing to complete this major must take at least 24 credits of 200's level courses from Biology: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, Independent Study (course #299 in any of the three biology departments) will provide majors with a means of gaining specific research experience. Courses chosen for the major must include at least one course or course sequence from each of the following three groups:

A. Biology:MCB 200, MCB 210, or MCB 213

B. Biology:EEB 244/244W or EEB 245/245W.

C. Biology:PNB 250, MCB 259, or PNB 274-275. (Note: PNB 274-275 must be taken in sequence to be counted towards the Biology major.)

A minor in Biological Sciences is described in the *Minors* section.

Environmental Biology Concentration: Students interested in a career in Environmental Biology may wish to follow a program emphasizing ecology and environmental sciences leading to a B.S. or B.A. degree in Biological Sciences with a concentration in Environmental Biology. In addition to satisfying the minimum requirements for the B.S. or B.A. degree, students must take BIOL 107, 108 (or 110) and CHEM 127-128. Students are also urged to take STAT 110, CS 110, and CHEM 243, 244. In satisfying the requirements for a major in Biological Sciences, students are required to take EEB 244, 245 and 293S, either MCB 200 or 213, and either MCB 259 or PNB 250. In addition to these core courses, students must take at least two organism-oriented courses (list I) and two process-oriented courses (list II) from: List I: EEB 200, 201 (or 202), 252 (or 243W or 286), 271 (or 272 or 277), 275, 283, 281(W), 290, 465, MCB 229. List II: EEB 238, 247, 268, 294, 296, GEOG 215, GEOL 220,234, NRME 204, PLSC 250, MARN 280W, MARN 380. Interested students should also review the multidisciplinary Environmental Science major.

Biotechnology Concentration: Students interested in a career in biotechnology are encouraged to follow a program emphasizing biochemistry, microbiology and molecular genetics and leading to a B.S. degree in Biology with concentration in Biotechnology. It will be difficult to complete the Biotechnology curriculum unless the following courses have been completed by the end of the second semester: English 105, 109, Mathematics 115, 116 (or MATH 112, 113, 114), Chemistry 127-128, Biology 107 and either Biology 108 or 110. The major in Molecular and Cell Biology (see below) is also appropriate preparation for further study in biotechnology.

Biophysics Major

This B.S. program emphasizes the physical and chemical foundations of molecular biology. Prerequisite courses are Chemistry 127, 128, Mathematics 115, 116 (or MATH 112, 113, 114), 210, 211, and Physics 131, 132 or equivalent. For the major, the following courses should be taken: Chemistry 243, 244 (or 248, 249), 245, 263, 264, (265 optional), Biology: MCB 204, 208, 209. One or more of the following are recommended for breadth of background; Biology: MCB 210, 212, 213, 226, 229, Chemistry 232, Computer Science 110, 130. Students are encouraged to contact biophysics faculty in the sophomore year or early in the junior year about participating in research programs, as Biology: MCB 292 or 299.

Ecology and Evolutionary Biology Major

Students majoring in Ecology and Evolutionary Biology may opt for either a Bachelor of Arts degree or Bachelor of Science degree. Both BA and BS degree candidates must complete the following courses in addition to the general CLAS requirements for these degrees:

BIOL 107, and BIOL 108 or 110 (8 credit total)
CHEM 127 and 128 (8 credit total)

Requirements for the EEB Major (BS or BA)

I. Both of the following core courses:
EEB 244 or 244W General Ecology (4 credits)
EEB 245 or 245W Evolutionary Biology (3-4 credits)

II. At least one of the following animal diversity courses
EEB 200 Biology of Fishes (4 credits)
EEB 214 Biology of the Vertebrates (3 credits)
EEB 252 Field Entomology (variable credits)
EEB 273 Comparative Vertebrate Anatomy (4 credits)
EEB 275 Invertebrate Zoology (4 credits)
EEB 281 & 287 Ornithology & Ornithology Lab (4 credits)
EEB 283 Introduction to Parasitology (4 credits)
EEB 286 General Entomology (4 credits)
EEB 454 Mammalogy (4 credits)
EEB 465 Herpetology (4 credits)

III. At least one of the following plant diversity courses:
EEB 203 Developmental Plant Morphology (4 credits)
EEB 204 Aquatic Plant Biology (4 credits)
EEB 227 Biology of Plants (3 credits)
EEB 240 Biology of Bryophytes and Lichens (4 credits)
EEB 271 Plant Systematics (4 credits)
EEB 272 The Summer Flora (3 credits)
EEB 280 Evolution of Green Plants (4 credits)
EEB 290 Biology of the Algae (4 credits

IV. A course in physiology
EEB 296 Physiological Ecology (students who take PNB 250 as a related course are not required to take EEB 296).

V. It is recommended that students take at least four EEB courses that require extensive laboratory or field work.

VI. Students are encouraged to complete a course in statistics.

VII. At least 24 credits of EEB courses at the 200-level or above, which may include courses in I - IV above.

VIII. Related Course Requirements
At least 12 credits of 200 level science courses outside EEB, which must include one semester of organic chemistry and either MCB 200 (Human Genetics) or 213 (Concepts of Genetic Analysis).

A minor in Ecology and Evolutionary Biology is described in the *Minors* section.

Molecular and Cell Biology Major

This B.S. program is suitable for students with interests in biology at the cellular and subcellular level, including the areas of biochemistry, cell biology, developmental biology, molecular genetics, and microbiology, and their applications in biotechnology and medical science. Many opportunities for independent research projects in these areas are open for undergraduates.

The following 100's level courses are required: BIOL 107; CHEM 127, 128; MATH 115, 116 or 112, 113, 114; and PHYSICS 131, 132 or 121, 122, 123. Molecular and Cell Biology majors must complete the following core courses: Biology: MCB 200, 204, 210 or 229, and CHEM 243, 244. (Biology: MCB 213 may be substituted for MCB 200; and Biology: MCB 203 and 226 may be substituted for MCB 204, with permission of the Department Head.) In addition, students must take at least two MCB laboratory courses to be chosen from the following: Biology: MCB 214, 215, 220(W), 224, 226, 229 (if not used as a core course in the above list), 233, 235, 240W, 299 (which may be repeated, but only 3 credits may count toward the 24 credits of required MCB courses). For breadth in biology, it is recommended that students take Biology: PNB 250 or Biology: MCB 259, and Biology: EEB 244 or 245. Majors must complete at least 24 credits in Biology: MCB courses.

A minor in Molecular and Cell Biology is described in the *Minors* section.

Physiology and Neurobiology Major

This major, which leads to a Bachelor of Science, 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 100's level courses are required:
BIOL 107, 108; CHEM 127-128; MATH 115-116 or 112-113-114;
PHYS 131-132 or 121-122-123 or 141-142-143

PNB majors must take no fewer than 24 credits in PNB courses numbered 200 and above. These must include all of the following core courses: PNB 274-275, 251, 262. The remaining credits needed to fulfill this requirement should be selected from the available PNB courses, including PNB 225, 250, 263W, 260, 292W, 298, 299. (At most 3 credits from among PNB 292W, 298 and 299 may count towards the 24 credit requirement.)

PNB majors must also take all of the following courses, which count as the related group:
CHEM 243, 244; MCB 204 and either 200 or 213.

In addition, students are urged to take:
CHEM 245; EEB 244 or 244W or 245 or 245W; MCB 210.

A minor in Physiology and Neurobiology is described in the *Minors* section.

Chemistry

Programs in the Department of Chemistry may lead to either the Bachelor of Arts or the Bachelor of Science degree. The American Chemical Society certifies a rigorous professional program which is an option for B.S. students.

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. degree prepares 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 153 and 154 in their first year. Other prospective majors should take 127-128.

The Department strongly advises Chemistry majors to complete the required four semesters of required calculus including MATH 112, 115 or 120; 116 or 121; 210 or 220; and 211 or 221 by the end of the fourth semester. Failure to do so may delay completion of the degree. In addition, chemistry majors must complete a year of physics, usually Physics 131-132.

A minor in Chemistry is described in the *Minors* section.

Field of concentration requirements for the B.A. and B.S. degrees are as follows:

Bachelor of Science

At least 35 credits of Chemistry courses numbered 200 and above must be successfully completed for the Bachelor of Science in Chemistry in addition to the College requirements. The field of concentration requirements include CHEM 243, 244, 245, (Organic), 263, 264, 265 (Physical), 210, 214, 215 (Inorganic) and 232, 234 (Analytical).

Bachelor of Arts

At least 28 credits of Chemistry courses numbered 200 or above must be successfully completed for the Bachelor of Arts in Chemistry in addition to the College requirements. The field of concentration requirements include those listed above for the B.S. degree with the exception of CHEM 215 and 234.

For the degree certified by the American Chemical Society, two courses designated by the department as advanced courses must be taken in addition to the B.S. requirements. Also, these or other courses beyond the core curriculum must include at least 80 contact hours of laboratory work. The grade point average in all of the required chemistry courses must be at least 2.300.

Undergraduate students are encouraged to participate in research.

Communication Sciences

The Department of Communication Sciences is concerned with the human communication process and its analysis. Courses are offered leading to an undergraduate major in the communication sciences and to the following graduate degrees in the field of Communication Sciences: the M.A. with concentrations in Speech, Language and Hearing, and in Communication, and the Ph.D. with

concentrations in Speech, Language and Hearing and in Communication and Marketing Communication.

The Master's degree programs in Speech, Language and Hearing are accredited by the Council on Academic Accreditation of the American Speech-Language Hearing Association. The Speech and Hearing Clinic is accredited by the American Speech-Language Hearing Association's Professional Services Board.

The undergraduate programs in Communication Sciences can be classified as follows:

Communication Disorders. The undergraduate major is a pre-professional program within the liberal arts curriculum. It permits the student to apply for graduate studies in one of two specialty areas: audiology or speech-language pathology.

Students who elect to major in Communication Disorders must take:
COMS 201, 202, 247, 248, and 250.
In addition, students must take at least two (2) of the following courses:
COMS 244, 251, and 253.

Communication Processes. The program in Communication Processes is designed to produce students capable of analyzing human communication behavior from a scientific and behavioral standpoint. It emphasizes the empirical investigation of human communication, stressing developments in communication theory and research with a special emphasis on interpersonal, mass, organizational and international communication. Students who elect to take the Communication Processes program must take:

COMS 102	The Process of Communication
COMS 105	Principles of Public Speaking
COMS 231Q	Research Methods in Communication

In addition, students must take at least two (2) of the following Core courses:

COMS 205	Interpersonal Communication
COMS 210	Persuasion
COMS 235	Effects of Mass Media

Students who take only two (2) Core courses must take five (5) more 200-level courses in COMS; those taking three (3) Core courses must take four (4) more 200-level courses in COMS. No more than two of these courses can be from: COMS 211, 212, 215, 220 and 233.

Students must declare their intention to become a Communication Processes major by applying for admission during one of two annual application periods: the months of September in the Fall semester and February in the Spring semester. Forms can be obtained in Room 223 PCSB. The decision to admit will depend on several criteria, including the applicant's academic record, coursework completed and space availability.

A minor in Communication Processes is described in the *Minors* section.

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, comparative economic systems, labor economics, health economics, urban and regional economics, and economic development.

Economics majors must earn twenty-four credits in 200 level courses, including two intermediate theory courses (ECON 218 or 218Q and ECON 219 or 219Q), plus at least nine credits in either quantitative skills courses (ECON 211-217) or applied theory courses which have an intermediate theory course as a prerequisite, and have a calculus course recommended (ECON 237-289). ECON 300 level courses may count as part of the nine required credits in the ECON 211-217 and ECON 237-289 series. Economics majors are also required to take twelve credits in 200 level courses in fields related to economics or a minor related to economics, plus STAT 100V or 110V and one of the following: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. MATH 106Q or MATH 115Q and STAT 110V are preferred.

The intermediate theory courses are open to sophomores and should be taken early in the student's major program. Recommended courses for economics majors include ECON 212 and ENGL 249.Qualified students may substitute some 300 level courses for 200 level courses with the consent of instructor and the student's faculty advisor. The department has special requirements for economic majors in the University Honors and Degree with Distinction Programs, and for majors who qualify for the department's Economics Scholars and Quantitative Certificate Program.

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.

A minor in Economics is described in the *Minors* section.

English

The English Department offers broad and intensive study of literature, language, and the art of writing. Some careers include graduate work in English. Students interested in public-school teaching should consult the English Education advisor in the Neag School of Education, and those who intend careers in business, law, medicine, or government service should consult the English Department Advisory Center.

Among the 24 credits of English courses numbered 200 or above needed for a major, courses must be selected to fill the following requirements:

1. 210 (poetry)
2. 230 (Shakespeare)
3. Two from among: 220, 221, 222, 223, 226, 227 (British period survey courses)
4. Either 270 or 271 (American period survey courses)
5. Either 204, 231, 232, or 264 (major authors courses)
6. One from among: 218 (Third World Literature); 233, 234 (Irish Literature courses); 266 (critical theory); 274 (Asian American Literature); 276, 277 (Black writers courses); 278 (Ethnic American Literature); 285, 286 (Women/ Literature)
7. Any additional course

A minor in English is described in the *Minors* section.

Concentration in Irish Literature. English majors may choose to pursue a concentration in Irish Literature. Within the requirements for all English majors, these students will select four courses in Irish literature approved by their advisors in Irish literature and by the Irish Literature Coordinator.

Study Abroad in London. The University sponsors an academic program at The City University in London. Students take university-level courses in the history of London, British art history, British history, English literature and other subjects in the humanities.

Environmental Science

The major in Environmental Science 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 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 science and related fields.

Environmental Science majors must pass the following core requirements:

A. 100's Level Course Work (49-52 credits)
BIOL 107, 108 or 110
CHEM 127, 128
ECON 112 or ARE 150
GEOL 102
MARN 170
MATH 115, 116 or 112, 113, 114
PHYS 131, 132 or 121, 122, 123
STAT 100, 110 or 220

B. 200's Level Course Work (30-31 credits)

Environmental Policy and Law
Select one course from:
ARE 234(W) -Environmental and Resource Policy
NRME 240 - Environmental Law

Environmental Economics
ARE 235 - Environmental and Resource Economics

Atmospheric Science
Select one course from:
NRME 241 - Meteorology
NRME 271 - Environmental Meteorology

Terrestrial Systems
GEOL 251 - Earth Surface Processes

Hydrosphere Dynamics
Select one course from:
EEB 247 - Limnology
GEOL 234 - Introduction to Ground Water Hydrology
MARN 220Q - Environmental Reaction and Transport
MARN 270 - Descriptive Physical Oceanography
NRME 211 -Watershed Hydrology

Ecological Interactions
EEB 244(W) - General Ecology

Human Impact
GEOG 236 - Human Modifications of Natural Environments

Environmental Health
ANSC 226 - Environmental Health

Chemical and Microbial Reactions
Select one of the following two-course options:
1. CHEM 243, 244 (Organic Chemistry)
2. CHEM 141 (Organic Chemistry) and MCB 229 (Fundamentals of Microbiology) or MCB 203 (Introduction to Biochemistry)
3. CHEM 141 (Organic Chemistry) and GEOL 235 (Chemical Hydrogeology).

In addition to these core requirements, all students majoring in Environmental Science must also fulfill the requirements of a concentration in a discipline associated with the program before graduation. Approved concentrations are listed below: all consist of 4 or 5 courses in a specialized field, including a field course or an internship experience.

Environmental Chemistry (Chemistry) - Students must pass the following courses: CHEM 232Q, 245, 263Q, 264Q, 370

Environmental Biology (Ecology and Evolutionary Biology) - All students must take EEB 293S. In addition, they must select at least one course from each of the following groups.
Group I -- Ecological Systems and Processes
EEB 238, 245, 294, 296, 310, PLSC 250
Group II -- Plant Ecology and Systematics
EEB 227, 256, 268, 271, 272, 277, 280
Group III -- Vertebrate Ecology and Systematics
EEB 200, 214, 281, 454, 465
Group IV -- Invertebrate Ecology and Systematics
EEB 243(W), 252, 275, 288

Environmental Geography (Geography) - Students must pass the following: GEOG 232, 285W, 286W. In addition, students must pass one of the following courses: 240C, 246C

Environmental Geoscience (Geology) - Students must pass the following:GEOL 212, 252, 253

Marine Science (Marine Science) - Students are required to complete four courses from the following list, but with no more than two courses from a single group.
Group A: 294, 236, 380, 331, 332
Group B: 280W, 371, 325
Group C: 275W
Group D: 270*, 372, 376
*Students may not use MARN 270 to satisfy both a hydrospheric dynamics requirement and a related area in marine sciences. Students choosing a concentration in marine science should satisfy their hydrospheric dynamics requirement with another course from that group.

Environmental Science also offers the following concentrations through the College of Agriculture and Natural Resources. For complete requirements, refer to the Environmental Science description in the C*ollege of Agriculture and Natural Resources* section of this *Catalog*.

Resource Economics (Resource Economics)
Environmental Health (Animal Science)
Natural Resources (Natural Resources Management and Engineering)
Soil Science (Plant Science)

Geography

Geography is a field of study that investigates the surface of the earth as the scene of human activity. Because our living environment has its origins in physical processes and human activities, geographers use both natural and social science concepts.

Geography students are prepared to enter a wide range of careers in business, planning, government, and teaching. In private sector firms, geographers select locations for capital investment, determine market or service areas, assess the impact on the environment of proposed changes in land use, and develop effective strategies for planning. At all levels of government geographers work in teams with other disciplinary experts. Many geographers work for Federal mapping agencies, the Bureau of the Census, the Department of State, the U.S. Geological Survey, or other agencies. The undergraduate program also provides students with the background to pursue graduate degrees in geography or related fields such as urban and regional planning. At the University of Connecticut, graduate study in regional analysis and geographic information systems leads to the M.A. and Ph.D. degrees.

Requirements for the Major. The geography major requires 24 credits in 200-level geography courses and 12 credits of related course work in other departments. Majors complete a basic core of courses (Geography 200 or 204, Geography 205, and Geography 242Q) and select 15 additional geography credits, including at least one "W" course numbered 280 or higher in consultation with their departmental advisor.

A minor in Geographic Information Science is described in the *Minors* section.

Geology and Geophysics

Geology is the science of the earth. Integrating principles from biology, chemistry and physics. Geology investigates the processes responsible for creating the Earth as we know it and for the co-evolution of earth and life. The Department of Geology and Geophysics offers students an opportunity to explore these ideas in all of our courses and programs of study. The curriculum is designed to meet the needs of a variety of students from those who wish to broaden their educational backgrounds with a science elective, to those who wish to pursue technical or professional careers in the earth sciences. The Department strives to give students both an appreciation of the natural world and the analytical skills required to investigate environmental problems.

The Bachelor of Science degree program introduces students to fundamental geological principles and to basic research. The Bachelor of Arts degree program is designed to give students a broad understanding of the earth sciences. The Department recommends the Bachelor of Science degree program for students planning to attend graduate school and/or pursue professional careers in the earth sciences.

Bachelor of Arts Degree

Students intending to obtain a Bachelor of Arts degree must take at least 36 credits in courses numbered 200 or above. Twenty-four of these credits must be in courses offered by the Department and 12 must be in courses outside the Department but in closely related fields.

Bachelor of Science Degree

The Department offers two options for students deciding to pursue the Bachelor of Science degree: a geology option and a geophysics option.

Each option requires at least 48 credits in courses numbered 200 or above in science (including mathematics, engineering, agriculture, and natural resources management and engineering). Twelve of these credits must be from outside the Department.

Geology Option. (1) GEOL 102, (2) GEOL 212, 250, 251, 252, 253, and (3) four courses from the following: GEOL 214Z, 215V, 217, 219, 220, 223, 227, 229, 234, 235, 240, 261, 264, 266, 267, and 268.

Geophysics Option. (1) GEOL 102, (2) three courses selected from Geology Core, comprising GEOL 250, 251, 252, 253, (3) three courses selected from Geophysics Core, comprising GEOL 264, 266, 267, 268, and (4) two courses

selected from GEOL 212, 214Z, 215V, 217, 219, 220, 223, 227, 229, 234, 235, 240, 261. In addition, students in this option must complete (5) Math 210 or 220,and Math 211 or 221 or 227and (6) two courses selected from Physics 209, 242, 246, 255, 256, 257. Courses from Geology Core and/or Geophysics Core not used to satisfy requirement (2) or (3) may be used to meet requirement (4).

The Department recommends that majors elect courses in accordance with their area of specialization and career goals. Those interested in careers in environmental fields such as hydrogeology, engineering geology, and near surface geophysics can follow either option and select appropriate additional course work in consultation with their advisor.

A minor in Geology and Geophysics 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 zymurgy. Specialization in history is especially valuable as pre-professional training for law, government, diplomacy, and journalism and for library, archival, and museum administration.

Honors students who plan to major in history will normally take History 203.

Requirements for the Major in History: Undergraduate majors are required to take at least 27 credits in 200-level courses, 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 211 in the semester following their declaration as majors, and all majors except Honors students must take HIST 297W in their senior year.

With the consent of the undergraduate major's advisor, 300-level courses may be used to fulfill the distribution requirement.

Group A – Ancient, Medieval, and Early Modern
200, 203, 212, 213, 214, 216, 217, 218, 219, 220, 250, 251, 255, 261, 267, 270, 271, 272, 273, 274, 292, 293, 295, 296, 297, 298, 299

Group B – Modern Europe
200, 203, 206, 208, 209, 225, 228, 229, 252, 254, 256, 258, 259, 262, 264, 265, 269, 270, 279, 291, 292, 293, 295, 296, 297, 298, 299

Group C – United States
200, 207, 210, 215, 227, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 246, 247, 248, 249, 270, 292, 293, 294, 295, 296, 297, 298, 299

Group D – Africa, Asia, Latin America, and Middle East
200, 204, 205, 221, 222, 223, 224, 226, 270, 275, 276, 277, 280, 281, 282, 283, 285, 286, 287, 288, 289, 290, 292, 293, 295, 296, 297, 298, 299

With the approval of the department head, HIST 292W, HIST 295W, HIST 298, and HIST 299 may be related to the chronological or geographical categories and be counted for credit in that category.

A minor in History is described in the *Minors* section.

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, public relations offices and political press offices.

In addition to satisfying the requirements of the College, majors must complete JOUR 200W, 201W, 202, 220 and 230W. JOUR 102 is a prerequisite for JOUR 202.

Latin American Language and Area Studies

The major in Latin American Studies responds to a need in the New England region and nationally for a deeper understanding of the peoples and cultures of Latin America, its history and contemporary economic, social, and political problems, and its relations with the United States. Completion of the B.A. in Latin American Studies prepares the student to work in government, international organizations, business, journalism and communications, or to pursue graduate studies that lead to careers in research and teaching.

The Center for Latin American and Caribbean Studies administers the undergraduate major in Latin American Studies, a program of study leading to the B.A. degree. The major in Latin American Studies consists of a minimum of 36 credit hours of interdisciplinary course work built around 5 core courses (15 credit hours) as follows:

Core Courses

Anthropology: One course selected from 221 (Anthropological Perspectives on Latin America Today), 222 (Peoples of South America), or 227 (Contemporary Mexico), or 229 (Caribbean Cultures).

History: One course selected from 281 (Latin America in the Colonial Period), 282 (Latin America in the National Period), or 283 (Hispanic World in the Ages of Reason and Revolution).

Humanities: One course in Latin American literature or art:
SPAN 295 (Spanish-American Literature: the Formative Years), 296 (Great Works of Spanish-American Literature), 297 (Spanish-American Fiction); PORT 236 (Modern Brazilian Literature), 242 (Studies in Brazilian Literature I), 243 (Studies in Brazilian Literature II); ARTH 277 (Art of Mesoamerica), 278 (Colonial Mexican Art), or 279 (Modern American Art).

Political Science: 235 (Latin American Politics)

Latin American Studies: LAMS 290 (Latin American Studies Research Seminar).

Language Requirement

Successful completion of two Spanish 278, 279, 290, or 291 or two of the following: Portuguese 221, 236, 242, 243.

Students select the remaining courses (a minimum of 21 credit hours) needed to complete the major in consultation with an advisor, who will assure that the student's program is coherent and comprehensive.

Study Abroad. While study abroad is not mandatory, we strongly urge all Latin American Studies majors and minors to spend at least a semester in Latin America. The University sponsors academic programs in Mexico at the Universidad de las Américas, Puebla, in the Dominican Republic, at the Pontificia Universidad Católica Madre y Maestra, Santiago de los Caballeros, at the University of Costa Rica in San José, Costa Rica, at the Pontificia Universidad Católica de Chile and the Universidad de Chile in Santiago, Chile and at the Universidad de Buenos Aires, Argentina. Students may go for either a semester or a full academic year. The University also sponsors an academic year and a one-semester program in Brazil at the Universidade de São Paulo. For further information, contact the Center for Latin American and Caribbean Studies or the Study Abroad Office.

A minor in Latin American Studies is 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 200 level from each department is required.

For the **Linguistics and Philosophy** joint major, specifically required courses are Linguistics 206 (Syntax and Semantics) and Philosophy 241 (Language: Meaning and Truth).

For the **Linguistics and Psychology** joint major, specifically required linguistics courses are: LING 202 and 215C, and at least two out of LING 205Q, 206Q, 208W, and 244W; and specifically required psychology courses are: PSYC 202Q and 221, and at least two out of PSYC 210W, 215W, 220, 236, 254, and 256. All students in the Linguistics/Psychology Major are strongly encouraged to take LING/PSYC 305 in their senior year.

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.

Marine Sciences

Bachelor of Science in Coastal Studies: The B.S. in Coastal Studies requires a foundation of courses including 28 credits of Marine Science courses, and 12 credits of defined social science courses constituting the Related Area. Coastal Studies majors must pass the following courses, in addition to the General Education requirements of the College.

I. 100's Level: BIOL 107, 108; CHEM 127Q-128Q; MATH 115Q, 116Q; PHYS 131Q, 132Q; MARN 170

Coastal Studies requires a course in data analysis and interpretation. This requirement may be fulfilled with STAT 110V or another course approved by the Department.

Students are encouraged to fulfill some of their General Education requirements with the following choices:

For Group 6: SCI 240 or for Group 5a: HIST 206
For Group 7: ECON 112 or ARE 150

II. Coastal Studies B.S. Major Requirements

The following courses constitute the major requirements: MARN 210, 211, 212C, 220Q, 255W, 256, and 3 electives. The electives must represent different areas of Marine Sciences. At least one course must be chosen from each of the following groups:

Group 1: MARN 230, 270;
Group 2: 236, 282, 294, 241, 242;
Group 3: MARN 236, 282, 275W, 280W, 325.

Note, however, that only one of MARN 236 and 282 may be counted as an elective. It can satisfy either the Group 2 or 3 requirement, but not both.

III. Coastal Studies B.S. Related Area

In consultation with their faculty advisor, students choose Related Area courses appropriate to their interests, one from each of four subject areas: Environmental Policy, Economic Development, Law and Regulation, and Coastal Issues. The department maintains a list of courses acceptable for each subject area.

Bachelor of Arts in Coastal Studies: The B.A. in Coastal Studies requires a foundation of courses including 25 credits of Marine Science courses, and 18 credits of defined social science courses constituting the Related Area.

The B.A. plan of study allows interested students to take additional social science courses. Coastal Studies majors must pass the following courses, in addition to the General Education requirements of the College.

I. 100's Level: BIOL 107, 108; CHEM 127Q-128Q or CHEM 122 and GEOL 102; MATH 109Q, 118Q; PHYS 121Q, 122Q; MARN 170

Coastal Studies requires a course in data analysis and interpretation. This requirement may be fulfilled with STAT 110V or another approved course.

Students are encouraged to fulfill some of their General Education requirements with the following choices:

For Group 6: SCI 240 or for Group 5a: HIST 206
For Group 7: ECON 112 or ARE 150

II. Coastal Studies B.A. Major Requirements

The following courses constitute the major requirements: MARN 210, 211, 212C, 255W, 256, and 3 electives The electives are: MARN 220Q, 230, 236 or 282, 241, 242, 270, 275W, 280W, 294, 325

III. Coastal Studies B.A. Related Area

In consultation with their faculty advisor, students choose Related Area courses appropriate to their interests, one from each of four subject areas, plus two additional courses from any of the following areas: Environmental Policy, Economic Development, Law and Regulation, Coastal Issues. The department maintains a list of courses acceptable for each subject area.

Concentration in Marine Sciences

The department is associated with the Environmental Sciences Program, and faculty serve as advisors to students pursuing a concentration in Marine Sciences. Students are required to complete four courses from the following list, but with no more than two courses from a single group.

Group A: 294, 236, 380, 331, 332
Group B: 280W, 371, 325
Group C: 275W
Group D: 270, 372, 376

Both a minor in Marine Biology and a minor in Oceanography are described in the *Minors* section.

Mathematics

The Mathematics Department offers programs of study in Mathematics, Applied Mathematical Sciences, Actuarial Science (in cooperation with the School of Business Administration), and Mathematical Statistics (in cooperation with the Department of Statistics).

Mathematics 242W, 247, and 248 may not be counted in any of the major groups listed below.

The Department offers both a Bachelor of Science and a Bachelor of Arts degree in Mathematics, Applied Mathematical Sciences, Mathematics-Statistics, and Mathematics-Actuarial Science. 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.

Bachelor of Science in Mathematics: The requirements for the B.S. in Mathematics are Mathematics 220 and 221 (or 210, 211 and 227), 213, 215, 216, 273-274, and at least 9 additional credits from any of the following courses: Mathematics 204, 217, 223, 224, 231, 235, 237, 250, 252, 255, 258, 272, 277, 278, 281, 282, 286, and approved sections of 297 and 298. In addition, at least 12 credits at the 200 level in approved related areas are required.

Bachelor of Arts in Mathematics: The requirements for the B.A. in Mathematics are 27 credits of 200-level course work in Mathematics and 12 credits of course work in approved related areas. The required courses are Mathematics 210 and 211 (or 220 and 221), 213, 215, 216, and 273. The remaining credits may come from any 200-level Mathematics courses, except Mathematics 242W, 247 and 248.

Bachelor of Science in Applied Mathematical Sciences: The requirements for the B.S. in Applied Mathematical Sciences are Mathematics 220 (or 210 and 211), 213, 227, 272, 273, 281, and 282, and two courses to be selected from Mathematics 204, 221, 231, 237, 252, 255, 274, 277, 278, and approved sections of 297 and 298, and at least 3 additional credits from Mathematics 215, 216, 217, 223, 224, 231, 235, 250, 258, 286, and approved sections of 297 and 298. In addition, at least 12 credits at the 200 level 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 200's level course work in Mathematics and at least 12 credits in approved related areas. The required courses for the degree are Mathematics 210 or 220, 211 or 221, 215 or 227, 272, 281, and 282. The remainder of the 27 credits of Mathematics must be chosen from Mathematics 204, 213 or 214, 231, 237, 252, 255, 273, 277 and 278.

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 200's level in Mathematics and Statistics (in addition to Mathematics 210 or 220), with at least 12 credits in each department. The required courses for the Mathematics-Statistics major are Mathematics 215 or 227, 211 or 221, and Statistics 230 and 231.

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 200 level in Mathematics, Statistics, Business, and related areas (in addition to Mathematics 210 or 220). The required courses are Mathematics 227 or 215, 231, 232 (or STAT 235), 285, 286, 287-288, Statistics 230-231, and Finance 221 or 225. Students should include Economics 111 and 112, a Computer Science course, and Accounting 131 and 200 in their program of study as early as possible. Admittance to this program is available only to students who meet at least one of the following requirements:

— a total grade point average of 2.75 or higher;
— a total grade point average of 3.0 or higher in Mathematics;
— a passing score on one or more Actuarial examinations;
— acceptance by the Mathematics Department's Actuarial Science Committee.

To remain in the Actuarial Science Major, students are expected to maintain a total grade point average of 2.75 or higher.

A minor in Mathematics is described in the *Minors* section.

Modern and Classical Languages

The Department of Modern and Classical Languages offers courses in French, German, Hebrew, Italian, Portuguese, Spanish, the classical languages, and selected critical languages. Students may major in Classics and Ancient Mediterranean Studies, French, German, Italian Literary and Cultural Studies, Portuguese, or Spanish or a combination of languages. The department aims to give students a working knowledge of foreign languages for teaching, research, travel, business, diplomatic or governmental work, and for graduate or undergraduate study of the civilization and literature of a foreign country.

Ordinarily study abroad or internship in the major **modern** language for at least one semester (or approved equivalent time period) will be required for all majors. With the advisor's consent students may choose from a variety of programs. The department conducts programs in Austria, France, Italy, Spain and Germany, sponsors a resident study program in Mexico and offers credit arrangements for study at a Goethe Institute in Germany. Such study normally is most valuable during the junior year, but unusually qualified sophomores and some seniors are also eligible. (The year abroad program in Italy welcomes applications by sophomores, juniors and seniors.) Additional language experience is available through residence in the University's Foreign Language dormitory. Students interested in any of these possibilities should consult early with their advisors.

Courses numbered in the 200's are open to freshmen and sophomores if they meet the prerequisites for the course. In the modern languages, classwork is conducted in the foreign language unless otherwise indicated.

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 8 courses from the following:

A. At least two courses involving reading in Greek and/or Latin: CAMS 207, 208, 211, 212, 213, 214, 215, 221, 224, 225, 226, 227, 230, 231, 232, 293*, 295*, 298*, 299*.
B. At least one writing course on Classical literature in English: CAMS 241W, 242W.
C. At least two other courses dealing with the ancient world CAMS 243, 244, 251, 252, 253, 254, 255, 256, 257, 293*, 295*, 298*, 299* (These may be cross-listed under Art History, History, Judaic Studies, and Philosophy). JUDS/HEB 201 and INTD 294 may also be included.
(*May count toward major only with consent of advisor.)

Concentration in Ancient Mediterranean Studies

Students must complete a minimum of 8 courses from the following:

CAMS 243, 244, 251, 252, 253, 254, 255, 256, 257, 293*, 295*, 298*, 299* (These may have cross-listings under Art History, History, Judaic Studies, and Philosophy.) JUDS/HEB 201 and INTD 294 may also be included.

(*May count toward major only with consent of advisor.)

A minor in Classics and Ancient Mediterranean Studies is described in the *Minors* section.

French

Students majoring in French must complete the following courses: 210 and 211, 261 and 262, 268, 272 and two from 218, 220, 221, 222, 223, 224, 230, 231, 232, 233, 234, 235, 257, 280, 281, and 282. Each major is advised to complete a Senior Seminar. No more than 15 credits earned at Paris may count toward the major.

Study Abroad in France. 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 non-literary courses whenever possible.

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 major in literature the following courses are required: 1) 233, 234; 2) three from among the following literature courses: 252, 253, 254, 255, 293 (on a literary topic), 296 (on a literary topic), and 298 (on a literary topic); 3) two from 200, 231, 232, 243, 244, 271, 281, 285, 293 (on a non-literary topic), 296 (on a non-literary topic) and 298 (on a non-literary topic); and 4) one of the following courses taught in English: 251 or 280W. (Only one course taught in English is allowable toward the literature major.)

For the major in German studies the following courses are required: 1) 233, 234, 251; 2) four from 200, 231, 232, 243, 244, 271, 280W, 281, 285, 293 (on a non-literary topic) and 296 (on a non-literary topic) and 298 (on a non-literary topic); 3) one of the following literature courses: 252, 253, 254, 255, 293, (on a literary topic), 296 (on a literary topic) and 298 (on a literary topic). (Only two courses taught in English are allowable toward the German studies major.)

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 220, 221, and 222 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.

Study 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

The major allows students to pursue a traditional concentration in Italian literary studies or a concentration in Italian cultural studies. Students who concentrate in Italian literary studies may take courses in Italian cultural studies in addition to their language and literature requirements. Those who concentrate in Italian cultural studies may also pursue relevant Italian literary studies.

Concentration in Italian Literary Studies

Students must complete a minimum of 8 courses (the equivalent of 24 credits) to be chosen among the following: ILCS 237, 238, 239, 240, 243, 244, 250, 251-252, 253, 254, 261, 262. No more than 15 credits earned in Florence may count toward the major.

Concentration in Italian Cultural Studies

Students must complete a minimum of eight courses (the equivalent of 24 credits) from the following:

A. Three 200 level Italian courses, with the exception of 239 and 240
B. Two courses from the following: HIST 267, 269, 271, 297
C. Three courses to be chosen from the following: ARTH 251, 272, 273, or MUSI 292, 213; or ENGL 278W

Students must demonstrate proficiency in Italian at a level equivalent to ILCS 147.

Study Abroad in Italy. Students participating in the *Florence Study Program* may earn up to 30 credits during the academic year they spend in Florence; participants register at the University of Florence where they may take courses in any discipline. The program also offers courses designed exclusively for its participants and taught by Italian professors. No more than 15 credits taken in Florence may count toward a major in Italian at this University.

A minor in Italian Cultural Studies and a minor in Italian Literary Studies are described in the *Minors* section.

Portuguese

The Portuguese major consists of a minimum of 8 courses or 24 credits, all 200-level, in Portuguese, and an additional 4 courses or 12 credits, all 200-level, of related courses.

1.**The Major Group.** Portuguese courses comprise two main groups: A. Literature. B. Language and Culture.

A. At least 4 courses must be taken from the literature group: 236, 237, 240, 241, 242, 243, 244.

B. At least 2 courses must be taken from the language culture group: 220, 221, 234, 251, 293 (Foreign Study) may be counted in either group, depending on course content.

2. The 12-credit related group requirement may be met by appropriate courses in other foreign languages as well as English, History, Political Science, Latin American Studies, and other departments.

Study Abroad in Portugal, Brazil, or other Portuguese-speaking countries. Students should seriously consider studying in a Portuguese speaking country, either for a summer, a semester, or a year, to improve their linguistic ability and gain exposure to the culture. Courses taken abroad, under the auspices of the Spanish-Portuguese Section of the Department of Modern Languages or under the auspices of UConn Study Abroad Program, will count toward the Portuguese major as follows:

A maximum of 4 courses, or 12 credits taken abroad may be counted toward the major.

A minor in Portuguese is described in the *Minors* section.

Spanish

The Major Group. Spanish courses comprise two main groups: A. Literature. B. Language and Culture.

A. At least 4 courses must be taken from the literature group: 202, 207, 208, 209, 220, 223, 224, 225, 226, 281, 282, 292, 294, 295, 296, 297.
B. At least 2 courses must be taken from the language-culture group: 200, 201, 204, 205, 206, 208, 210, 270, 279, 290, 291; 293 (Foreign Study) may be counted in either group depending on course content.

Study Abroad in Spain and Latin America. Courses taken abroad in the programs operated by UConn in Granada, Spain or Puebla, Mexico will count toward the Spanish major as follows:

A maximum of 4 courses, or 12 credits taken abroad may be counted toward the major.

Programs are also available in Argentina, Chile, and the Dominican Republic for advanced Spanish language students.

A minor in Spanish is described in the *Minors* section.

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 earn 24 or more credits in philosophy courses numbered above the 100's level, and 12 or more credits in related fields. Within the 24 credits in philosophy, students must pass PHIL 221 and 222, and at least two of the following four courses: PHIL 210, 211, 212, and 215.

A minor in Philosophy is described in the *Minors* section.

The Philosophy Department also offers, with the Linguistics Department, a joint major in Philosophy and Linguistics. Students choosing this concentration must earn 12 credits or more at the 200's level from each of the two Departments. Within the total of 24 credits, students must pass both Philosophy 241 and Linguistics 206.

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 140Q, 141Q, and 142Q. 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 high school teaching career.

Bachelor of Science, General Option:
A total of 48 credits from 200-level 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 230Q, 242Q, 255Q, 257Q, 258Z, 261Q, and 271Q, and at least three credits of an advanced laboratory (PHYS 256Q, 259Z, or 285Z). It is strongly recommended that students going on to graduate school in physics take PHYS 262Q. All students are strongly encouraged to participate in an undergraduate research project. An experimental research project (PHYS 299) may count towards the advanced laboratory requirement. No more than two credits from PHYS 291, and no more than six credits from PHYS 299 may be counted towards this degree option. The general option for the Bachelor of Science degree requires a minimum of 12 credits from 200-level related courses in mathematics, other sciences, or engineering.

Bachelor of Science, Applied Option:
A total of 48 credits from 200-level courses in physics, other sciences, mathematics, or engineering are required. Among these, 30 credits must be physics courses. The 30 credits must include PHYS 209Q, 210Q, 230Q, 258Z, and 271Q, plus a minimum of nine credits from the following eight courses: PHYS 256Q, 259Z, 273Q, 274Q, 275Q, 281Q, 285Z, and 325, with at least three of the nine credits being from an advanced laboratory (PHYS 256Q, 259Z, or 285Z). 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. (PHYS 242Q and 255Q together may replace PHYS 209Q.) All students are strongly encouraged to participate in an undergraduate research project. An experimental research project (PHYS 299) may count towards the advanced laboratory requirement. The applied option for the Bachelor of Science degree requires a minimum of 12 credits from 200-level 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 200-level courses in physics, other sciences, mathematics, or engineering. No more than two credits from PHYS 291, and no more than six credits from PHYS 299, may be counted towards this degree option.

Bachelor of Arts:
A total of 36 credits from 200-level courses in physics, other sciences, mathematics, or engineering are required. Among these, 24 credits must be physics courses. These 24 credits must include PHYS 209Q, 210Q, 230Q, and 258Z, along with 12 credits of elective physics courses. (PHYS 242Q and 255Q together may replace PHYS 209Q.) No more than two credits from PHYS 291, and no more than six credits from PHYS 299, may be counted towards this degree. The Bachelor of Arts degree requires a minimum of 12 credits from 200-level related courses in mathematics, other sciences, or engineering.

Bachelor of Science in Engineering Physics:
Offered jointly by the School of Engineering and the Department Physics in the College of Liberal Arts and Sciences, Engineering Physics majors can concentrate in either (1) Electrical, (2) Mechanical or (3) Metallurgy and Materials Engineering. Students must satisfy the course requirements of both the College of Liberal Arts and Sciences and the School of Engineering to complete this degree.

The major requires 134 credits of course work.The preferred introductory sequence for a major in Engineering Physics, common to all three concentrations, consists of CHEM 127Q and 128Q, MATH 115Q and 116Q, PHYS 151Q and 152Q, CSE 123C, and ENGR 100.

Engineering Physics majors are required to complete the following:
PHYS 230Q, 242Q, 255Q, 257Q, 258Z, 261Q, 285Z
ENGR 295 (4 credits)
MATH 210Q, 211Q, 272Q

A. Electrical Engineering - ECE 201, 202, 204, 209W, 228, 229, 232, 241, 245, and 261; CSE 207 and 208W; MATH 227Q; PHYS 271Q; STAT 224; Elective courses (2 credits).

B. Mechanical Engineering - ME 220, 227, 233, 234, 242, 250 and 253; CE 211, 287; STAT 224; ME Elective Courses (6 credits); PHYS Elective Courses (3 credits); Elective Courses (6 credits).

C. Metallurgy and Materials Engineering - MMAT 243, 244, 255, 256, 265, 266, 267, 283 and 286W; CHEG 256; PHYS 273Q, 281Q; MMAT Elective Courses (6 credits); Elective courses (3 credits).

The options for the electives courses are specified in the *Engineering Physics Guide to Course Selection*.

A minor in Physics is described in the *Minors* section.

Political Science

Political Science serves students whose primary interest is in some phase of public affairs (law, politics, government service), international relations (foreign service), in gaining a better understanding of the entire field of governmental organization and functions.

Students majoring in Political Science must take introductory 100-level courses in three of the following four subdivisions: Theory and Methodology (106), Comparative Politics (121 or 143), International Relations (132), and American Politics (173). These courses should be taken during the student's first two years of study.

All majors in political science must distribute their major courses in at least four of the following five subdivisions.

I. Theory and Methodology: 201, 202, 204, 206W, 207, 291
II. Comparative Politics: 203W, 228, 229, 230, 231, 235, 236, 237, 239, 233, 233W, 244, or 244W
III. International Relations: 211, 212, 215, 216, 217, 218, 219, 220, 221, 222, 224, 225, 226, 227, 279
IV. American Politics: 241, 242, 246, 248, 263, 270, 274, 275
V. Public Policy and Law: 251, 252, 253, 255, 260, 264, 276, 278

POLS 296 and 298 may not be counted toward this distribution except with consent of advisor.

No more than 6 credits of independent study (POLS 299) or field work (POLS 297), or a combination of the two, may be counted toward the 24 credit requirement for the major, except by permission of the Department Head.

A minor in Political Science is described in the *Minors* section.

Psychology

The Psychology Department recommends that its majors take a broad selection of psychology courses and electives to obtain a well-rounded introduction to the science. In addition, all majors should try to include some course work involving experiments in their programs. The Department encourages Upper Division students to take laboratory courses, research seminars, and to participate in the research activities of the Department.

The Department advises students planning to major in psychology to secure a background in the basic sciences and relevant social sciences, preferably before the junior year. Suggested courses include Biology 100, 102, or 107; Anthropology 106 or 220; and Sociology 107. If at all possible, majors should take Statistics 110 (or 100) by their third semester.

The following core curriculum is required, twenty four 200 level credits including:

Group I. Foundation. Both courses: Psychology 202Q and 291.

Group II. Social and applied science perspectives. Two courses chosen so that two of the following four areas are represented: (a) Developmental Psychology 236; (b) Social Psychology 240; (c) Personality 243 or Abnormal Psychology 245; (d) Industrial Psychology 268.

Group III. Natural science perspective. Two courses chosen so that two of the following four areas are represented: (a) Learning and Cognitive Psychology 220 or 256;(b) Psychology of Language 221; (c) Animal Behavior 253 or Physiological Psychology 257; (d) Sensation-Perception 254.

Students who wish to receive a Bachelor of Science degree with a major in Psychology must do the following: (1) satisfy the general Bachelor of Science requirements, and (2) satisfy a modified version of the major requirements for Psychology. In the modified version, the major requirements are expanded such that (i) three courses must be taken from Group III of the core curriculum, and (ii) two laboratory courses must be taken. A course that is designated as a "laboratory" by its title is considered a laboratory course.

A minor in Psychology is described in the *Minors* section.

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 organization, 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. Three courses are required of all majors: SOCI 205, 230, 270, and at least one course from each of the following groups:

A) Organizations and Institutions (SOCI 247, 250, 260, 265, 269, 274, 280, 288, or 265)
B) Inequality, Diversity, and Change (SOCI 221, 222, 226, 227, 235, 236, 240, 242, 243, 249, 252, 258, 268, 282, or 290

The remaining 9 credits of 200-level sociology courses, with the guidance of a faculty advisor, may be chosen either freely, including from among the courses listed in Groups A and B above, or one of five areas of sub-concentration: Social Science Background for Careers in Social Services (social work, health care, teaching, counseling); Background for Careers in Business, Management, Advertising, and Personnel; Background for Careers in Law and Public Policy; Background for Careers in Urban Affairs and Community Development.

A minor in Sociology is described in the *Minors* section.

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.

The statistics major requires 24 credits at the 200 level in statistics, including STAT 230 and 231. MATH 215 or 227 and CSE 110 or 130 are strongly recommended. Since STAT 230 has MATH 210 or 220 as a prerequisite, students should begin the calculus sequence as soon as possible.

The mathematics-statistics major requires a total of 36 credits at the 200-level in mathematics and statistics (in addition to MATH 210 or 220), with at least 12 credits in each department. The required courses in the mathematics-statistics concentration are MATH 215 or 227, and 211 or 221, and STAT 230 and 231.

Students without mathematical background who wish some skill in statistical methodology should take STAT 110 followed by 201. Students interested in the statistical analysis of business and economic data should take STAT 100 followed by 201. Students with the appropriate calculus prerequisite should take STAT 220 rather than STAT 110 or 100 and 201. STAT 242 and 243 are appropriate continuations for each of these three introductory sequences. Students interested in statistics as a mathematical discipline should complete STAT 230-231.

A minor in Statistics is described in the *Minors* section.

Urban Studies

The undergraduate major in Urban Studies is an interdisciplinary program in the College of Liberal Arts and Sciences with a focus on educating citizens on the multiple dimensions of life within an urban society. The major has three parts. First, students receive a broad education in the study of cities through courses in Anthropology, Economics, Geography, History, Political Science and Sociology. Second, students acquire a solid foundation in analytical techniques such as statistics, urban and regional analysis, and geographic information systems. Third, students apply these skills in pre-professional courses, capstone projects, and internships.

The requirements of the major constitute a total of 24 credit hours and are listed below. Students also have the option of specifying an area of concentration. These meet the requirements of the major through a more tightly defined set of courses. The concentrations are in Urban and Regional Planning, Public Policy and Administration, Social and Human Services, and Urban Culture.

Requirements of the major.

1. URBN 230
2. One of the following: HIST 241, POLS 263, SOCI 280
3. Either, ECON 259 or GEOG 274
4. One of the following: HDFR 276, POLS 260, or SOCI 285

5. One of the following: ECON 212V, GEOG 242Q, GEOG 246C, HIST 211, POLS 291V, SOCI 205, SOCI 207Q, STAT 201Q
6. Two additional courses selected from groups 2-5 or from the following list: ANTH 248, ARTH 282, ECON 253, GEOG 233, GEOG 239, GEOG 280W, HIST 246, INTD 211, POLS 276, SOCI 283, SOCI 281, SOCI 282, URBN 295
7. One of the following: INTD 210, URBN 232, or a section of URBN 299 that has been designated a "thesis" project by the Director of Urban Studies.

Students interested in pursuing a program in Urban Studies are advised to complete the following 100-level courses as prerequisites to the courses in Urban Studies: URBN 130, ECON 112, SOCI 107, ARTH 191, and STAT 100V/110V. They should also plan on enrolling in URBN 230 as soon as possible.

Women's Studies

The Women's Studies Program is a flexible interdisciplinary academic program devoted to the critical analysis of gender and the pursuit of knowledge about women. Combining the methods and insights of traditional academic disciplines with the special insights of Women's Studies scholarship, our courses yield fresh perspectives which help us to understand the origins of and changes in diverse cultural and social arrangements. The Women's Studies major is broad as well as flexible, and the student's program can readily reflect individual interests or complement a second major.

Gender is a common thread in our offerings, but it always interweaves with race, class, and other factors which contribute to the diversity of women's lives. The Women's Studies Program is committed to a vision of women and gender that is truly international and cross-cultural. Without this perspective, our view of the world is profoundly impoverished and stereotypes will continue to distort our understanding.

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 work with and for women to create a more humane society. Women's Studies fosters interdisciplinary breadth and critical thinking and thus opens the way to a wide variety of career choices and graduate programs. Women's Studies students are flourishing in social service agencies, business, law, education, and journalism, and employers appreciate the broad interdisciplinary perspective of a Women's Studies education.

Core Courses

Students are required to take the following Core Courses:

One 100 level Prerequisite Course: WS 103, WS 104, or WS 124
WS 265 – Women's Studies Research Methodology
PHIL 218 – Feminist Theory or WS 250 – Feminisms
WS 261/262 – Women's Studies Internship Program
WS 289W – Senior Seminar in Women's Studies.

Supporting Courses

Students are required to take *five* Supporting Courses.

Two courses must be taken from **Group One** which comprises courses on women and gender taught in other departments.
COMS 226 or WS 268
ECON 279
ENGL 227 (specified sections), 264 (appropriate authors), 267 (appropriate themes), 268W (appropriate authors), 285, 286
FREN 280
HDFR 250, 259, 260, 270, 271, 272, 279
HIST 209, 266
POLS 204
PSYC 246 or 246W
SOCI 241, 252 or 252W
SPAN 207, 224 (appropriate sections)
WS 217/ENGL217
WS 231/ANTH 231

Three courses must be taken from **Group Two** which comprises courses with Women's Studies numbers and their cross-listed departmental equivalents.
WS 210 or History 210
WS 215 or History 215
WS 203W or Political Science 203W
WS 263, 264, 266, 267, 268, 269, 270, 278, 298, 299
WS 290 or ARTH 290

Note that special topics courses with Women's Studies content are offered from time to time in various departments and may be applied to the major with approval of the Program Director.

Students must take an additional 12 credits at the 200 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.

A minor in Women's Studies is described in the *Minors* section.

Alternative Areas of Study

African American Studies Institute. The primary mission of the Institute is to enlighten and inform people about the history, culture, contributions and experiences of people of African descent in the United States. To achieve this goal, the African American Studies Institute promotes high quality research, scholarship, and teaching of the African American experience and sponsors a wide variety of programs on topics and issues that are critical to Black America and pertinent to a better understanding of the Black world. The Institute is located in Wood Hall. Professor Robert W. Stephens is Director. Phone (860) 486-3630.

Air Force Studies.Under Public Law 88-647, the Air Force Reserve Officer Training Corps (AFROTC) offers courses to prepare interested college students for United States Air Force officer commissions; other college students who have no interest in military commissions may also take these courses for credit. Qualified students may apply for Air Force ROTC scholarships. Current Air Force ROTC membership isn't necessary to apply for these scholarships; however, a student who receives and accepts an AFROTC scholarship must participate in the AFROTC program while in college and serve in the Air Force as an officer upon graduation and commissioning.

The basic Air Force ROTC course, called the General Military Course (GMC), covers the freshman and sophomore years; juniors, seniors and others may also participate. Unless they've already accepted AFROTC scholarships, students aren't obligated to the Air Force at this time. During the two years, students take a one-credit Air Force ROTC class each semester; we recommend the following sequence: AIRF 113, AIRF 114, AIRF 123 and AIRF 124. They also attend Leadership Laboratory, a cadet-run, two-hour-a-week session.

The advanced course, called the Professional Officer Course (POC), covers the junior and senior years. Before entering this phase, students must secure an Air Force allocation and successfully complete a four-week field training camp. Students who don't complete the entire GMC enroll the same way, but attend field training for five and one-half weeks. If still interested in an Air Force commission, they sign a contract obligating them to the Air Force.

In the POC, students take a three-credit AFROTC class every semester and attend Leadership Laboratory (other students may take the academic classes without obligation to the Air Force); also, they must maintain full-time student status. Students in the POC receive a nontaxable stipend of $200 per month. The Air Force commissions these students as second lieutenants after graduation and completion of all AFROTC requirements. For most AFROTC graduates there is an initial obligation of four years on active duty in the Air Force.

Please contact the Air Force ROTC office at (860) 486-2224 for further information. Information can also be found at: www.airforce.uconn.edu

Asian American Studies Institute. The Asian American Studies Institute is an interdisciplinary research, teaching and publication program devoted to study of the Asian American experience within the larger context of an evolving American society. Of special importance is the internment of Americans of Japanese ancestry during World War II. Although the primary focus of the Institute is upon Asians in America, attention is also given to a study of Asia, since the unique cultural sources of Asian Americans are rooted in Asia.

Although not offering a degree program, the Institute does offer a concentration in Asian American Studies at the undergraduate level in the fields of Allied Health, English, Geography, History and Sociology. These courses, whose common thread is the Asian American experience, offer a comparative analysis of class, gender and Asian ethnicity. In addition, these courses explore the neglected aspects of the cultural, historical, socioeconomic and political experiences of Asian Americans.

The goal of the Institute is to prepare students for positions of leadership and service by cultivating a broad understanding of America's racial and cultural diversity. The goal of the Institute is to also prepare students to employ critical learning in their private lives as citizens. To complement its academic mission, the Institute serves the community beyond the University as a resource for information and advocacy.

Students wishing to specialize in Asian American Studies can take the following courses: AASI 221/221W, 239, 274, 277, 287/287W, 288, 294, 298. Check with the Institute to find which AASI Special Topics courses are being offered currently.

Permanent features of the Institute's programming include: annual publication of the newsletter The Asian American; an annual guest lecture series; the Asian Community in Connecticut Research Publication Series; the Fred Ho Collection and biennial Fred Ho Prize in Asian American History and Culture; the annual Asian American Heritage Observance; the Asian Medicinal Garden; and the Japanese American Internment Resource Library and Oral History Project.

The Institute is directed by Professor Roger N. Buckley, Room 416, Beach Hall. For further information, contact the Asian American Studies Institute, Beach Hall, Room 416. (860) 486-4751; FAX (860) 486-2851.

Comparative Literary and Cultural Studies. Students interested in comparative literature may take a wide range of comparative literature courses (no foreign language requirements) as well as courses offered by the participating literature departments. For advice about integrating the study of several literatures and preparing for further work in comparative literature, students may consult the chair, Lucy McNeece, or any member of the comparative literature faculty.

Judaic Studies. Courses in Judaic Studies are listed under Judaic Studies as well as Hebrew (Modern and Classical Languages), History and Sociology. Students may major in Judaic Studies through the College of Liberal Arts and Sciences Individualized Major. For further information about current courses you are invited to contact the Center for Judaic Studies and Contemporary Jewish Life, Unit 1205, Dodd Center; Stuart S. Miller, Associate Director, or Arnold Dashefsky, Director.

Law. Students who hope to enter a law school should seek to establish an undergraduate record of broad intellectual accomplishment. No specific undergraduate courses or programs of study are required. The Law School Admission Test, the student's scholastic record, and recommendations are the basic considerations used by law schools in determining admissions. The Pre-law Advisory Committee may be consulted for advice and students who apply to law schools for admission should register with the secretary of the committee and I.R. Davis (Chairman).

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 program.

Students should plan to take courses in general and organic chemistry (one year of each), physics (one year), biochemistry, genetics, and physiology prior to taking admissions tests (e.g. MCAT or DAT). Students are strongly advised to take admission tests in April of their junior years and typically apply for admission into medical or dental school during the summer between their junior and senior years. Students should contact the Pre-medical/Pre-dental Advising Center during the fall of their junior year to arrange for a composite letter of recommendation. Students with questions can access the Pre-medical and Pre-dental web page at:

http://predator.pnb.uconn.edu/PreMedwww/Premed.html

or contact advisors at premed@oracle.pnb.uconn.edu or by phone (860) 486-5415.

Medieval Studies. Students wishing to gain broad cultural and scholarly grounding in the Middle Ages in conjunction with a departmental specialization may consult the chairman or one of the members of the Committee for Medieval Studies. T. Jambeck and R. Hasenfratz, (Co-chairs), F. Biggs, J. Givens, S. Olson.

Military Science. Under Public Law 88-647, Army Reserve Officers' Training Corps (AROTC) offers courses to prepare interested and qualified students for an officer commission; other students not interested in a commission may take the first two years of courses. Successful completion of the program can qualify the student for a commission in the United States Army, Army Reserve, or Army National Guard. Army ROTC furnishes uniforms, textbooks, and other related equipment at no expense to the student. The program consists of the basic and the advanced course. There is no military obligation in the basic course. Students desiring to take the basic course need only to register during the normal registration period.Veterans (to include current members of the National Guard or Army Reserve) should consult with the Professor of Military Science (PMS) for possible waiver of the basic course.

A two-year program is available by special application and consent of the PMS during the sophomore year. Qualified students attend a paid, six-week summer camp after the sophomore year instead of the basic course, thereby requiring participation in the last two years of AFROTC. The advanced course covers the junior and senior years and includes four three credit courses that meet for one three hour period per week, plus a leadership lab.

Advanced course students attend a five-week summer camp after the junior year. Participation in the advanced course requires a military obligation. Entry into the advanced course is subject to the approval of the PMS. All contracted advanced course cadets receive a subsistence allowance of $200 per month. The *Catalog* reflects the normal four year track to commissioning.

Scholarships are available to qualified students. Criteria considered include academic performance, major, leadership experience and potential, and physical fitness as evaluated through a board scholarship interview. The minimum qualifying GPA is 2.5.

Interested students should visit the AROTC office or call (860) 486-6081/4538. Information can also be found at: www.armyrotc.uconn.edu

Native American Studies. The University offers interdisciplinary curricula in topics pertaining to Native American cultures of the present and past. Native American studies is an area of concentration within the Individualized Major program. For further information contact Robert Bee or Kevin McBride, or write to Native American Studies at Unit 2158.

Peace Studies. Peace Studies is dedicated to the academic investigation of issues relating to war and peace, conflict and conflict resolution, social and economic justice, and global security. Students may major in Peace Studies through the Individualized Major program of the College of Liberal Arts and Sciences. Interdepartmental courses in Peace Studies as well as established courses in the departments of the University, may be combined in various ways in order to constitute a major.

Puerto Rican and Latino Studies. The Institute for Puerto Rican and Latino Studies Studies has a flexible interdisciplinary research and teaching program devoted to the comparative, critical analysis of ethnicity and the quest for knowledge about Puerto Ricans on the island and the mainland, as well as about Mexican Americans, and other peoples of Latin American descent in the United States. Although the primary focus of the program is upon the majority segments of the Latino population who, like Puerto Ricans and Mexican Americans, are U.S. citizens, attention is also given to that segment which due to recent immigration or other reasons has not met the formal requirements for U.S. citizenship.

The Institute's Program prepares students to employ critical learning in their private lives, in their public roles as citizens, and as members of the labor force, and enhances their ability to work with and for peoples of Puerto Rican or Latin American descent to promote the development of fairness and equity in public policy as well as multicultural diversity in state, regional, and national life. Puerto Rican and Latino Studies promotes critical, comparative, interdisciplinary thinking and thus fascilitates a wider variety of professional or other career choices for students.

Students wishing to specialize in Puerto Rican/Latino Studies may take 12 credits from the following courses: PRLS 295, 298, 241

Please note that PRLS 295 and 298 may be repeated for credit. Additional courses will become available so it is necessary to check with the Institute's office to verify current course offerings.

For further information about Puerto Rican and Latino Studies, contact the Institute for Puerto Rican and Latino Studies, Beach Hall, Room 413, (860) 486-3997.

Neag School of Education

Richard L. Schwab, Ph.D., *Dean, Neag School of Education*
Timothy G. Reagan, Ph.D., *Associate Dean, Neag School of Education*
Steven J. Smith, Ph.D., *Assistant Dean, Neag School of Education*

Integrated Bachelor's/Master's Teacher Education Program

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 to serve as a teacher, any applicant must successfully complete the Integrated Bachelor's/Master's Teacher Education Program, involving a minimum of five years of full-time study. Prospective teachers complete at least two years of course work in general education and subject area major prior to admission to the Neag School of Education, followed by at least two years of full-time course work in subject area major and professional education while enrolled in the undergraduate teacher education program, followed by at least one year of full-time course work in professional education while enrolled in the Graduate School to earn the Master of Arts in Education. Connecticut's essential skills and subject knowledge testing requirements must also be successfully completed.

The University's general education requirements are listed in the *Academic Regulations* section of this *Catalog*. Teacher education programs additionally require a course in United States history to satisfy Connecticut's certification requirements.

The Integrated Bachelor's/Master's Teacher Education Program includes the following components:

Elementary Education (EDEL) - Grades one through six
Elementary Special Education and Elementary (SPED) - Grades one through six
Secondary Education - Grades seven through twelve
English (ENGL)
History and Social Studies - (HIST), (SOCI), (ECON), (GEOG), (ANTH), or (POLS)
Mathematics (MATH)
Sciences - Biological Sciences (BIOL), Chemistry (CHEM), Physics (PHYS), Earth Sciences (GEOL), or General Science (GESC)

All grade levels program
Agricultural Education (EDAG)
Foreign Languages - French (FREN), German (GERM), or Spanish (SPAN)

Please note that the requirements listed below are currently effective. Education requirements, however, are subject to change in accordance with the changes mandated by the state of Connecticut. Students must be prepared to fulfill the requirements that are set at the beginning of the fall semester at their time of admission.

The most recent program guidelines and sample semester sequence for each program is available on the Neag School of Education website at http://www.education.uconn.edu/

Elementary Education

Students in Elementary Education are prepared to teach in grades one through six. Students complete general education requirements, a 39 credit subject area major that includes a single subject plus a second concentration and appropriate courses in professional education. Requirements include: HDFS 190 or PSYC 236; EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 220, 221, 222, 223, 224, 231, 233, 265, 276; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

Elementary Special Education and Elementary

The combined Elementary Special Education and Elementary Program prepares prospective teachers of elementary children with disabilities in grades one through six. The emphasis is on the child and his or her individual learning problems rather than on any "category" of children. Students typically find employment in public elementary schools. Students complete general education requirements, a 39 credit subject area major that includes a single subject plus a second concentration and appropriate courses in professional education. Requirements include: HDFS 190 or PSYC 236; EPSY 207, 208, 210, 212, 240, 250, 251, 252, 253, 277; EDCI 221, 222, 223, 224, 231, 233, 276; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

English Education

English education majors are prepared to teach secondary students 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, and appropriate courses in professional education. Requirements include: EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 231, 233, 265, 266, 272, 273, 277; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

History and Social Studies Education

The history and social studies program offers preparation leading to certification at grades 7-12. Graduates are prepared to teach history, civics, sociology, economics, geography, anthropology along with a wide range of area studies and "issues" courses ordinarily associated with social studies. Students complete general education requirements, a 36 credit subject area major, and appropriate courses in professional education. Requirements include: EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 231, 233, 265, 266, 273, 277; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

Mathematics Education

The secondary mathematics program prepares graduates for certification in mathematics for grades 7-12. Majors are prepared to teach algebra, geometry, calculus, and trigonometry, as well as general mathematics. Students complete general education requirements, a 36 credit subject area major, and appropriate courses in professional education. Requirements include: EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 231, 233, 265, 266, 273, 277; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

Science Education

Majors 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, and appropriate courses in professional education. Requirements include: EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 231, 233, 265, 266, 273, 277; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

Agricultural Education

The program in Agricultural Education is designed to prepare graduates to teach in public schools or one of Connecticut's Regional Vocational Agriculture Centers. Students with subject matter specialties in animal science, plant science, agricultural mechanics, or natural resources conservation add a teaching, managerial and human relation aspect to their backgrounds by completing the program. Students complete general education requirements, a 39 credit subject area major, and appropriate courses in professional education. Requirements include: EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 231, 233, 265, 266, 277; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

Foreign Language Education

Majors in foreign language education are prepared to teach French, German, or Spanish in elementary, middle, junior high, and high schools. Students complete general education requirements; a 36 credit subject major in grammar, literature, culture, and civilization relevant to their foreign language; and appropriate courses in professional education. Requirements include: EPSY 207, 208, 240, 250, 251, 252, 253; EDCI 231, 233, 260, 265, 273, 277; EGEN 294, 295, 296, 297; and the Master of Arts in Education.

Music Education

Prospective music educators initially enroll in the School of Fine Arts and complete the general education requirements of that school. The undergraduate program undertaken in the Neag School of Education enables majors to teach music from pre-kindergarten through grade twelve and direct bands, orchestras, and choruses. Students complete general education requirements, a 36 credit subject area major, and appropriate undergraduate courses in professional education. Requirements include: EPSY 207, 208, 250, 251, 252, 253; EDCI 231,232, 233, 258, 266, 277; EGEN 294, 295, 296, 297.

Kinesiology Programs

The Department of Kinesiology provides students with the opportunity to pursue an undergraduate degree in areas emphasizing the sport experience, sport theory, exercise science, sport and exercise research, sport application, and leisure theory.

The Department has well-equipped laboratories in Exercise Physiology, Exercise Biochemistry, Sport Biomechanics, and the Social Sciences of Sport and Leisure. In the Therapeutic Recreation area, a Motor Development Clinic provides practical experience with persons who are physically or mentally disabled.

The University's general education requirements are listed in the *Academic Regulations* section of this *Catalog*.

The Department of Kinesiology offers the following undergraduate programs:

Athletic Training (KAT)
- Athletic Training (AT)

Exercise Science (KEXE)
- Biomechanics (BM)
- Exercise Physiology (EP)
- Fitness Management (FITM)

Social Science of Sport and Leisure (KSOC)
- Park and Recreational Management (PRMG)
- Sport Marketing (SPM)
- Therapeutic Recreational Services (TRSV)

The most recent program guidelines and sample semester sequence for each program is available on the Neag School of Education website at http://www.education.uconn.edu

Athletic Training

The Athletic Training concentration prepares students to become certified athletic trainers by the NATA and work with interscholastic, intercollegiate, and professional sport teams; and sport medicine centers which specialize in sport injuries and rehabilitation. The Sports Medicine program, within the Division of Athletics, supplies an excellent experience for students specializing in this field. The Students complete course work in general education, cognate areas, and kinesiology. Requirements include: BIOL 103, 107; CHEM 122 or 127; COMS 105; NUSC 165, 250; PHYS 101Q or 121Q; PNB 264-265; PSYC 132; SOCI 107W or 115W; STAT 100V or 110V; EKIN 160, 161, 162, 163, 164, 234, 238, 239, 248, 250, 251, 252, 253, 254, 257, 258, 260, 263, 272, 290, 292; HSMG 280; PATH 297.

Biomechanics

The Biomechanics concentration prepares students to analyze sport and exercise performance from a biomechanical perspective. Students can use this subject matter in preparation for graduate study or further professional education. Students complete course work in general education, cognate areas, and kinesiology. Requirements include: CHEM 122; CSE 110C; ENGR 150C; MATH 115Q, 116Q; PNB 264-265; PSYC 132, 132, 257, 278; SOCI 107W or 115W; PHYS 121Q-122Q; EKIN 160, 228, 230 or 286, 236, 238, 258, 263, 272, 299; Cognate Electives.

Exercise Physiology

The Exercise Physiology concentration prepares students to analyze sport and exercise performance in a physiological context. The majority of students use this concentration to prepare for graduate study in exercise physiology. Other students have used this concentration in preparation for medical school, physician assistant programs, and physical therapy. Students complete course work in general education, cognate areas, and kinesiology. Requirements include: BIOL 107, 108; CHEM 127Q, 128Q, 141 or 243; MATH 112Q or 115Q; PHYS 121Q, 122Q; MCB 203 or 204; PNB 250, 264-265; NUSC 165; PSYC 132; SOCI 107W or 115W; STAT 100V or 110V; EKIN 160, 230 or 286, 236, 238, 248, 258, 272, 299, Cognate Electives.

Fitness Management

The Fitness Management concentration prepares students to assist with adult fitness programs in corporate, industrial, recreational, educational, commercial, and clinical settings. The Recreational Services program, in conjunction with the Division of Athletics, supplies an excellent applied venue for students in this concentration. Students complete course work in general education, cognate areas, and kinesiology. Requirements include: ACCT 131; CHEM 122; COMS 105; ECON 111; NUSC 165, 200, 250; PHYS 101Q; PSYC 132, 133, 240 or 257, PSYC 268 or HSMG 280; PNB 264-265; SOCI 107W or 115W, 230, 247; STAT 100V or 110V; EKIN 160, 236 or 238, 248, 258, 259, 262, 263, 272, 281, 290.

Park and Recreational Management

The Park and Recreational Management concentration prepares specialists for work as supervisors and/or administrators in a variety of public and private recreational service agencies. Career opportunities include practitioner roles in municipal recreation and park departments, aquatic centers, YMCAs/YWCAs, camp directors, armed forces, federal programs and in positions having administrative responsibilities. Graduates are sought for positions in corporate and commercial programs, as well as for the travel and tourism industry. Students complete course work in general education, cognate areas, and kinesiology. Requirements include: ACCT 131; ARE 234, 238; COMS 105; ECON 111, 112; PHYS 155Q; PLSC 124; POLS 260, 264W; PSYC 132, 133, 240; SOCI 107W or 115W; STAT 100V or 110V; EKIN 160, 201, 203, 204, 205, 262, 281, 282, 283, 284, 289, 290, Cognate Electives.

Sport Marketing

The Sport Marketing concentration prepares students to gain employment in marketing, promotion, and/or production management of sport-related enterprises. Such sites include commercial, college/university, and private sport-related areas. Students complete course work in general education, cognate areas, and kinesiology. Requirements include: ACCT 131; MGMT 198; COMS 105, 135; ECON 111, 112; MKTG 201, 208, 225; MATH 105Q, 106Q; PSYC 132, 133; SOCI 107W or 115W; STAT 100V or 110V; EKIN 160, 230, 236, 238, 262, 281, 282, 284, 286, 290, 299, Cognate Electives.

Therapeutic Recreational Services

The Therapeutic Recreational Services concentration prepares specialists for program, supervisory, and administrative responsibilities in therapeutic recreational service, primarily for rehabilitative purposes. The populations include the mentally retarded, physically disabled, and neurologically impaired. More recently, the areas of pediatrics, psychiatry, and geriatrics have received increased programmatic emphasis. Students complete course work in general education, cognate areas, and kinesiology. Requirements include: CHEM 122; EPSY 206, 392; HDFS 266; PHYS 101Q; PNB 264-265; PSYC 132, 133, 236, 240, 245; SOCI 107W or 115W, 248; STAT 100V or 110V; EKIN 160, 201, 203, 204, 205, 228, 262, 273, 280, 282, 283, 284, 285, 289, 290.

Advisement Information

Because the Neag School of Education is an Upper Division 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 Entering Students (ACES) during their freshman and sophomore years declaring a pre-education major. Students who intend to teach declare a PRTE major. Students who intend to pursue a kinesiology program declare a PRKI major.

Students should seek the most recent information at the earliest opportunity. Admission applications, 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 http://www.education.uconn.edu/; or the Academic Center for Entering Students (ACES) located on the first floor of Goodyear Hall; or the Neag School of Education, C. B. Gentry Building, Room 225. Students are invited to meetings each semester to discuss School of Education programs. They are encouraged to meet with a faculty advisor with any questions they may have after reviewing available literature.

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 Entering Students (ACES).

Students satisfy program requirements in effect during the semester for which

they are admitted to the Neag School of Education or at any subsequent time.

During the student teaching semester, students will observe the vacation/holiday schedules of the local school rather than the University schedule. University residence halls close during University vacation periods. Alternate housing arrangements are the student teacher's responsibility.

Admission to Neag School of Education Programs

The Neag School of Education is an Upper Division professional school. Students begin their Upper Division 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 of a university other than the University of Connecticut.

The maximum enrollment in each program is determined by the Dean in consultation with the head of the department offering the program. 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 February 1, to be considered for admission for the following fall semester. Application material for spring admission may be submitted by October 1 only for any program in Kinesiology in which the annual enrollment limit was not met the previous fall. Application forms for admission to the Neag School of Education are available on the Neag School of Education website at: http://www.education.uconn.edu/, or from the Academic Center for Entering Students (ACES) located on the first floor of Goodyear Hall, or the Neag School of Education, Gentry Building Room 225, or may be requested in writing from: Neag School of Education, Admission Office, Room 225, Unit 2064C, 249 Glenbrook Road, Storrs, CT 06269-2064.

Students not currently attending the University of Connecticut must submit an additional University admission application with the Transfer Admissions Office, 2131 Hillside Road, Unit 3088, Storrs, CT 06269-3088. 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.

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. Educational Testing Service's (ETS's) Praxis I Computer-Based Tests (CBTs) fulfill Connecticut's essential skills testing requirement. The Praxis I Computer-Based Tests (CBTs) are three discrete tests of reading, writing, and mathematics administered via computer delivered questions.

A passing score on the Connecticut Competency Examination for Prospective Teachers (CONNCEPT), a paper and pencil test administered by National Evaluation Systems, Inc. (NES) from 1985 until 1994, continues to fulfill Connecticut's essential skills testing requirement. Eligibility for essential skills test waiver requires a combined score of at least 1,100 with at least 450 on any subtest for any Scholastic Aptitude Test (SAT) completed after April 1, 1995; a combined score of at least 1,000 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) or the Test of English as a Foreign Language (TOEFL); or scores on The American College Testing Assessment (ACT) of at least 22 on the English subtest and at least 19 on the Mathematics subtest.

Praxis Series Registration Bulletins and Praxis I Tests at a Glance booklets are available in the Neag School of Education (Gentry Building) Room 119. The forms and instructions for applying for a waiver are available in Room 231.

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. Successful applicants to teacher education programs generally have completed sufficient credits to be eligible for consideration, have applied by the annual deadline of February 1, have completed Connecticut's essential skills testing requirement, have participated in successful interviews with faculty, have accumulated sufficient experience working with children, have written acceptable essays, have submitted required personal recommendations confirming their professional potential, and have earned the most competitive cumulative grade point averages. Although the minimum admission standards of the Connecticut State Board of Education include at least a B- average for all undergraduate courses, teacher education programs offered by the School of Education are generally more competitive.

Applicants for the Master of Arts in Education must apply for admission to the Graduate School by April 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.

Successful applicants to those programs in Kinesiology generally have completed sufficient credits to be eligible for consideration, have applied by the annual deadline of February 1, 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 averages.

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, including evidence of satisfactory growth in attacking the problems of the professions; (4) earned at least 12 credits in courses offered in the Neag School of Education.

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.

All other graduates of the Neag School of Education receive the Bachelor of Science degree.

Accreditation

The Neag School of Education is a member of the American Association of Colleges for Teacher Education and 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 Connecticut 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, through selective admissions procedures, advising, and the Integrated Bachelor's/Master's Teacher Education Program, prepares students to meet certification requirements and is responsible for supplying the State Department of Education with an institutional recommendation for all students from this institution seeking certification. The certifying official will recommend to the Connecticut State Department of Education only those candidates completing the most recent requirements.

Connecticut statute mandates a series of assessments for prospective teachers.

1. 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 programs.

2. 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. Praxis Registration Bulletins describing the approved Praxis II Subject Assessments are available in the Neag School of Education (Gentry Building) Room 119.

3. Beginning teachers issued initial educator certificates must successfully complete the Beginning Educator Support and Training Program (BEST).

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, it is essential that students satisfy program requirements in effect at the time of their admission to the Neag School of Education or at any subsequent time. Students should maintain regular contact with their academic advisor to ensure compliance with the most recent requirements.

Neag School of Education Website http://www.education.uconn.edu/

School of Nursing

Laura Cox Dzurec, Ph.D., *Dean*
Eva Gorbants, M.A., *Director*

The undergraduate program provides an opportunity to combine a general education with professional preparation in nursing. The program is accredited by the National League for Nursing Accrediting Commission and approved by the Connecticut State Board of Examiners for Nursing and by the Commission on Collegiate Nursing Education.

The curriculum requires four academic years. Upon successful completion of the program, students receive the Bachelor of Science degree and are eligible for examination for licensure as registered nurses. The National League for Nursing serves as a resource for information regarding baccalaureate nursing education. They can be contacted at the National League for Nursing, 350 Hudson Street, New York, NY 10014.

Health of Students. In addition to pre-entrance University requirements, students admitted to the School of Nursing must present evidence of the following prior to clinical experiences: tetanus immunization within the past ten 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.

Students who fail to provide written documentation that they have met the above stated health requirements will *not* be allowed in the clinical areas.

Faculty reserve the right to recommend a student's withdrawal from the program for reasons of health.

Insurance. It is mandatory that all students carry comprehensive health insurance and Student Malpractice Liability Insurance when they are involved in practice in the clinical areas.

Transportation. Students must furnish their own transportation and cover cost of travel and parking to the clinical agencies.

Books, Uniforms and Professional Equipment. Students are expected to cover the cost of books, uniforms, and the professional equipment required before beginning the clinical experiences.

CPR. 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 kept current until graduation.

Licensure. Under the provisions of N 19a-14(a) of the Connecticut General Statutes, as amended by Public Act 86-365, 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 Academic Advisory Center. Students have the responsibility for being aware of what the licensure requirements are in the State in which they intend to apply for a license.

Admission Requirements. See *Admission to the University*.

Curricula in Nursing

I. University General Education Requirements

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

II. School Requirements

Nursing students must complete the following lower division courses (38 credits). Students should note that some of these courses may also fulfill University General Education requirements.

Course Title, Credits

BIOL 107 - Principles of Biology, 4
CHEM 122 - Chemical Principles and Applications, 4
HDFS 190 - Individual and Family Development, 3
MATH 102Q - Problem Solving or Math 103Q - Elementary Discrete Mathematics, 3
MCB 200 - Human Genetics, 3
PHIL 101, 102, 103, 104, 105, or 106, 3
PNB 264 and 265 - Human Physiology and Anatomy, 8
PSYC 132 - General Psychology I, 3
SOCI 107 - Introduction to Sociology, 3
STAT 100V - Introduction to Statistics I or STAT 110V - Elementary Concepts of Statistics, 4

III. Additional Requirement

High school physics. (If not present on admission, PHYS 101Q must be successfully completed, with a grade of C or better, prior to the completion of the lower division.)

IV. Program Requirements: Traditional Students

Traditional nursing students must complete the following nursing courses (79 credits):

Course Title, Credits

NURS 110 - Introduction to Health, 3
NURS 111 - Humanizing Health Care: Nursing's Past, Present and Future, 3
NURS 112 - Health Care Delivery System, 3
NURS 204 - Clinical Science I, 3
NURS 207 - Clinical Science II, 3
NURS 212 - Clinical Science for Sub-Acute and Chronically Ill Adults, 3
NURS 213W - Nursing Research, 3
NURS 218 - Nursing Science for Adults with Sub-Acute and Chronic Health Issues, 3
NURS 219 - Practicum with Sub-Acute and Chronically Ill Adults, 6
NURS 221 - Health Assessment Through the Lifespan, 3
NURS 225 - Theoretical Foundations of Nursing III: Ethics, 3
NURS 232 - Clinical and Nursing Science: Nursing Care of the Childbearing Family, 4
NURS 235 - Theoretical Foundations of Nursing IV: Esthetics, 3
NURS 239 - Practicum with Childbearing Families, 3
NURS 250 - Nursing Leadership in the 21st Century, 3
NURS 252 - Clinical and Nursing Science for Nursing Care of Childrearing Families, 4
NURS 259 - Practicum with Childrearing Families, 3
NURS 262 - Clinical Science for Psychiatric and Mental Health Nursing, 2
NURS 263 - Nursing Science for Psychiatric and Mental Health Nursing, 2
NURS 269 - Practicum for Psychiatric and Mental Health Nursing, 3
NURS 270 - Public Health Nursing, 3
NURS 272 - Clinical Science for Adults with Acute Illness, 2
NURS 273 - Nursing Science for Acutely Ill Adults, 2
NURS 279 - Practicum with Acutely Ill Adults, 3
NURS 289 - Capstone Practicum, 6

V. Program Requirements: Registered Nurses

Registered nurses who graduated from an approved Connecticut associate degree or diploma program in nursing after June, 1986, who enroll in the School of Nursing within 10 years of completing the registered nurse program, 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. Those who do not meet the articulation criteria may earn 30 advanced placement credits in nursing through a portfolio review or upon successful completion of the following examinations:

Regents College baccalaureate level examinations
- Adult Health
- Maternal-Child Health
- Psychiatric-Mental Health

NLN achievement examinations
- Pharmacology in Clinical Nursing
- Diet Therapy and Applied Nutrition

Other standardized examinations will be evaluated on an individual basis.

Registered nurses must complete the following nursing courses:

NURS 213W - Nursing Research, 3
NURS 225 - Theoretical Foundations of Nursing III: Ethics, 3
NURS 235 - Theoretical Foundations of Nursing IV: Esthetics, 3
NURS 248 - Community Health Nursing Practice, 3
NURS 250 - Nursing Leadership in the 21st Century, 3
NURS 270 - Public Health Nursing, 3
NURS 350 - Nursing Science, 3
NURS 352 - Policy Aspects of Advanced Nursing Practice, 3
NURS 354 - Needs Assessment and Planning, 2
NURS 358 - Statistical Methods in Nursing, 3
NURS 370 - Health Care Financing, 3
Electives - 16 credits

Scholastic Standing Requirement. A student in the School of Nursing must have a cumulative grade point average of at least 2.5 in the Lower Division course sequence and a grade of C (2.0) or better in each of the following lower division courses: BIOL 107, CHEM 122, PNB 264, PNB 265, MATH 102 or 103, STAT 110V or 100V, NURS 110, 111, 112, 204, 207, and 221 in order to progress to the junior year as a nursing major.

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 School of Nursing for which another course in the School of Nursing is a prerequisite unless that student has earned a grade of C (2.0) or better in the prerequisite course. No nursing course may be repeated more than once (for a total of two times).

Students may be dismissed if there is more than one semester in which they earn a semester grade point average below 2.0 in required nursing courses. A cumulative grade point average of 2.0 or above in all required nursing courses is required for graduation.

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 133 degree credits, (2) earned at least a 2.0 grade point average for all calculable Upper Division course work, (3) met all the requirements of the School of Nursing. (See Scholastic Standing Requirement.)

School of Nursing Website

http://www.nursing.uconn.edu/

School of Pharmacy

Michael C. Gerald, Ph.D., *Dean, School of Pharmacy*
Donna J. Fournier, Ph.D., *Associate Dean for Academic Affairs, School of Pharmacy*
Irene C. Burke, M.S., *Assistant Dean for Student Services, School of Pharmacy*

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 (BS Pharmacy Studies), followed by two additional years leading to a Doctor of Pharmacy (Pharm.D.). This professional BS/Pharm.D. program is a **full-time**, four-year professional program (132 credits professional program plus 64 credits pre-pharmacy for a total of l96 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 of approximately $5000 per year (1999-2000 dollars) for in-state students and proportional increases for New England Regional and out-of -state students.

Accreditation. The University of Connecticut's Doctor of Pharmacy program has been granted candidate status by The American Council of Pharmaceutical Education (ACPE), 311 West Superior Street, Suite 512, Chicago, IL 60610, 312/664-3575, 800/533-3606; FAX, 312/664-4652 and is scheduled to be evaluated for accreditation during the 2000-2001academic year. The granting of candidate status denotes a developmental program which has taken into account ACPE accreditation standards and is expected to mature in accord with stated plans within a defined time period. Graduates of a class designated as having candidate status have the same rights and privileges as graduates of a program which has accreditation status.

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 pharmaceutics, 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. To effectuate this policy, first priority in admission to the school is given to qualified applicants who are residents of Connecticut and to qualified applicants from the other New England states with the exception of Rhode Island. Regional students receive a significant tuition saving 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 and science courses must be completed by May for entry into the professional program in the following fall semester. Students must have 24 of the 30 general education course credits completed, including sociology, economics and public speaking, before admission into the fall semester. Students who have not fulfilled the University General Education requirements (Groups IVa, IVb, V and VI) before they enter the professional program will have to complete those courses by May of the second professional year. Students entering the University after fall 1995 will complete their first two years in one of the schools or colleges of the University of Connecticut or in some other institution. Students may enter the College of Liberal Arts and Sciences as freshmen and identify themselves as pre-Pharmacy majors. Pre-Pharmacy students will be advised through the Academic Center for Exploratory Students (ACES).

Those students who meet all the following criteria will be automatically admitted: 1) completion of all freshmen-sophomore course requirements at the University of Connecticut; 2) earned a minimum of 2.7 grade point average (GPA) in all required math and science classes; 3) earned a minimum GPA of 2.5 in English 105 and 109 or a grade of 2.5 in English 250); 4) have no grade less than 2.0 in any of the above classes.

All other students will be considered on a competitive basis depending on seats available. To be competitive, students should have a total GPA and a science GPA of 2.5 or better. All required prerequisite science courses should have been passed with a grade of 2.0 or better.

The application deadline is **March 1** for fall admission. Applications will begin to be reviewed in February and the review process continued on a space available basis. Highly qualified students may be considered for early admission.

Communication Skills. It is essential that Pharmacy students have good 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 final applicant pool may be interviewed.

A Test of Spoken English (TSE) is required of all international applicants and U.S. citizens or permanent residents for whom English has not been the primary language. A minimum score of 50 is required for admission to the program.

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 semester grade point average of 2.0 or above in 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.)
2) A cumulative grade point average of 2.0 or above in all required Pharmacy courses is required to enroll in clinical clerkships/rotations.
3) A cumulative grade point average of 2.0 or above in all Pharmacy/ University courses is required for graduation.

In addition, to demonstrate effective written and oral communication skills in English, the student must receive a grade of 2.0 or above in *Interpersonal Skills Development* (PHRM 206) and in *Prescription Processing Lab* (PHRM 210) to continue into the clinical experience sequence.

All required Pharmacy courses must be taken for a grade (*i.e*. may not be taken on Pass / Fail or Satisfactory / Unsatisfactory).

Failure to meet any of the requirements may result in dismissal of the student from the program.

The student has the right to appeal in writing to the Office of the Dean of the School of Pharmacy any dismissal decision.

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 Degree with Distinction Program, 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 a 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 Rubeola 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.

Transportation. Students must provide their own transportation to clerkship or externship 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 Coordinator of Professional Experience Program, School of Pharmacy, Room 255. 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 Health Insurance Form) to the Coordinator of Professional Experience Program 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 admission to the Pharmacy professional program. Failure to receive and maintain a valid Pharmacy intern card will result in students not being allowed to participate in clerkship, externship, or any of the other practica 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.

Degree Requirements for the Pharm.D. (B.S., B.S.P.) Upon recommendation of the faculty, the degree of Doctor of Pharmacy (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 a total of 196 (125) credits; (2) completed all requirements for the professional years and the Professional Program; (3) completed at least 30 credits of general education courses, defined as behavioral, social, and humanistic areas of knowledge; (4) satisfied the University's General Education Requirements; (5) earned at least a 2.0 grade point average for all calculable Upper Division course work; and (6) earned a 2.0 grade point average for all calculable required Pharmacy courses.

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 *Academic Regulations* section of this *Catalog*. The course requirements listed are those of the School of Pharmacy and also satisfy the University requirements.*

Group 1. Foreign Languages

This requirement is met if the student enters the University with three years of a single language in high school, or the equivalent. With anything less, a student must complete two semesters of a single language at the University.

Group 2. Expository Writing

English 105 and 109 are required, and must be followed by two W courses. Students passing English 250 will be exempted from the English 105, 109 requirement.

Group 3. Mathematics

All students must complete Math 113 or 115, an additional Q course, and one C course. Required Pharmacy courses will satisfy the Q and C requirements. (Note: Mathematics 101 or a passing grade on the Q-Course Readiness Test is a prerequisite to all Q courses.) In order to take Math 115 students must pass either the Calculus Readiness Test, or a precalculus course. Students who fail the Calculus Readiness Test must take Math 112 and 113.

*These courses need not be taken in the semester indicated but must be completed during the first two years.

Group 4. Literature and the Arts

All students must take two courses, one emphasizing major works of literature, and the other major achievements in art or music.

Group 5. Culture and Modern Society

All students must take History 100 or 101, and a course emphasizing non-Western culture.

Group 6. Philosophical or Ethical Analysis

All students must take one course in philosophical or ethical analysis.

Group 7. Social Scientific and Comparative Analysis

All students must take Economics 111 and one 100's level sociology course.

Group 8. Science and Technology

Required pre-Pharmacy courses will satisfy this group requirement.

II. Required Courses and Recommended sequences for the Pre-professional Years

First College Year - First Semester

Course Title, Credits

CHEM 127 - General Chemistry, 4
BIOL 107 - Principles of Biology, 4
ENGL 105 - English Composition, 3
MATH 115 - Calculus I, 4

First College Year - Second Semester

Course Title, Credits

CHEM 128 - General Chemistry, 4
HIST 100 or 101*, 3
PHYS 121 - General Physics, 4
ENGL 109* - Literature and Composition, 3

Second College Year - First Semester

Course Title, Credits

CHEM 243 - Organic Chemistry, 3
ECON 111* - Principles of Economics, 3
MCB 229 - Fundamentals of Microbiology, 4
COMS 105* - Principles of Public Speaking, 3
General Education Requirement, 3

Second College Year - Second Semester

Course Title, Credits

CHEM 244 - Organic Chemistry, 3
SOCI 107* - Introduction to Sociology, 3
MCB 203 - Biochemistry, 4
General Education Requirements, 6

Total pre-professional credits, 64

I. The Professional Program

Students will be admitted to the Pharmacy Studies degree program after completion of the two-year pre-Pharmacy program (64 credits).

First Professional Year - 30 Credits

Fall Semester

Course Title, Credits

219 - General Principles and Organ System Overview, 3
233 - Bio-Organic Chemistry I, 3
201 - Pharmaceutical Care
202 - Health Care Organization, 1
203 - Social Behavioral Aspects of Pharmacy, 2
204 - Administrative Aspects of Pharmacy Practice and Principles of Pharmacoeconomics, 4
Electives, 3
Total credits - 16

Spring Semester

Course Title, Credits
220 - Nervous System, 5
234 - Bio-Organic Chemistry II, 3
235 - Bio-Organic Lab, 1
201 - Pharmaceutical Care, 1
206 - Interpersonal Skills Development, 2
Electives, 2
Total credits - 15

Second Professional Year - 31 Credits

Fall Semester

Course Title, Credits
221 - Cardiovascular/Renal/Respiratory, 4
242 - Solution & Solid Dosage Forms, 4
244 - Dosage Forms Prep Lab I, 1
245C - Pharmacokinetics, 3
253 - Therapeutics I, 2
207 - Pharmaceutical Care
Total credits - 15

Spring Semester

Course Title, Credits
222 - Endocrine / GI Systems, 3
246 - Dispersed Systems, 3
208 - Pharmacy Law and Ethics, 3
254 - Therapeutics II, 3
207 - Pharmaceutical Care, 1
297 - Pathobiology, 3
247 - Dosage Forms Prep Lab II, 1
Total credits - 16

Doctor of Pharmacy - 71 Credits

Students will be admitted to the Pharm.D. degree program after earning the BS in Pharmacy Studies at the School of Pharmacy, University of Connecticut

Third Professional Year - 35 Credits

Fall Semester

Course Title, Credits
225 - Toxicology, 2
224 - Chemotherapy, 2
255 - Therapeutics III, 2
257 - Clinical Pharmacokinetics, 3
223 - Pharmacology Discussion / Lab, 1
209 - Pharmaceutical Care, 1
200 - Evaluation Skills, 3
Electives, 3
Total credits - 17

Spring Semester

Course Title, Credits
226 - Immunology, 3
256 - Therapeutics IV, 3
211 - Introduction to Clinical Practice, 2
212 - Prescription Processing (Lab), 3
210 - Non-Prescription Medication, 3
209 - Pharmaceutical Care,
Electives, 4
Total credits - 18

Fourth Professional Year

Students must have completed the BS in Pharmacy Studies and the first year of the Pharm. D. program

36 Credits

Rotating Professional Experiences (1 month = 4 credits)
Required (one month each) 16 credits
Direct patient contact indicated by *

Course Title, Credits
262 - Professional Experience in Community Pharmacy *, 4
263 - Professional Experience in Hospital Pharmacy, 4
264 - Professional Experience in Ambulatory Care Pharmacy *, 4
265 - Professional Experience in General Medicine *, 4
(may substitute Pediatrics or Geriatrics for Ambulatory Care and General Medicine)

Electives, minimum of 5 (one month each) 20 credits
At least 2 of the electives must be direct patient contact.
Direct patient contact indicated by *

266 - Professional Experience in Cardiology *, 2-4 cr
267 - Professional Experience in Infectious Disease *, 2-4
268 - Professional Experience in Oncology *, 2-4
269 - Professional Experience in Psychiatry *, 2-4
270 - Professional Experience in Pediatrics *, 2-4
271 - Professional Experience in Geriatrics *, 2-4
272 - Professional Experience in Community Practice II *, 2-4
273 - Professional Experience in Critical Care *, 2-4
274 - Professional Experience in Dermatology, 2-4
275 - Professional Experience in Drug Control, 2-4
276 - Professional Experience in Emergency Medicine, 2-4
277 - Professional Experience in Home Health Care, 2-4
278 - Professional Experience in Hospital Pharmacy II, 2-4
279 - Professional Experience in Industry, 2-4
280 - Professional Experience in Managed Care, 2-4
281 - Professional Experience in Nuclear Pharmacy, 2-4
282 - Professional Experience in Nutrition, 2-4
283 - Professional Experience in Obstetrics/Gynecology, 2-4
284 - Professional Experience in a Skilled Care Nursing Facility, 2-4
285 - Professional Experience in Surgery, 2-4
286 - Professional Experience in General Medicine II *, 2-4
287 - Professional Experience in Ambulatory Care II *, 2-4
288 - Professional Experience in Pharmacist-Directed Anticoagulation Service *, 2-4
289 - Professional Experience in Gastroenterology *, 2-4
290 - Professional Experience in Hospice Care *, 2-4
291 - Professional Experience in Sub-acute Care and Chronic Disease and Rehabilitate Medicine *, 2-4
298 - Professional Experience in Clinical Rotations, 2-4
PHAR 298 - Special Topics in Pharmacy, 2-4
PHAR 299 - Research Experience (GPA 2.8), 2-4
Total credits for Doctor of Pharmacy 196

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 substitution. Any waivers or substitution for professional courses must be approved by the School of Pharmacy Curriculum Committee.

School of Pharmacy Website

http://Pharmacy.uconn.edu

Ratcliffe Hicks School of Agriculture

Suman Singha, Ph.D., *Associate Dean, College of Agriculture and Natural Resources and Director, Ratcliffe Hicks School of Agriculture*
Patricia J. Jepson, M.A., *Academic Advisory Center Director*

The Ratcliffe Hicks School of Agriculture confers Associate of Applied Science Degrees in Animal Science and Horticulture. 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.

The School provides an excellent opportunity for students with a variety of educational backgrounds and experiences to further their education in the areas of horticulture and animal science. 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.

RHSA 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. Many RHSA graduates continue their education and pursue baccalaureate or higher degrees.

Admission Requirements. Admission is open to qualified graduates of approved secondary schools. See the Admission section of this *Catalog* for required courses and units. Foreign language study is not required for admission into the two-year program; college preparatory level courses are recommended, but not required. Applicants must submit a high school transcript, Scholastic Assessment Test scores, and a personal statement describing their interest, experience, and career goals in the field of agriculture. 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 Horticulture 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 RHSA courses as non-degree students through the Office of Extended and Continuing Education at the University of Connecticut. Non-degree students do not have to apply for formal admission to the University.

Scholarships

The Ratcliffe Hicks School of Agriculture offers Heritage Scholarships for qualified individuals entering the two-year program. Selected applicants receive up to $1,000 toward educational expenses in their first semester. Based on academic performance, scholarships may be renewed for three additional semesters. Continuing students with outstanding academic performance may also be considered for Heritage Scholarships.

Incoming students are reviewed for Heritage Scholarships prior to entering the program. Selection is based on academic and career-related accomplishments, and potential for continued success. Applications and additional information are available from the Ratcliffe Hicks School of Agriculture, 1376 Storrs Road, Unit 4090, Storrs, CT 06269-4090.

Many other scholarships in Agriculture and Natural Resources are available to Ratcliffe Hicks students.

Associate Degree Curricula

Majors. RHSA students major in Horticulture or Animal Science. Horticulture majors in RHSA may concentrate in turfgrass management, floriculture or nursery management and landscaping. Graduates pursue careers in floriculture, landscape and grounds maintenance, greenhouse and garden center operations, nursery management, interiorscaping, park and land management or botanical gardening.

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 service 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.

Registration. Ratcliffe Hicks students are restricted primarily to RHSA courses, numbered 1-99. The following 100-level courses have been pre-approved for all RHSA students:

ENGL 104
POLS 173
BIOL 102
One of the following for the Literature/Arts Requirement: DRAM 101, DRAM 110, FREN 171, MUSI 191, or WS 104

No more than 13 credits of 100-level course work (Including courses listed above) may be used toward the AAS degree. RHSA students **must** have approval of advisor and director to register for 100-level courses not listed above. RHSA students may **not** register for 200-level courses or skill code courses (W, Q, C). Inappropriate registration may result in administrative changes to a student's schedule or credit restrictions toward graduation requirements.

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 been registered; (3) passed all courses required by the faculty of the Ratcliffe Hicks School of Agriculture; and (4) earned at least 32 credits at the University of Connecticut in Ratcliffe Hicks courses numbered 1-99.

Plan of Study. Students should work closely with their advisors to select appropriate courses. Each student should prepare a tentative plan of study, outlining all courses, with an academic advisor as early as possible.

A final plan of study, approved by the major advisor and the RHSA Director, must be filed with the Director of the School and the Degree Auditor no later than the end of the fourth week of classes of the semester in which a student expects to graduate.

General Education Requirements for Both Majors

Mathematics and Computers

SAAG 090	Applied Mathematics[1]
SAAG 001	Introduction to Computer Use

Humanities and Social Science

POLS 173	Introduction to American Political Processes
ENGL 104	Basic Writing[2]
SARE 050	Principles of Agricultural & Resource Economics

One course in either literature or arts or other humanities as approved by the Advisor and Director

Natural Science

Two of the following courses:

SAAS 004	Anatomy & Physiology of Domestic Animals[3]
SAPL 003	Introduction to Plant Science[4]
SAPL 022	Introduction to Soil Science
BIOL 102	Foundations of Biology

Major Requirements

Animal Science Core

SAAS 004	Anatomy and Physiology of Domestic Animals[3]
SAAS 005	Anatomy and Physiology of Domestic Animals
SAAS 006	Nutrition and Feeding of Livestock
SAAS 007	Animal Breeding and Genetics
SAAS 020	Introduction to Animal Science
SAPB 015	Health and Disease Management of Animals and Poultry

[1] The RHSA math placement exam is required to determine proficiency in mathematics.
[2] Substitutions may be considered based on SAT scores or placement exams.
[3] SAAS 004 may be used in meeting both the general education requirements and the Animal Science core requirements.

Horticulture Core

SAPL 003	Introduction to Plant Science[4]
SAPL 022	Introduction to Soil Science
SAPL 025	Greenhouse Operations
SAPL 041	Plant Pest Control
SAPL 042	Integrated Pest Management
SAPL 062	Plant Propagation

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 011-099 and must be approved by their advisor.

Internship, Independent Study Courses, and Special Topics. Students may apply no more than six credits of these courses toward the minimum graduation requirement of 64 earned credits.

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[4] SAPL 003 may be used in meeting both the general education requirements and the Horticulture core requirements.

Scholastic Standards

The Ratcliffe Hicks School of Agriculture follows the same academic regulations and procedures regarding scholastic standards and probation for Lower Division students as all other schools and colleges of the University with the following exceptions: The Pass/Fail option is not authorized for students in the school and first semester students are subject to dismissal from the University as deficient in scholarship if their semester grade point average is less than 1.2.

Supplemental Information

Transfer to Four-Year Program. Upon completion of the associate degree program, students may petition to transfer into the College of Agriculture and Natural Resources or other baccalaureate programs of the University. Students should contact the Director's Office, W.B. Young Building, Room 211, to obtain an application and verify procedures. The Ratcliffe Hicks School will review applications for transfer and submit a recommendation to the Transfer Admissions Office. Admissions decisions will be based primarily on courses completed in the School and earned grade point average (minimum 2.5). Students transferring to a baccalaureate program at the University of Connecticut will receive transfer credit for all credits earned with a grade of C- or higher, except that no credit will be given for any course graded Satisfactory-Unsatisfactory, or for SAAG 90, Applied Mathematics.

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.

Housing Regulations. Students who desire housing will be assigned rooms in residence halls with baccalaureate students. See the section devoted to Residence Halls under General Information for additional information.

Ratcliffe Hicks School of Agriculture Website

http://www.canr.uconn.edu/rh/

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. 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. A maximum of 3 credits toward the minor may be transfer credits of courses equivalent to University of Connecticut courses. 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 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.

Agribusiness Management

The minor will provide an overview of marketing, management, and financial principals and concepts in agribusiness. Analytical and applied decision-making skills are emphasized. All students are required to complete 18 credits from the following two groups:

Group 1. Three of the following courses (9 credits):

ARE 215C	3 credits
ARE 275	3 credits
ARE 217	3 credits
ARE 225	3 credits

Group 2. Three of the following courses (9 credits):

ARE 221	3 credits
ARE 260	3 credits
ARE 285	3 credits
ARE 257	3 credits
PLSC 244	3 credits
ANSC 238	3 credits
ANSC 277S	3 credits

Note: ARE 150 may be required for some 200 level ARE courses. Other courses listed may have additional prerequisites as well.

The minor is offered by the department of Agricultural and Resource Economics.

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 ice 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 two required courses: INTD 276 and either HIST 231 or HIST 232.

They must then choose a *track*, a series of related, 200-level courses within a broad area of study. Students must complete three courses within this track in order to attain the minor. These courses may be used to fulfill a student's "related" course requirement; however, 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 insure 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 Robert Tilton, Director, 486-2058.

Anthropology

The requirements for this minor are at least 15 credits in Anthropology courses that include (1) two courses chosen from ANTH 214, 220, 233, and 244, and (2) three additional upper division courses, with the exception that not more than three credits of 290 - 299 series courses 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.

Aquaculture

This minor provides students with a basic understanding of aquaculture, especially in closed circulation systems. Students will be required to complete 18 credits which include a common core for all students and a selection of courses based on a specific area of interest. The requirements for the minor are:

NRME 208, EEB 200, PNB 235, one 2-credit internship (as approved by advisor), and two courses from the following: NRME 235P, ARE 215C, PVS 256, ANSC 253, NUSC 212, EEB 294/MARN 294

The minor is offered jointly by the College of Agriculture and Natural Resources and the College of Liberal Arts and Sciences.

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 200-level credits in Art History drawn from at least three of the following categories:

A. Ancient: ARTH 243, 246, 280*
B. Medieval: ARTH 257, 258, 259, 262, 280*
C. Renaissance-Baroque: ARTH 250, 251, 273, 278*
D. Modern-Contemporary: ARTH 209, 252, 253, 254, 267, 268, 275*, 276*, 279*, 281, 282, 291, 292
E. Non-Western: ARTH 256, 275*, 276*, 277, 278*, 279*, 284, 285, 286, 287, 288, 289

Students interested in this minor, should arrange for a counselor 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.

The minor is offered by the Art History Department.

Biological Sciences

Students wishing to complete this minor must take at least 15 credits of 200's level courses from Biology: EEB, Biology: MCB, and Biology: PNB. 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. Biology: MCB 200, MCB 203, MCB 204, MCB 210, MCB 213, or MCB 229.
B. Biology: EEB: 244/244W or EEB 245/245W.
C. Biology: PNB 250, MCB 259, PNB 264-265, or PNB 274-275.

PNB 264-265 or 274-275 must be taken in sequence to be counted towards the Biology minor.

The minor is offered by the Biology Department.

Biomedical Engineering

A minor in Biomedical Engineering requires completion of 16-17 credits including the following:

CHEM 243, PNB 264, and EE 272

One of CHEG 283, CE 297, CSE 245, ME 250, EE 271, MMAT 236, *or* CHEG 256

One of MCB 204, 229, 232C, *or* PNB 265

The minor is offered jointly by the School of Engineering and the College of Liberal Arts and Sciences.

Chemistry

Students taking this minor must take at least 15 credits of 200-level Chemistry courses. The following courses are required:

CHEM 243, 244, and 245	9 credits
CHEM 232	4 credits

Further, students must take one course from the following list:

CHEM 210	2 credits
CHEM 263	4 credits
CHEM 280	3 credits
CHEM 242W	3 credits
CHEM 234Q	4 credits

The minor is offered by the Chemistry 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. Two courses on Classical or Biblical literature in English (a second course from C may be substituted for any of these):

CAMS 241W, 242W; INTD 294

B. At least one course dealing with the ancient world:

CAMS 243, 244, 251, 252, 253, 254, 255, 256, 257, 293*, 295*, 298*, 299* (These may be cross-listed under Art History, History, Judaic Studies, and Philosophy.) JUDS /HEB 201 and INTD 294 may also be included.

C. Optional: Courses involving reading in Greek and/or Latin:

CAMS 207, 208, 211, 212, 213, 214, 215, 221, 224, 225, 226, 227, 230, 231, 232, 293*, 298*, 299*

(*May count toward minor only with consent of advisor).

The minor is offered by the Modern and Classical Languages Department.

Communication Processes

Students wishing to complete this minor must take at least 15 200-level credits in COMS courses. Selected courses must include:

1. COMS 231Q or an equivalent course in research methods
2. At least two from COMS 205, 210, and 235
3. At least one from COMS 206, 207, 208, 209, 213W, 214W, 216W, 217, 218, 219, 222W, 226, 230, 234, 236, 237, 238, 239, and, with COMS advisor's permission, 297 and 298
4. Not more than one from COMS 211, 212, 215, 220, and 233

The minor is offered by the Communications Sciences Department.

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 from the following courses:

1. Three required courses (Nine credits):
   POLS 255, SOCI 216, PSYC 245
2. One Course (Three credits) from the following:
   POLS 297 Supervised Field Work (in a criminal justice agency or program), SOCI 296 Field Experience (in a criminal justice agency or program), SOCI 340 Seminar in Criminal Justice (for GPA qualified seniors), HDFS 288 Supervised Field Experience, PSYC 294 Field Experience

   Students who are employed full time within a criminal justice setting may have the Group II requirement waived by their Criminal Justice Advisor when employment is documented by their supervisor.
3. Two courses (Six credits) from the following list: HDFS 266, 276, 284; PHIL 226; POLS 252, 254, 260, 274; 299 (on a criminal justice topic); PSYC 202Q, 240, 243, 256; SOCI 217, 218, 218W, 219, 243, 244, 285, 299 (on a criminal justice topic), 340 (GPA qualified students); WS 263.

The minor is offered by the College of Liberal Arts and Sciences.

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. The requirements for this minor are: ANSC 275, ANSC 277S, ANSC 278, PVS 202, ARE 215C, ARE 217

The minor is offered by the Animal Science Department.

Ecology and Evolutionary Biology

Students wishing to complete this minor must take at least 15 credits of 200's level (or higher) EEB courses, which must include both 244 (or 244W) and 245 (or 245W).

The minor is offered by the Ecology and Evolutionary Biology Department.

Economics

Students wishing to minor in Economics must complete:

ECON 218 and 219
At least one course numbered 211-217, or 231-279
Any two other upper-division courses in the department

The minor is offered by the Economics Department.

English

Students wishing to complete this minor must take at least 15 credits of 200's level English courses, including:

1. At least one of ENGL 205 (or English Honors 206 or 253) and ENGL 206 (or English Honors 255 or 256);
2. At least one of ENGL 270 (or English Honors 251) and 271 (or Honors 252); and
3. Any three other 200-level English courses, with the following exceptions: 201, 209W, 220-226, 250, 293, and 297.

The minor is offered by the English Department.

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:

An approved *Plan of Study*
CE 260, 263, 279
CHEG 285
6 elective credits from an approved list of 200-level courses, but not more than 3 credits of research

The minor is offered by the Environmental Engineering Program.

European Studies

This minor allows students to pursue an interest in social, historical, political, and cultural aspects of Western Europe or to pursue a topic, such as environmental protection or cultural identity, that cuts across regions. Students electing this minor must complete a minimum of 18 credits at the 200 level distributed across the following categories:

1. One required course: HIST 229
2. Three courses distributed across three of the following four disciplines: ECON 201 or 201W; GEOG 254; HIST 228 or 228W; HIST 258 or 258W; HIST 259 or 259W; POLS 231 or 231W; POLS 240 or 240W
3. One course from the ES advisor's list of approved electives, chosen in close consultation with the ES advisor. With the advisor's approval, a student may opt to do a senior thesis, equivalent to three credits of the elective requirement, on an aspect of European Studies.
4. One three-credit course at the 200's level in European literature, culture, or civilization, from the Modern and Classical Languages listings; or the student may combine three 1-credit Linkage Through Language modules for a total of 3 credits.
5. Language requirement: Intermediate proficiency in reading, writing, speaking, and understanding a European language other than English,

demonstrated either through completion of the fourth semester of a college-level language sequence or through examination by a faculty instructor in the language. Study abroad is strongly encouraged as an effective means to increase proficiency.

The minor is administered under the auspices of the Center for European Studies. Courses of study are supervised by committees of participating faculty. For further information, including a list of designated courses, contact Ludmilla Burns, Program Advisor.

Food Science

This minor addresses food science as an academic discipline which utilizes approaches for solving applied science problems associated with the aquisition and processing of food.

Students in this minor must pass:

ANSC 224	NUSC 212
ANSC 253W	NUSC 233

Additional courses from the following to meet the 18 credit total requirement:

ANSC/NUSC 160	ARE 150
NUSC 165	ANSC 298
NUSC 166	NUSC 235

The minor is offered by the Animal Science Department and the Nutritional Science Department.

French

This minor will offer to students who arrive at UConn with no background in French the opportunity to pursue advanced studies in language, literature, and culture of the French-speaking world. Fifteen credits of French will be required for the minor. These are the courses a student pursuing the minor in French must complete:

A. One of the following: FREN 210, 211
B. One of the following: FREN 268, 269
C. Both of the following: FREN 261, 262
D. One of the following: FREN 217, 218, 221, 223, 224, 280, 281.

The minor is offered by the Modern and Classical Languages Department.

Geographic Information Science

The minor consists of courses that concern spatial data aquisition, evaluation, manipulation, and analysis. Students electing this minor must complete at least fifteen credits from the following:

1. Two required courses: GEOG 246C and GEOG 248C
2. One of the following: GEOG 240C, GEOG 245V
3. One of the following: ECON 216V, GEOG 242Q, MATH 204Q, MATH 255Q, STAT 201Q

Geography majors may not select GEOG 242Q, and may not use any other Geography course to fulfill both major and minor requirements.

Geography

The requirements for this minor are GEOG 200 or 204, GEOG 205, and an additional 9 credits of 200-level Geography courses selected in consultation with an advisor to form a coherent program of study.

The minor is offered by the Geography Department.

Geology and Geophysics

Students wishing to take this minor must complete the requirements of either the Geology Option or the Geophysics Option.

The Geology Option consists of the following four courses:

GEOL 250, 3 Credits
GEOL 251, 3 Credits
GEOL 252, 3 Credits
GEOL 253, 4 Credits

An additional 200-level Geology and Geophysics course, chosen in consultation with the Geology Option minor advisor, must also be completed so that the total number of credits is at least 15.

The Geophysics Option consists of the following four courses:

GEOL 264Q, 3 Credits
GEOL 266Q, 3 Credits
GEOL 267Z, 3 Credits
GEOL 268Z, 3 Credits

An additional 200-level Geology and Geophysics course, chosen in consultation with the Geophysics Option minor advisor, must also be completed so that the total number of credits is at least 15.

The minor is offered by the Geology Department.

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 200 level distributed across the following categories:

1. Language skill courses: students must choose 2 of the following courses: GERM 231, 233, 234, 243, 244

2. Content Courses (in literature, film, culture, etc.): students must choose 2 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 252, 253, 254, 255, 281, 285, 293, 296, 298 (if taught in German)

3. Courses in English: students must choose one of the following:
GERM 251, 280W

The minor is offered by the Modern and Classical 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 18-credit minor consists of both course work and field experiences working in community settings serving older adults.

Course Requirements

1. Three required courses (Nine credits)
   HDFS 204, HDFS 248, HDFS 250
2. One course (three credits) from the following:
   HDFS 252, HDFS 274, HDFS 276, AH 203
3. Six credits in HDFS 288: Fieldwork in Community Settings Working with Older Adults
   Six credits of fieldwork with older adults may consist of either two 3-credit field experiences during different semesters or one 6-credit field experience.

The minor is administered under the auspices of the Center on Aging and Human Development in the School of Family Studies. Faculty in the School of Family Studies and other academic programs serve as advisors. Students should contact the Director, Center on Aging and Human Development, U-58, School of Family Studies.

History

Students must pass five courses (15 credits) from at least two Distribution Groups (A-D). One of the five courses must be from the basic courses listed below. At least one of the additional four courses must be in a Distribution Group other than that of the basic course.

Basic Courses

Distribution Group A: 214, 214W, 216, 216W, 220,271,272
Distribution Group B: 228, 228W, 229, 229W
Distribution Group C: 231, 231W, 232, 232W, 210,210W,215, 215W
Distribution Group D: 204, 205, 222, 223, 281,282,287, 288

Four additional courses must be taken from the *Optional List* that follows. One of these optional courses must be in a distribution group other than the distribution group within which the basic course is taken.

Optional List of Courses

Group A - Ancient, Medieval, and Early Modern: 203, 212, 213, 214, 216, 217, 218, 219, 220, 250, 251, 255, 261, 267, 270, 271, 272, 273, 274, 292, 293, 295, 296, 297W, 298, 299, any graduate level History course

Group B - Modern Europe: 203, 206 (SCI 206), 207, 208, 209 (HDFS 279), 225, 228, 229, 254, 256, 258, 259, 262, 264, 269, 270, 279, 291, 292, 293, 295W, 296, 297W, 298, 299, any graduate level History course

Group C - United States: 207, 210, 215, 227, 231, 232, 233, 234, 235, 237, 238, 239, 240, 241, 242, 243, 244, 246, 247, 248, 249, 270, 292, 293, 294, 295, 296, 297W, 298, 299, any graduate level History course

Group D - Africa, Asia, Latin America, and Middle East: 204, 205, 221, 222, 223, 224, 226, 270, 275, 276, 277, 280, 281, 282, 283, 285, 286, 287, 288, 289, 290, 292, 293, 295, 296, 297W, 298, 299, any graduate level History course

Note: HIST 211 and 297W may also be taken as part of the minor.

The minor is offered by the History Department.

International Studies

This minor enables students, regardless of their fields of concentration, to develop a broad understanding of the rapidly changing global environment. The minor requires fifteen to eighteen hours of course work, and either an intermediate level of competency in a modern foreign language, participation in an approved Study Abroad program, or completion of an internship. Further information on the International Studies minor can be obtained from the International Studies Minor Advisor, Elizabeth Mahan, U-1161.

Italian Cultural Studies

Students electing this minor must complete 18 credits from the following:

A. Two courses in Italian literature and/or cinema in English: ILCS 255W, 256W, 260W
B. Two courses in History: HIST 267, 269, 271, 297W
C. One course in Art History: 251W, 272, 273W
D. One additional 200 level course in Italian Cultural Studies or History.

Students must demonstrate proficiency in Italian at a level equivalent to ILCS 147.

The minor is offered by the Modern and Classical Languages Department.

Italian Literary Studies

This minor requires the completion of 18 credits in 200 level courses. All of the courses listed below require ILCS 145, 146, 147, 148, or the equivalent, as prerequisites, but those language courses do not count toward the minor. The following are the courses required for completion:

A. One course in composition and conversation: ILCS 239 or 240
B. Both of the following: ILCS 243 and 244
C. Two courses from the following: ILCS 250, 251-252, 253, 254, 261, 262
D. One course from the following: ILCS 237, 238

The minor is offered by the Modern and Classical Languages Department.

Landscape Design

This minor provides an introduction to landscape architecture, the communication of ideas via presentation drawing, and the methodology of designing the landscape to meet individual and societal needs.

Students in this minor must pass a total of 16 credits including: PLSC 202, 255, 275

And three of the following courses: PLSC 231, 247, 260, 261, 277, 290W

The minor is offered by the Plant Science Department.

Latin American Studies

This minor provides basic, interdisciplinary understanding of Latin America and the Caribbean that supplements a student's undergraduate major. Students must complete a minimum of four 200-level courses on Latin America and/or the Caribbean selected from at least three disciplines. At least two of the four courses must be selected from the following:

ANTH 221, ANTH 229, HIST 281, HIST 282, HIST 283W, POLS 235, SPAN 205

Students minoring in Latin American Studies must also take LAMS 290, the Latin American Studies Research Seminar. Only 3 credits of Latin America-related course work in the student's major department may be counted towards the minor. Students must also complete one 200-level course in Spanish and/or Portuguese. Students minoring in Latin American Studies should also consider participating in a study abroad program in Latin America or the Caribbean.

The minor is offered by the Latin American Studies Program.

Linguistics

This minor requires 15 credits of 200-level course work in linguistics and a related area. Required courses are:

A. Core areas of theoretical Linguistics
LING 202, LING 205Q, and LING 206Q

In addition, students must take at least one course from Group B.

B. Linguistics extensions: Any other 200's-level Linguistics course.

Finally, students must take a second course from the group in B, or one course from Group C:

C. Linguistics in related fields
ANTH 244, COMS 202, PHIL 211Q, PHIL 241, PSYC 221, or SOCI 212.

The minor is offered by the Linguistics Department.

Marine Biology

This minor requires at least 15 credits of 200's course work in marine biology and related courses. Required courses (Group A) are:

A. Core courses: MARN 260, MARN 294/EEB 294

In addition, students must take at least three of the following courses from Group B:

B. Electives: MARN 236, MARN 331, MARN 332, EEB 200, EEB 275

The minor is offered by the Marine Science Department.

Mathematics

The requirements for this minor are MATH 210 (or 220), 211 (or 221), 227 (or 215), and at least 6 credits from any of the following courses: MATH 204, 216, 223, 231, 235, 250, 252, 258, 273, 281, 286 or certain sections of 297, 298, and 299 approved by the department head.

The minor is offered by the Mathematics Department.

Metallurgy and Materials Engineering

This minor provides a firm basis for understanding the relationships between the structure of all classes of materials and the properties of these materials that are critical to science and engineering. It requires completion of 16 credits including the following:

An approved *Plan of Study*
MMAT 201, 202, and 203
9 credits selected from MMAT 200-level courses (but not more than 3 credits of independent study MMAT 299)

The minor is offered by the Metallurgy & Materials Engineering Department.

Molecular and Cell Biology

Students wishing to complete this minor must take at least 15 credits of 200's level MCB courses, including at least one course from each of the following three groups:

A. MCB 200, 201, 213, or 217
B. MCB 204 or 203
C. MCB 210 or 229

The minor is offered by the Molecular and Cell Biology Department.

Nutrition for Exercise and Sport

This minor has been established in cooperation with the Department of Kinesiology. Students admitted to the minor are expected to have completed PNB 264 and PNB 265 with a grade of B or better.

Students in this minor must pass:
EKIN 248, EKIN 258, NUSC 250, NUSC 241

And two of the following courses for an additional 6 credits:
EKIN 238, EKIN 259, NUSC 299 or NUSC 281

The minor is offered jointly by the College of Agriculture and Natural Resources and the Neag School of Education.

Oceanography

Students desiring this minor must take at least 15 credits of 200's level courses including fulfilling the Core requirements. Required courses (Group A) are:

A. MARN 260; MARN 270, MARN 275W, MARN 280W

In addition, students must take at least one course from Group B:

B. MARN 220Q, MARN 230, MARN 235V, MARN 236, MARN 294/EEB 294.

The minor is offered by the Marine Sciences Department.

Philosophy

A student must take at least 15 credits of philosophy, at the 200's level or higher, including one course from at least three of the following categories:

Category I: History of Philosophy: PHIL 221, 222, 261

Category II: Metaphysics and Epistemology: PHIL 210, 212, 250

Category III: Logic and Philosophy of Language: PHIL 211, 241

Category IV: Value Theory: PHIL 215, 217, 218

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 lower division 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, nuclear and particle physics, solid state physics, and atomic and molecular physics. The minor requires a minimum of fifteen credits of upper division course work.

Course Requirements

A total of fifteen credits consisting of

a. Three required courses (nine credits):
PHYS 209Q, PHYS 210Q, PHYS 230Q

and

b. Two or more elective courses (six credits) from any of the PHYS 200's courses with no more than two credits from PHYS 291 and no more than three credits from PHYS 299.

The minor is offered by the Physics Department.

Physiology and Neurobiology

Students desiring this minor must take at least 15 credits of 200's level PNB courses including fulfilling the Core requirements of either Group A or Group B, below:

Group A. PNB 274 - 275 (10 credits)

Group B. PNB 250 (3 credits), PNB 251 (3 credits), PNB 263W (3 credits), PNB 262 (2 credits)

The minor is offered by the Physiology and Neurobiology Department.

Political Science

Students must complete one introductory 100-level course selected from among POLS 106; 121 or 132; 143; or 173. At least one additional 100-level course is recommended. Students must complete at least 15 credits of course work at the 200's level (or higher, with consent of instructor and minor advisor). POLS 297 and 299 may not be counted toward the minor. Courses must be selected from at least three of the five disciplinary subdivisions.

1. Theory and Methodology: 201, 202, 204, 206W, 207, 291
2. Comparative Politics: 203W, 228, 229, 230, 231, 235, 236, 237, 239, 233, 233W, 244, or 244W
3. International Relations: 211, 212, 215, 216, 217, 218, 219, 220, 221, 222, 224, 225, 226, 227, 279
4. American Politics: 241, 242, 246, 248, 263, 270, 274, 275
5. Public Policy and Law: 251, 252, 253, 255, 256, 260, 264, 276, 278

The minor is offered by the Political Science Department.

Portuguese

This minor allows the students who come to college without a background in Portuguese to pursue an interest in the language, literature, and culture of the Portuguese-speaking world in an organized course of study. Eighteen credits are required. Students electing the minor must complete:

A. PORT 220, 221, 251

B. One of the following courses: PORT 234, 270

C. One of the following courses: PORT 237, 240, 241

D. One of the following courses: PORT 236, 242, 243

The minor is offered by the Modern and Classical Languages Department.

Psychology

The requirements for this minor are at least 16 credits of 200 level Psychology courses that include

1. PSYC 202Q (4 credits)

2. **one** course (3 credits) representing the Social and Applied Science Perspectives: PSYC 236, PSYC 240, PSYC 243, PSYC 245, PSYC 268, or PSYC 281

3. **one** course (3 credits) representing the Natural Science Perspective (PSYC 220, PSYC 221, PSYC 253, PSYC 254, PSYC 256 or PSYC 257, **and**

4. an **additional two elective courses** (6 credits) of any 200-level Psychology courses not used to meet the above requirements, with the exception that no more than three credits of PSYC 294 and PSYC 297 combined may be counted toward the minor. Other than PSYC 202Q, the courses comprising the minor should be selected in consultation with the student's major advisor to comprise a coherent program relevant to the student's academic and/or career interests and objectives.

The minor is offered by the Psychology Department.

Religion

Fifteen credits at the 200 level 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 234W, INTD 294, PHIL 231, SOCI 253

Group B. Topical Courses:

ANTH 274/WS 270
ARTH 243, 246, 257, 258, 259, 280
CAMS (Latin) 213, CAMS (Greek) 215
CAMS 243/HIST 217
CAMS 244
ENGL 217 -- When offered as *Literature & Religion*
ENGL 291 -- When offered as *Literature & Mysticism*
HIST 204
HIST 213/CAMS 253
HIST 218
JUDS 201, 202
PHIL 261, 263
SOCI 242

The minor is offered by the College of Liberal Arts and Sciences. For more information, contact the Anthropology Department by phone (860) 486-0067 or e-mail Jocelyn.Linnekin@uconn.edu.

Slavic and Eastern European Studies

This minor allows students to pursue an interest in social, historical, political and cultural aspects of eastern Europe, and particularly Russia, through a coherent course of study. Students electing this minor must complete a minimum of 18 credits at the 200 level distributed across the following categories:

1. One required course: HIST 252

2. Three courses distributed across three of the following four disciplines: ECON 244, GEOG 254, HIST 251, HIST 254W, POLS 222, POLS 230W, POLS 237 or 237W

3. Two courses from the SEES advisor's list of approved electives, chosen in close consulation with the SEES advisor. With the advisor's approval, a student may opt to do a senior thesis, equivalent to three credits of the elective requirement, on an aspect of Slavic and Eastern European Studies.

4. Language requirement: Intermediate proficiency in reading, writing, speaking, and understanding a Slavic or Eastern European language, demonstrated

either through completion of the fourth semester of a college-level language sequence or through examination by a faculty instructor in the language. Study abroad is strongly encouraged as an effective means to increase proficiency.

Prospective students wishing more information are invited to contact the Program Advisor for SEES at the Center for European Studies, Wood Hall, Room 306.

Sociology

Students must complete SOCI 107 and 5 different 200 level Sociology courses (totaling 15 credits), including either SOCI 205 or 270.

The minor is offered by the Sociology Department.

Spanish

This minor is intended for a student who wishes to pursue further the study of the literature, language, and culture of the Spanish-speaking peoples in an organized course of study. The minor requires passing 18 credits at the 200's level as follows:

A. One course in composition 278, 280, or 291;
B. Two survey literature courses: 281, 282, 295, or 296;
C. Two courses from the following: 202, 207, 208, 209, 223, 224, 225, 297, or 292; and
D. One culture course from the following: 200, 201, 204, 205, 206, or 290

At most, six credits from a Study Abroad Program may count towards the minor.

The minor is offered by the Modern and Classical Languages Department.

Sport Nutrition

This minor, for Kinesiology students, is the official recognition of an emphasis area that has evolved in recent years. The minor is timely and addresses a growing market of job opportunities for students.

Requirements. All students will complete the following three required courses and select from a group of approved elective courses for a total of 13 credits. NUSC 165 is a prerequisite for courses listed below.

Required courses (7 credits to be completed by all students)
NUSC 250, 241, and 200

Elective courses (choose 2 of the following for a total of 6 credits.)*
NUSC 267, 236, 299 or 281

*Students can elect to take 3 credits of either NUSC 299 or NUSC 281. Not both.

The minor is offered jointly by the Neag School of Education and the College of Agriculture and Natural Resources.

Statistics

This minor requires at least 15 credits at the 200-level. Students must choose one of three options:

Track I. STAT 201, 230, 231,261, plus one course from the *Optional List* below.

Track II. STAT 201, 220, 261, plus two courses from the *Optional List* below.

Track III. STAT 201, 242, plus three courses from the *Optional List* below.

Optional List of Statistics Courses: STAT 235, 242, 243, 252, 253, 271, 272, and 280.

Students who have passed MATH 114, 116, or 121 and also MATH 210 or 220 are strongly advised to take Track I. Students who have passed only MATH 114, 116, or 121 are strongly advised to take Track II. Students whose mathematics background is below MATH 114 level or its equivalent should take Track III.

The minor is offered by the Statistics Department.

Theatre Production

Additional Requirements. For students seeking this minor:
1. Completion of DRAM 107 (one section) and 108
2. Completion of 12 credits of upper division course work from the following: DRAM 200, 201, 203, 205, 206, 207C, 208, 209, 211, 212, 213, 214, 215, 218C, 257, 258, *299

*Offered under special circumstances for production assignments

The minor is offered by the Drama Department.

Theatre Studies

Additional Requirements. For students seeking this minor:
1. Completion of DRAM 130 and 131
2. Completion of 12 credits of upper division course work from the following: DRAM 230, 231, 235, 272, 282, 285

The minor is offered by the Drama Department.

Women's Studies

Fifteen hours of course work in Women's Studies courses or cross referenced courses, of which one course may be at the 100 level.

Not more than two courses may be counted toward both the minor and the major.

Not more than 6 credits for the Women's Studies Internship Program may be applied to the minor.

The minor is offered by the Women's Studies Program.

Regional Campuses

Through its Regional Campuses the University can provide Connecticut's citizens with diversified educational programs – both credit and noncredit – in five different locations around the State. These programs represent a continuing effort to extend the University's resources to all parts of the State.

All five Regional campuses – at Avery Point, Hartford, Stamford, Torrington and Waterbury – extend easier access to baccalaureate study on a local basis. Here students may begin Lower Division (Freshman-Sophomore) study in most baccalaureate programs, in all of the University's schools and colleges. Most students will anticipate moving to Storrs for Upper Division work toward the Bachelor's Degree, after two years at the local campus; in some programs they will relocate earlier, to accommodate specialized curricular needs better satisfied at Storrs. The Stamford program offers courses beyond the Lower Division; currently, students may complete majors in Economics, English, History, Political Science, Psychology, and Sociology, and a Bachelor of General Studies degree.

University standards for admission and student achievement are uniform for all campuses. Similarly, although the variety of Lower Division course offerings is somewhat more limited at the local campuses, courses offered there are identical to those offered at the main campus, and occupy the same place in the University's curriculum as those offered at Storrs. Compressed videoconferencing, computer terminals and other mechanisms link these campuses with the main campus.

Several local campuses offer evening courses, intended particularly to serve students who are employed or who wish to continue college study on a part-time basis. In addition, each campus serves as a local center where the Division of Extended and Continuing Education offers selected graduate courses and at Stamford ECE offers a wide range of non-credit programs, courses, and certificates, and manages a state-of-the-art Conference Center. Graduate programs in Business Administration, for example, are offered in Stamford. The Bachelor of General Studies Degree program administered by Extended and Continuing Education provides a means by which selected adult students may use local campus facilities to pursue Upper Division undergraduate study in individualized curricula. The Marine Sciences and Technology Center, housed at the Avery Point campus in Groton, is another example of how the local facilities are used to place elements of the University's total program where they will be most effective.

The University tries to offer at such locations courses and other programs which citizens in nearby communities need. Comments and inquiries should be addressed to the Director of the local campus, who can provide more specific information on current local University programs.

Avery Point Campus

Joseph Comprone, Ph.D., *Associate Vice Chancellor and Director*

Avery Point is the University of Connecticut's campus-by-the-sea, established in 1967 on the seventy-three acre Gatsby-era estate of industrialist Morton Plant. Situated directly on Long Island Sound at the mouth of the Thames River in Groton, the Avery Point campus offers a broad range of day and evening courses in an environment enhanced by the ever-present sights and sounds and smells—the very feel—of the ocean.

At UConn Avery Point, students may select from extensive academic program offerings in the Colleges of Liberal Arts and Sciences and Agriculture and Natural Resources; the Schools of Engineering, and Fine Arts; and the professional Schools of Education, Business, Allied Health, Pharmacy and Nursing. Avery Point students enrolled in any of these programs can look forward to a seamless transition to Storrs, usually at the end of the sophomore year.

In addition to offering Lower Division courses required for fulfilling all of the University's general education requirements, UConn Avery Point offers many Upper Division courses, including those of the multi-disciplinary coastal studies curriculum, offered almost exclusively at Avery Point.

The campus also offers a significant number of both Lower and Upper Division courses in the evening. This scheduling accommodates the needs of working students and students enrolled in the Bachelor of General Studies program. The BGS program is a junior-senior level interdisciplinary degree program for non-traditional part-time students, tailored to individual student needs and goals. Students may complete the entire BGS degree program at the Avery Point campus.

Academic resource facilities include Avery Point's 28,500-volume library which is networked for computerized searches and Internet access to numerous bibliographic and full-text databases, and which provides traditional library services as well. The campus' Learning Resources Center is an active and popular hub for supplemental instruction programs, tutorial help, and assistance with special projects including writing, math, the sciences, study skills and computer literacy.

The undergraduate academic complex features newly renovated chemistry and coastal studies laboratories, a state-of-the-art personal computer laboratory, distance learning facilities, a new high-tech classroom, the UConn Co-op bookstore, and other classrooms, laboratories, and seminar rooms. The campus gymnasium offers an all-purpose basketball/volleyball/tennis court, six-lane swimming pool, and fitness training facilities in support of fitness and selected athletic programs for women and men.

Campus venues for social functions and cultural activities include the newly renovated Avery Point Student Center, the 375-seat Avery Point theatre, and the Alexey von Schlippe Gallery of Art located in the campus' landmark Branford House mansion.

Hartford Campus

Glen Richardson, *Interim Director*

The Hartford Campus of the University of Connecticut, organized in 1946, moved in 1970 to its present location on the Greater Hartford Campus at 85 Lawler Road, West Hartford. The undergraduate building provides classrooms, including a new high-tech classroom, laboratories, the Gampel Student Center, food services, and a co-op bookstore as well as provision for athletic and extracurricular activities. Campus-wide facilities include a library, fully linked to the Storrs Babbidge Library, campus auditorium/theatre, and a computer center. A new building housing the Computer Center and Student Services is expected to be completed by the summer of 2001. Ample parking is available for authorized students.

The Hartford regional campus of the University serves a broad section of the population of the greater Hartford area. Freshmen-sophomore students who prefer to live and study in this area may begin a program leading to a degree from nearly all of the schools and colleges of the University. These programs, and the distinguished faculty who staff them, are fully integrated into the departments and colleges of the University. For those students who wish to continue their education in the evening, a number of undergraduate courses are offered, including some advanced courses which fulfill the requirements of the Bachelor of General Studies degree offered at the campus. In 1999, a new degree program in Urban Studies was approved for the undergraduate program. This new major represents the beginning of a planned expansion of three and four year course offerings which will enable students to complete most or all of their studies at the Hartford Campus. Courses on a graduate level are available in education, public administration, and in business administration.

The programs of the School of Social Work, (MSW), MBA, Cooperative Extension, and International Political Science Institute are also located on the campus.

Stamford Campus

Jaquelyn Joseph-Silverstein, Ph.D., *Associate Vice Chancellor and Director*

Established in 1951, the Stamford Campus represents the combined efforts of the University, the State of Connecticut, and the Stamford community to develop and maintain a distinguished educational program in southwestern Connecticut. The first building completed under the UConn 2000 initiative, the new campus boasts the latest in state-of-the-art technology, increased classroom space and the most modern science laboratory equipment. Every classroom is wired for computer accessibility and the computer center has more than 100 new computer stations for student use. Additionally, the distance learning classrooms link UConn Stamford

University of Connecticut Internet Sites

Health Center: http://www.uchc.edu/ School of Law: http://www.law.uconn.edu/

School of Social Work: http://www.socialwork.uconn.edu/

to Storrs for extended instructional activities.

Located in the center of Downtown Stamford, students may complete majors in Economics, English, History, Political Science, Psychology, and Sociology, and a Bachelor of General Studies degree at the new Campus. A new degree program in Business Administration will be added to the curriculum along with the establishment of the Connecticut Information Technology Institute (CITI). The institute will prepare individuals who wish to follow an information technology tract in their studies. At Stamford, the Division of Extended and Continuing Education offers a wide range of non-credit programs, courses and certificates and manages a state-of-the-art Conference Center.

The Bartlett Arboretum, under the direction of Stamford Campus, is a 68-acre wooded nature center surrounding the Campus. It houses the state's largest library on plant science, and its Visitor's Center features botanical illustrators. The Arboretum sponsors a wide variety of horticultural programs in its Educational Building, and the Campus holds several classes there during the year. The greenhouse, gardens, and trails are visited by over 20,000 people yearly.

As a regional University center, Stamford attracts and accommodates a highly pluralistic student body, drawn from a variety of ethnic, social, and economic backgrounds. Besides the traditional college-age student, a special effort is made to meet the widely diverse needs of the non-traditional students who commute from the surrounding communities.

The Stamford campus recognizes its special urban character and welcomes its close relationship with major corporations in Fairfield County. Dedicated to strengthening its ties with the corporate community, the campus encourages students to take advantage of off-campus learning such as internships; faculty are also encouraged to participate in a constructive exchange of ideas with those outside the University.

Torrington Campus

Adriane R. Lyon, M.A., *Director*

In the fall of 1957, the University of Connecticut began offering late afternoon classes at Torrington High School. The program grew rapidly, and as a result of a bequest from Julia Brooker Thompson, the present University Drive campus was established in 1965.

The 100-acre campus is located in a quiet, rural setting on the outskirts of the city of Torrington and consists of a large classroom building and ample parking. Well-equipped biology, chemistry, and physics laboratories, an art studio, computer rooms, a UConn Co-op bookstore, an auditorium, and a cafeteria are all part of the facility. An 18,000 volume library subscribes to more than 100 journals and newspapers, and provides access to more than 250 libraries in the State through the CD ROM database, reQuest, and interlibrary loan. Classes are usually small, with a ratio of students to instructors of about 20 to 1; accessibility of faculty and quality of instruction are special features of the Torrington Campus. The new Cooperative Extension Service Building opened in February of 2001.

An extensive program of both day and evening classes is available. Freshman and sophomore students who prefer to live, work, and study in Litchfield County may begin a program leading to a degree in any of the schools and colleges of the University. Additionally, many junior and senior level classes are offered, primarily for those students in the Bachelor of General Studies Program, who are completing requirements for a UConn degree at the Torrington Campus.

Activities available to students include an Associated Student Government, which sponsors a variety of social events. Membership at the Torrington YMCA is free to all UConn Torrington students.

The campus is actively involved in many aspects of the community including economic development and the arts. Poetry readings are frequently hosted by the Associated Student Government and local authors visit classrooms on a regular basis. The Torrington Campus is also home to the Litchfield County Writers' Project which, in addition to housing a collection of the published works of Litchfield County authors, includes programs and seminars by and about those authors. A new literary journal, *The Charter Oak Review*, will be published from the campus beginning in June of 2001.

Waterbury Campus

Francis G. Brennan, *Director*

The University of Connecticut at Waterbury, established in 1942 as an Extension Center to help answer the educational needs of students in the surrounding areas, has responded to continued demand for its services by steady growth. The University of Connecticut at Waterbury currently serves about 550 students, most of whom are freshmen, sophomores, and returning adults. Located in a residential and office neighborhood on the slopes of 32 Hillside Avenue, Waterbury, overlooking the city, the campus boasts at its heart two elegant Victorian dwellings. The Benedict-Miller mansion, constructed in 1876, is one of the best examples of shingle-style Victorian in the country and provides meeting space for the campus and local community. The former Sperry Homestead or "White House," of a similar vintage, houses faculty offices and the University of Connecticut Co-Op.

Other facilities include a newly acquired Administration Building "Smith House," a modern classroom, library, and science and engineering buildings, and the recently acquired Victorian Hart House. In addition to library facilities, the Edward H. Kirschbaum Hall features and exhibition area, meeting room, group study rooms, audiovisual equipment and viewing rooms. The science and engineering building also includes a snack bar and student recreation facilities. Computer laboratories are available which contain both Macintosh and IBM compatible personal computers and printers, which allows students access to the internet, e-mail, and the University of Connecticut's mainframe system. A new student parking lot accommodates approximately 50 cars.

The third floor of the Charles Ekstrom Hall at the Central Naugatuck Valley Higher Education Center on Chase Parkway in Waterbury (HEC), a building equipped with excellent parking, cafeteria, and library facilities, is also used for classrooms and faculty and administrative offices. Most night classes are offered at this location.

The groups served by the Waterbury campus of the University include a broad section of the population of the greater Waterbury area. New to the Waterbury campus is the Bachelor of Science degree in Business Administration, MBA program, Bachelor of Arts in Urban Studies, and course work toward the Master of Social Work. For those students who wish to continue their education in the evenings, a large number of suitable courses are offered at all levels, including advanced courses toward the Bachelor of General Studies Degree. A selection of Upper Division courses in several majors, including Mathematics, English, History, and Human Development and Family Studies are available year-round during the day and evening, as this urban campus continues to respond to the needs of its diverse community.

Regional Campus Information on the Web

Information about all regional campuses is located at:

http://www.uconn.edu/camp.html

Specific information can be found at the following sites:

Avery Point
http://www.averypoint.uconn.edu/

Hartford
http://www.hartford.uconn.edu/

Stamford
http://www.stamford.uconn.edu/

Torrington
http://www.torrington.uconn.edu

Waterbury
http://www.waterbury.uconn.edu/

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 *Directory of Classes* published prior to each semester through the Office of the Registrar.

Courses to be offered through the Office of Credit Programs, Extended and Continuing Education, are included in brochures issued each semester and summer session.

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 01-99 are courses in the Ratcliffe Hicks School of Agriculture; baccalaureate students may not register for these courses. Courses numbered 100-199 are primarily for freshmen and sophomores; courses numbered 200-299 for juniors and seniors. Courses numbered 300-399 are for graduate students and appear in *The Graduate School Catalog*. University regulations allow undergraduates to take courses at the 300'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.

If a course was formerly given under another number the fact is listed in the course description. In such cases the course cannot be taken for credit by students who have received credit for it under the earlier number.

Skill Codes. In compliance with the General Education Requirements, skill code designations (W, Q, C and combinations thereof) have been added to courses where applicable. Students may find a comprehensive explanation of these skill codes under "Course Information" of the Academic Regulations section of this *Catalog. Note:* The same 3-digit numerics are not repeatable, ie 107, 107W.

Course Semester. Single semester courses designated as "either semester" are given in the first semester and repeated in the second semester. Such courses may be taken in either semester but may be taken for credit only once.

Courses carrying hyphenated numbers are full year courses extending over the two semesters. The first semester of such courses is always prerequisite to the second, but the student may receive credit for the first semester without continuing with the second. If a course with hyphenated numbers is designated as "either semester," the student may start the year's work in either semester; if it is designated as "both semesters," the course starts in the first semester and runs through the academic year.

A few advanced courses, usually of a seminar or special problems nature, are labeled "either or both semesters." Students may take such courses in either semester alone or they may repeat them for credit. Only in these cases unless the course description carries a specific statement to the contrary, may a student take the course more than once for credit.

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 from the *Directory of Classes* that is available before the opening of each semester through the Office of the Registrar.

Refer to the Academic Regulations section of this *Catalog* for further information regarding registration for courses.

Accounting (ACCT)

Head of Department: Professor Richard F. Kochanek
Department Office: Room 329, Hall Building

For major requirements, see the School of Business Administration section of this *Catalog*.

Courses in this department, with the exception of Accounting 131, are open to juniors and seniors only.

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 (Accounting 299's) and internships (Accounting 289's) as a requirement for graduation.

131. Principles of Financial Accounting
Either semester. 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.

200. Principles of Managerial Accounting
Either semester. Three credits. Prerequisite: ACCT 131. Open to sophomores.

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.

201. Intermediate Accounting I
Either semester. Three credits. Prerequisite: ACCT 200 and ECON 112.

An in-depth study of financial accounting, giving particular emphasis to balance sheet valuations and their relationship to income determination.

202. Intermediate Accounting II
Either semester. Three credits. Prerequisite: ACCT 201 and OPIM 203.

A continuation of Accounting 201.

203. Advanced Accounting
(Also offered as ACCT 303.) Either semester. Three credits. Prerequisite: ACCT 202.

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.

203P. Advanced Accounting
(Also offered as ACCT 303.) This course and one additional P course from the Accounting Department constitute one W requirement.

205. Introduction to a Profession
First semester. One credit. Prerequisite: ACCT 131. 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. A major course project involves the analysis of the annual report of a real-life company. The course will also introduce and allow students to interact with UConn accounting alumni in a variety of accounting careers.

221. Cost Accounting
Either semester. Three credits. Prerequisite: ACCT 200 and OPIM 203 (may be taken concurrently).

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.

222. Cost Analysis
Either semester. Three credits. Prerequisite: ACCT 221.

An advanced study of the generation and use of accounting data, and the application of quantitative methods of analysis in management accounting.

243. Assurance Services
(Also offered as ACCT 304.) Either semester. Three credits. Prerequisite: ACCT 202.

This course 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.

243P. Assurance Services
(Also offered as ACCT 304.) This course and one additional P course from the Accounting Department constitute one W requirement.

260. Federal Income Taxes
Either semester. Three credits. Prerequisite: ACCT 131.

A study of the underlying concepts of federal income taxation. Emphasis to be placed upon the impact of taxes on business decisions.

264. Advanced Federal Taxes and Tax Research
Second semester. Three credits. Prerequisite: ACCT 260.

An in-depth analysis of the tax aspects of corporations, partnerships, and S corporations, including their organization, operations (including international aspects), and liquidation. The course includes an examination of tax research methodology and techniques, using both printed and electronic materials, and discussions of cases requiring tax planning.

†289. Field Study Internship
Either or both semesters. Six credits. Hours by arrangement. Prerequisite: courses in Principles of Managerial Accounting. Cost Accounting and Intermediate Accounting, as well as consent of instructor and department head.

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 a detailed written report submitted by the student.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of department head required, prior to the student's departure.

Special topics taken in a foreign study program.

296W. Senior Thesis in Accounting
Either semester. Three credits. Hours by arrangement. Open only to Accounting Department Honors Students with consent of instructor and Department Head.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. With a change in content, may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor and Department Head.

Individual study of special topics as mutually arranged between a student and an instructor.

Agricultural and Resource Economics (ARE)

(Formerly Agricultural Economics and Rural Sociology)

Head of Department: Professor Emilio Pagoulatos
Department Office: Room 318, W.B. Young Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

110. Population, Food, and the Environment
Either semester. Three credits.

The role of agriculture in the growth and development of societies throughout the world. Economic and sociological problems of food and fiber needs and production in the developing and the advanced societies.

150. Principles of Agricultural and Resource Economics
Either semester. Three credits. Taught concurrently with SARE 50.

An introduction to agricultural economics, the role of agriculture in today's United States economic system, and relationships that regulate the entire economic environment.

215C. Business Management
First semester. Three credits. *L. Lee*

Analysis of marketing, management, and financial decision-making tools in agribusiness, including computer applications.

217. Business Finance in Food and Resource Industries
Second semester. Three credits. Recommended preparation: One of the following: ARE 150, ECON 112, ECON 102 or ARE 215C. Not open for credit to students who have passed AERS 230. *L. Lee*

Analysis of financial statements, credit, risk, and investment decision-making.

221. Business Strategies and Policy in Food Industries
Second semester. Three credits. Recommended preparation: ARE 150, or ECON 112, or ECON 102. *Cotterill*

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.

222. Food Trends and the Changing Consumer
Second semester. Three credits.

Determinants of food consumption trends. Particular attention to demographic and economic factors and to changing concerns regarding health and food safety.

225. Marketing and Futures Trading
Second semester. Three credits. Recommended preparation: ARE 150, or ECON 112, or ECON 102. *Lopez*

Principles and applications of marketing, with special emphasis on the use of futures markets for profit and price risk management. Includes marketing case studies, internet applications, and a futures simulation exercise.

234. Environmental and Resource Policy
Either semester. Three credits. *Altobello*

Economic and policy aspects of natural resource use and environmental quality issues. Designed for students with diverse departmental affiliations.

234W. Environmental and Resource Policy

235. Environmental and Resource Economics
Second semester. Three credits. Prerequisite: ARE 150, or ECON 112, or ECON 102.

Natural resource use and environmental quality analysis using economic theory. Reviews of empirical research and relevant policy issues.

238. Valuing the Environment
Second semester. Three credits. Prerequsite: ARE 150 or ECON 112 or consent of instructor. *Larson*

Conceptual and practical understanding of main methods used to evaluate economics 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 polution, deforestation, wetlands, wildlife, biodiversity, noise, visibility, water and water pollution.

255. The Role of Agriculture in Economic Development
First semester. Three credits. Recommended preparation: ARE 150, or ECON 112, or ECON 102. Credit may not be received for both ARE 305 and 255.

The role of agriculture in the economic development of less developed countries. Population and rural employment, the economics of food consumption and nutrition, international food aid, agricultural marketing and trade, land tenure, agrarian reform, and appropriate agricultural technology.

255W. The Role of Agriculture in Economic Development

257. Benefit Cost Analysis and Resource Management
Second semester. Three credits. Prerequisite: ARE 150 or ECON 112. Credit may not be received for both ARE 307 and 257.

Theoretical foundations and applications of benefit-cost analysis in project appraisal and in evaluation of public policies regarding resource management and environmental protection.

260. Food Policy
First semester. Three credits. Recommended preparation: ARE 150, or ECON 112, or ECON 102. *Lopez*

Analysis of food and agricultural policies in the United States and abroad. Designed for students with diverse departmental affiliations.

260W. Food Policy

275. Agribusiness Management and Entrepreneurship
First semester. Three credits. Prerequisite: Open to students with ARE 150, or ECON 112, or ECON 102. *Cotterill*

Management techniques for achieving the merchandising objective and standards of the firm, with maximum efficiency in the use of capital, personnel, facilities and equipment. Directed tpward those students who plan to enter agribusiness.

280. Economic Organization of Agriculture
First semester. Three credits. Recommended preparation: ARE 150, or ECON 112, or ECON 102.

Economic organization of competitive industries using agriculture as an example of one such industry. The problems growing out of the competitive structure of agriculture, and the economic concepts, principles and research results applicable to these problems.

285. International Commodity Trade
First semester. Three credits. Recommended Preparation: ARE 150, or ECON 112, or ECON 102. *Pagoulatos*

The basic principles of international commodity trade and market institutions. Applications to current problems of international commodity trade and policy.

290V. Quantitative Methods for Agriculture
Second semester. Three credits. Open only with consent of instructor. *T. Lee*

Data collection, compilation, charts, frequency distribution, simple descriptive statistics, index numbers, economic time series analysis and simple correlations.

295. Seminar
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open only with consent of instructor.

Participation in staff conferences and discussions, reviews of important books, and reports on recent developments in economic theory and research.

296. Agribusiness Internship
Either semester or summer. One to six credits (repeatable for a total of six credits). Prerequisite: Open to Upper Division Resource Economics majors with Independent Study Authorization.

This course is designed to provide 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.

297. Resource Economics Internship
Either semester or summer. One to six credits (repeatable for a total of six credits). Open only to Upper Division 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.

This course is designed to provide 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.

298. Special Topics
Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open

only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

299. Independent Study
Either or both semesters. Credit and hours by arrangement. Prerequisite: Open to students with Independent Study Authorization.

This course is designed primarily for Resource Economics majors.

Agriculture and Natural Resources (AGNR)

210. Extension Organization and Policy
First semester. Two credits. One 2-hour lecture period.

A course designed to acquaint the student with the history, objectives, policy, administrative procedures, organization and methods used by the Cooperative Extension Service. Special consideration will be given to the inter-relationship with other adult education programs.

215. Cooperative Extension Communications
Second semester. Three credits.

Communication theory, methods, and skills relevant to the educational functions of the Cooperative Extension Service. Acquaint students with relationships among Extension objectives, clients and the communication media.

293. Agriculture and Natural Resources Internship
Either semester or summer. One to six credits. Open to Upper Division students in the College of Agriculture and Natural Resources with consent of the Dean, the student's department head and advisor. This course may be repeated for credit with the total credits earned not to exceed six.

This course is 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.

298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open only to students with Independent Study Authorization.

This course is designed primarily for Resource Economics majors.

Air Force Studies (AIRF)

Head of Department: Colonel Ken DiPrimo
Department Office: 28 North Eagleville Road

For departmental description, see the College of Liberal Arts and Sciences section of this *Catalog*.

113. Air Force Studies I
First semester. 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.

114. Air Force Studies I
Second semester. 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.

123. Air Force Studies II
First semester. 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.

124. Air Force Studies II
Second semester. 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.

201. Aviation Ground School
One credit. One 2-hour class period per week for twelve weeks. Prerequisite: MATH 109 or permission of instructor. Open only with consent of instructor.

The principles of flight. Meets the course of study requirement for private pilot's written examination. (FAA)

235-236. Air Force Studies III
Both semesters. Three credits each semester. One class period, and a 2-hour leadership seminar. Prerequisite: AIRF 114 and 124, or six weeks field training. Open only with consent of instructor. May not be taken concurrently with AIRF 245-246.

Management fundamentals, motivational processes, leadership, group dynamics, organizational power, managerial strategy. Development of communication skills.

235W-236W. Air Force Studies III

245-246. Air Force Studies IV
Both semesters. Three credits each semester. One class period, and a 2-hour leadership seminar. Prerequisite: AIRF 235-236. Open only with consent of instructor. May not be taken concurrently with AIRF 235-236.

American civil-military relations, defense policy formulation, role of the professional officer, military justice system, Air Force Commands.

245-246W. Air Force Studies IV

Allied Health (AH)

Head of Department: Dean Joseph Smey
Department Office: Room 227A, Koons Hall

For major requirements see the College of School of Allied Health section of this *Catalog*.

For course descriptions of Allied Health, see these topics listed alphabetically throughout this *Directory of Courses*:

Allied Health (AH)
Cytotechnology (CYTO)
Diagnostic Genetic Sciences (DGS)
Dietetics (DIET)
Health Sciences (HESC)
Medical Laboratory Sciences (MLS)
Medical Technology (MT)
Physical Therapy (PT)

100. Introduction to Allied Health Professions
Semester and hours by arrangement. One credit. Open only with consent of instructor.

Overview of health professions, team approach to health care delivery.

101. Health and Wellness
Either semester. Three credits. Open to all students in the University.

Wellness, holistic health, mind-body connection, health and wellness models, mental wellness, positive self-concept, preventing heart disease and cancer, licit and illicit lifestyle drugs, stress management, diet, nutrition, weight control, aerobic and anaerobic exercise, healthy lifestyle behaviors, applications to life.

102. Peer Health Education
Fall semester. Three credits.

This course fosters skills that will prepare the student to function effectively as a peer health educator. Content includes leadership and communication skills, and a working knowledge of health-related topics such as stress management, body image, body art, sexuality, and other contemporary issues.

115. Introduction to the Health Professions
Semester and hours by arrangement. Three credits.

Introduction to the Allied Health professional curriculum through special topics.

200. Drugs and Society
Either semester. One credit. Two class periods for seven weeks. Priority given to Allied Health and Education students.

Overview of drugs in America, co-dependence, the role of the counselor, psychological and physiological addiction, cocaine, heroin, marijuana, psychoactives, over-the-counter drugs, prescription drugs, AIDS.

202. Clinical Biomechanics
First semester. Three credits. Open only to Orthotics and Prosthetics Students.

An introduction to fundamental biomechanical principles through a review of concepts from applied physics with an application to technically relevant problems.

203. Aging: Implications for Health Professionals
Either semester. Three credits. Three hours of lecture.

Age-related physiological changes and pathologies, psychological function in health behaviors and care, role change and transition, health care issues, therapeutic relationships.

204. Conversational Spanish for the Health Professional
Either semester. Three credits. Three hours of lecture. Open to Allied Health students and students in other health-related fields (i.e. nursing, nutritional sciences, pharmacy); others with consent of instructor.

Basic conversational skills, medical terminology, patient/client interviewing skills, cultural factors affecting health care delivery.

215. Critical Health Issues of Asian Americans
First semester. Three credits. *Palaniswamy*

Examination of critical health issues affecting Asian American sub populations. Topics to include gender specific health problems; cultural issues; and health care issues.

216. Asian Medical Systems
(Also offered as AASI 216.) Second semester. Three credits. *Palaniswamy*

Examination of traditional medical systems of Asian origin and their prevalence in the United States. Topics to include popular medical systems: Ayurveda, Traditional Chinese Medicine, Chinese, Indian and Japanese Herbal Medicine; the values and beliefs of different models.

236. Issues for Women and Health
Semester and hours by arrangement. Two credits.

A study of current issues related to women as providers and consumers of health care.

241. Research for the Health Professional
Either semester. Three credits. Three hours of lecture. Prerequisite: A course in statistics or consent of the instructor. Open only to Allied Health majors; others with consent of instructor.

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.

241W. Research for the Health Professional
Prerequisite: A course in statistics and English 105 or consent of the instructor.

242. Counseling and Teaching for the Health Professional
Either semester. Three credits. Three hours of lecture. Open only to Allied Health and Nutritional Science students; others with consent of instructor.

Learning theory and counseling strategies; role of health professional as teacher and counselor; communicating with special groups, individuals and groups.

243. Health Care Issues for the Health Professional
Either semester. Three credits. Three hours of lecture. Open only to Allied Health students; others with consent of instructor. Not open for credit to students who have passed Allied Health 202.

Individual, community and institutional health care needs and issues from a bio-medical and socio-cultural point of view. The health care delivery system; health and its relationship to poverty, ethnicity, life-cycle events, ethics, etc.

244. Management for the Health Professional
Either semester. Three credits. Three hours of lecture. Open only to Allied Health and Nutritional Science students; others with consent of instructor. Not open for credit to students who have passed Allied Health 240.

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.

280. Safety and Health Management
First semester, alternate years. Three credits. Three hours of lecture.

This course encompasses the principles of managing occupational safety and health programs from development, implementation through evaluation.

281. Industrial Hygiene
First semester, alternate years. Three credits. Three hours of lecture.

This course introduces the principles of industrial hygiene with emphasis on protecting workers' health through evaluation and intervention within the workplace.

282. Accident Prevention Techniques
Second semester, alternate years. Three credits. Three hours of lecture.

This course provides the student with the fundamental skills needed to prevent occupational injuries and illnesses in the workplace.

283. Occupational Safety and Health Regulations
First semester, alternate years. Three credits. Three hours of lecture.

This course provides a comprehensive overview of the occupational safety and health regulatory process and standards.

284. Ergonomics
First semester, alternate years. Three credits. Three hours of lecture.

This course is concerned with the achievement of an optimal relationship between humans and their work.

298. Special Topics
Either or both semesters and summer. Credits and hours by arrangement. 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.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement, not to exceed four. Open only with consent of instructor. May be repeated for credit.

Individualized study in a specialized area in the field of allied health.

Animal Science (ANSC)

Head of Department: Professor Ian C. Hart
Department Office: Room 107, White Building (Animal Science)

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog.*

120. Introduction to Animal Science
First semester. Three credits. Two class periods and one 2-hour discussion or laboratory period. Taught concurrently with SAAS 020. *Darre*

The biological, physical, and social factors that influence animal production and utilization.

125. Behavior and Training of Domestic Animals
Second semester. Three credits. Two class periods and one 2-hour laboratory. Taught concurrently with SAAS 025. *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.

127. Introduction to Companion Animals
Second semester. Three credits. Taught concurrently with SAAS 027. *Stake*

Basic concepts of the nutrition, physiology, health and management of companion animals.

160. The Science of Food
(Also offered as NUSC 160.) Second semester. Three credits. *Faustman, Zhao*

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.

216. Principles of Nutrition and Feeding of Animals
First semester. Three credits. Two class periods and one 2-hour discussion and demonstration period. *Andrew*

This course covers feed nutrients and their digestion and use. Nutrient requirements and feeding standards for various classes of livestock for reproduction, lactation, growth, work and maintenance are included. Attention also is given to characteristics of common feedstuffs and to formulating rations and nutritional programs for animal enterprises.

217. Animal Breeding and Genetics
First semester. Three credits. Two class periods and one 2-hour discussion/laboratory period. Prerequisite: BIOL 107. Recommended preparation: BIOL 108. *Yonash*

The principles of genetic, chemistry of nucleic acids, replication, transcription, translation and regulation of genes, population and quantitative genetics, and modern molecular genetic approaches to animal breeding.

219. Reproductive Physiology
Second semester. Three credits. Two class periods and one 3-hour laboratory or discussion period. *Riesen*

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.

221. Environment, Genetics and Cancer
Second semester, alternate years (even numbered). Three credits. Prerequisites: BIOL 107; CHEM 141 or 243. Concurrent enrollment in at least one of the following courses is strongly recommended: MCB 203 or 204, MCB 200 or 213; or MCB 210. *Silbart*

Basic principles in tumor biology will be presented with an emphasis on phenotypic changes in transformed cell morphology and behavior. The biochemical basis of cell transformation, proliferation, and metastasis will be covered, followed by discussions of molecular mechanisms by which environmental chemicals interact with DNA and other cellular components. Metabolic activation of genotoxic carcinogens will be covered in detail, and the importance of polymorphisms in activating enzymes among human sub-populations will be discussed in terms of individual risks of cancer. Activation of proto-oncogenes, inactivation of tumor suppressor genes, and the role of these proteins in regulating the cell cycle will be covered in detail. Approaches for estimating human risk of cancer based on exposure estimates and biological markers will also be presented.

222W. Growth Biology and Metabolism of Domestic Livestock
Second semester. Three credits. Two class periods and one 2-hour discussion period. Recommended preparation: PVS 200 or consent of instructor. *Zinn*

Course will focus 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.

224. Food Safety
Second semester. Three credits. Prerequisite: Biology 107. A one semester course in organic chemistry is recommended. *Faustman, 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.

225. Environmental Health Field Experience
First semester. One credit. One class period. *Silbart*

Field trips and discussion periods will focus on waste management and disposal. Topics will include water purification and sewage treatment, municipal and industrial waste incineration, a superfund site and pharmaceutical waste management. Some field trips will be scheduled by arrangement.

226. Environmental Health
First semester. Three credits. Prerequisite: BIOL 100 or equivalent; CHEM 122 or 127; or consent of instructor. *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.

229. Animal Embryology and Biotechnology
First semester. Three credits. Recommended preparation: ANSC 219 or MCB 219, or consent of instructor. *Yang*

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. Lab tours, hands-on experience, and field trips to biotechnology companies will be included.

231. Developing the Driving Horse
First semester. Two credits. One 1-hour lecture and two 1-hour laboratories. Prerequisite: Junior or senior standing. Consent only. *Callahan*

Techniques related to training the driving horse will be described. Prior working experience with horses is recommended.

234. Pleasure Horse Appreciation and Use
Either semester. One credit. One 1-hour lecture and one 1-hour laboratory. Not open to students who have passed ANSC 236. *Callahan*

Open to all University students interested in pleasure horses. The principles of horse management and horsemanship.

235. Horse Science
First semester. Three credits. Two class periods and one 2-hour laboratory or discussion period. Open to sophomores. *Dinger*

This course will be of particular value to animal science majors and 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.

236. Light Horse Training and Management
Second semester. Two credits. Three 1-hour laboratory and one 1-hour discussion period. Prerequisite: ANSC 235. Open only with consent of instructor. *Callahan*

The theory, fundamentals and practice of breaking, training, fitting, showing, and the use of horses for riding. Primarily for Animal Science majors.

237. Methods of Equitation Instruction
Second semester. Two credits. One class period and one 2-hour laboratory or discussion period. Taught concurrently with SAAS 37. Consent of instructor required. Intermediate II or above riding experience required. *Callahan*

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.

238. Horse Breeding Farm Management
Second semester. Three credits. One class period and two 2-hour laboratory or discussion periods. Recommended preparation: ANSC 235. *Dinger*

This course is 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.

253. Animal Food Products
First semester. Three credits. Two class periods and one 3-hour laboratory. *Faustman*

A study of the food products derived from animal agriculture, including dairy, meat, poultry and fish. Emphasis will be placed on inspection, grading, processing, nutritive value and food safety concerns of these products. Field trips will be required.

253W. Animal Food Products
Four credits.

254. Principles of Poultry Science
Second semester of odd numbered years. 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.

269. Laboratory Animal Science
Second semester. Three credits. Two class periods and one 2-hour laboratory or discussion period. Prerequisite: BIOL 107 and 108 or equivalent or consent of instructor. Open to sophomores. *Milvae*

The course is concerned with the 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.

273. Livestock Management
First semester. Four credits. Three class periods and one 2-hour laboratory period. *Hoagland*

The production and management of beef cattle, sheep, and swine. Laboratories involve theory and practice in livestock management, skills, and techniques.

275. Dairy Cattle Management
First semester of even numbered years. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with SAAS 076. *Kazmer*

Management of dairy cattle including milking procedures, sanitation, reproduction, selection, and record keeping.

277S. Dairy Herd Management (W, C)
Second semester of odd numbered years. Three credits. Two class periods and one 2-hour discussion period. Taught concurrently with SAAS 077. Prerequisite: ENGL 110 or 111 and ANSC 275. *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 and must fulfill requirements for "W" and "C" skill course designations to successfully complete the course. Field trips are required.

278. Dairy Management Decision-making
Both semesters. One credit. One 2-hour discussion period. 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.

281. Horse Selection and Evaluation
Second semester. Two credits. One 4-hour laboratory or discussion period. Taught concurrently with SAAS 081. Not open for credit to graduate students. Consent of instructor is required. *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.

283. Livestock and Carcass Evaluation
Second semester. Two credits. Two 2-hour laboratory periods. Taught concurrently with SAAS 83. 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.

284. Dairy Cattle Evaluation
Second semester. Two credits. Two 2-hour laboratory or discussion periods. *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.

288. Advanced Animal and Product Evaluation
First semester. Two credits. One 4-hour laboratory or discussion period. Taught concurrently with SAAS 88. Not open for credit to graduate students. May be repeated once for credit. 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. 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.

295. Seminar
Second semester. One credit. One 2-hour discussion period. Open only to juniors and seniors. *Zinn*

A discussion of current employment opportunities in animal agriculture. In addition, students will prepare resumes and present oral talks.

296. Professional Internship
Either semester. Credits and hours by arrangement. Open only to juniors and seniors with consent of instructor. *Andrew, Darre*

298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic. Contact Department Main Office for list of current topics and instructors.

299. Independent Study
Either or both semesters. Credits and hours by arrangement of instructor. May be repeated for credit.

Anthropology (ANTH)

Head of Department: Professor Jocelyn Linnekin
Department Office: Room 311, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

100. Other People's Worlds
Either semester. Three credits.

A survey of the development, contributions, and contemporary social problems of selected non-Euroamerican peoples and cultures.

106. Introduction to Anthropology
Either semester. Three credits. Two class periods and one 1-hour discussion. Students should ordinarily take this course in the fall semester.

This course is concerned with 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.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Consent of Department Head is required before departure. May count toward the major with the consent of the advisor.

Special topics taken in a foreign study program.

212W. The Development of Anthropological Theory
Either semester. Three credits. Prerequisite: ANTH 220. Recommended for seniors.

Historical and contemporary theories in social and cultural anthropology.

214. Introduction to Archaeological Methods
First semester. Three credits. Open to sophomores. *Dewar, McBride*

The concepts, methods and practice of anthropological archaeology.

215. Migration
Second semester, alternate years. Three credits. Recommended preparation: ANTH 100 or ANTH 106.

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.

217. Old World Prehistory
First semester. Three credits. *McBrearty*

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.

218. New World Prehistory
Second semester. Three credits.

The entry of early hunters into the New World, the origins of agriculture and sedentary life, and the rise of complex civilization in Mesoamerica and South America.

220. Social Anthropology
Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed ANTH 200.

A 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.

220W. Social Anthropology
(Formerly offered as Anthropology 200.) Open to sophomores.

221. Contemporary Latin America
Either semester. 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.

222. Peoples and Cultures of South America
Either semester. Three credits.

The history, ecology, and culture of the native peoples of South America.

223. Pre-Colonial Africa
First semester. Three credits.

A survey of African society and history prior to and including the Atlantic slave trade.

225. Contemporary Africa
Second semester. Three credits.

Africa since its partition in 1884. Urbanization, social stratification, racial and ethnic conflict.

226. Peoples and Cultures of North America
Either semester. Three credits. *Bee*

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.

227W. Contemporary Mexico
Either semester. 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.

228. Australian Aborigines
Either semester. Three credits. Recommended preparation: ANTH 220. *Dussart*

An introduction to the study and understanding of Aboriginal ways of life and thought. Social relations, modes of thought and belief that are particularly Aboriginal and which show continuity with the past. Notions of identity and the relationship of various indigenous communities to the non-Aboriginal population of Australia.

229. Caribbean Cultures
Either semester. Three credits.

Peoples and cultures of the Carribean region.

230. Peoples of the Pacific Islands
Either semester. Three credits. *Linnekin*

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.

231. Anthropological Perspectives on Women
(Also offered as WS 231.) First semester. Three credits. Open to sophomores. *Dussart*

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.

232. Cognitive Anthropology
Either semester. Three credits. Recommended preparation: ANTH 244. *Boster*

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.

233. Human Evolution
Second semester. Three credits. Open to sophomores. *McBrearty*

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.

234W. Culture and Religion
Either semester. Three credits. Prerequisite: ANTH 106 or consent of instructor. *Dussart*

Religion as a social institution, with emphasis on the social and psychological functions of religious beliefs and practices. Materials are drawn from a wide range of historical and contemporary societies.

235. Economic Anthropology
Either semester. Three credits.

An introduction to the comparative study of economic life in contrasting pre-industrial, tribal and peasant economies.

236Q. Human Behavioral Ecology
Either semester. Three credits. *Sosis*

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.

237. Psychological Anthropology
Either semester. Three credits.

Cross-cultural overview of critical issues regarding the relationship between individual personality and sociocultural systems, and mental health and illness.

238. Peoples and Cultures of the Middle East
Either semester. 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.

239. Cultural Dynamics
First semester. Three credits. *Bee*

Interrelations among cultural, social and psychological factors influencing the process of cultural growth and change.

240. Cross-Cultural Perspectives in Education
First semester. Three credits.

Implications of anthropology for education, with emphasis on the relationship between the learning process and the cultural setting.

241. Latin American Minorities in the United States
(Also offered as PRLS 241). First semester. 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.

242W. African-American Culture
Either semester. Three credits.

Sociological and anthropological analysis of the development and persistence of Afro-American culture.

243W. The American in Foreign Cultures
Second semester. Three credits. Prerequisite: SOCI 107 (required for sociology majors) or ANTH 106. Not open for credit to students who have passed SOCI 225.

The nature of the foreign situation encountered by past and present overseas Americans and their responses to it.

244. Culture, Language, and Thought
Either semester. Three credits. *Boster*

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.

245. Parent-Child Relations in Cross-Cultural Perspective
(Also offered as HDFS 245.) Offered every third semester. Three credits.

Theory and research on major dimensions of parenting in the U.S.A. and cross-culturally: parental warmth, control and punishment.

246W. Illness and Curing
Either semester. Three credits. One 3-hour class period. *Erickson*

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.

247. Culture, Power, and Social Relations
Either semester. Three credits.

Comparative and historical analysis of the sources and consequences of power in human populations.

248. Urban Anthropology
(Also offered as URBN 248.) Either semester. Three credits.

A general course on urbanization, emphasizing contrasts between "developed" and "developing" countries.

249. Field Research in Social Settings
Either semester. Three credits.

Methods and techniques of field research in social settings, including observational procedures, interviewing, and the construction and use of questionnaires.

251. The Status of Women in Evolutionary Perspective
Either semester. Three credits.

A cross-cultural analysis of the status of women from a biosocial and cultural evolutionary perspective.

252. Native American Arts
(Also offered as ARTH 256.) Either semester. Three credits. Not open for credit to students who have passed ARTH 256. One three-hour class period. *Valentino*

A topical survey of the arts of Native American culture in the United States and Canada.

253W. North American Pre-History
Either semester. Three credits. *McBride*

Prehistoric cultures of North America from the earliest traces to European contact, with emphasis on the region east of the Mississippi.

254. Archaeology of Eastern North America
Second semester. Three credits. Prerequisite: ANTH 253 or consent of instructor. *McBride*

Prehistoric cultures of the eastern United States and Canada from their earliest appearances to the arrival of the Europeans. Laboratory and field work projects.

255. Archaeology of Mesoamerica
Either semester. Three credits.

An archaeological survey of the ancient cultures of Meso-America, from the earliest evidence through the emergence of agricultural village life, chiefly societies and the high civilizations, including the Zapotec, Teotihuacan, Toltec, Maya, and Aztec.

256. Archaeology of South America
Either semester. Three credits.

The prehistoric cultures of South America, including the Inca and other high civilizations of ancient Peru, as well as the complex chiefdoms of Colombia, Venezuela and the Caribbean.

257W. Near Eastern Pre-History
(Also offered as HIST 212W.) Either semester. Three credits. Not open for credit to students who have passed HIST 212W.

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.

258. Archaeology of Eastern Asia
First semester, alternate years. Three credits. *Dewar*

The development of cultures in China, Japan and Southeast Asia from their earliest beginnings until the historical period.

259W. Primitive Technology
Second semester. Three credits.

Technology of pre-industrial and non-industrial societies from the first evidence of tool-making to the present, emphasizing materials, processes, and products of simple crafts.

261. Medical Ecology
Either semester. Three credits. One 3-hour class period. Recommended preparation: ANTH 277. *Erickson*

Anthropological perspectives on the interrelationships between 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.

262. Laboratory Techniques in Archaeology
Second semester. Three credits. Prerequisite: ANTH 214. *McBride*

The analysis, interpretation, and presentation of various kinds of archaeological artifacts, floral and faunal remains and sedementary contexts from excavated sites.

263. Ethnohistory of Native New England
Either semester. Three credits. *McBride*

Combines archaeological and ethnohistorical data to reconstruct lifeways of the Native Americans of southern New England from the prehistoric period to the present.

264. African Prehistory
Either semester, alternate years. Three credits. *McBrearty*

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.

265. Paleoanthropology
Either semester, alternate years. Three credits. Recommended preparation: ANTH 214, 217, or 233. *McBrearty*

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.

266. Human Osteology
Either semester. Three credits. Recommended preparation: ANTH 233. *McBrearty*

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.

267. Lithic Technology
Either semester. Three credits. *McBrearty*

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.

268. Cultural Research
Either semester. Variable (one to three) credits. *Boster, Handwerker, Linnekin*

The theoretical foundations and basic methods used to collect and analyze cultural data.

269. World Religions
Either semester. Three credits.

A survey of religious belief systems, both polytheistic and monotheistic, from around the world.

270. Contemporary Native Americans
Either semester. Three credits. *Bee*

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.

271. Social Change and Development
Second semester. Three credits. *Bee*

Developmental change in western and non-western societies, focusing on theories, processes, and sociocultural contexts of development.

274. Women and Religion
Either semester. Three credits. *Linnekin*

The theological standing and ritual activities of women in a cross-cultural sample of the world's religions. Overview of selected topics and current issues relevant to the study of women and religion, such as comparative gender ideologies, feminist hermeneutics, feminist theology, and fundamentalism.

275. Race, Ethnicity, and Nationalism
Either semester. 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.

276. Human Reproductive Ecology
Either semester. Three credits. *Sosis*

The influence of ecology on the evolution of the human life course, with emphasis on men's and women's reproductive decisions.

277. Medical Anthropology
First semester. Three credits. *Erickson*

An introduction to the theory, method, and content of medical anthropology.

281. Sex and Gender
Either semester. Three credits.

Cross-cultural and interdisciplinary analysis of biological sex, gender, sex roles, and sexuality.

285. Anthropological Perspectives on Art
Second semester. Three credits.

Approaches to cultural creativity and aesthetics in

the graphic and plastic arts of pre-state societies. Examples from North America, Oceania, and Africa.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and reccomended preparation vary.

296. Directed Field Research in Anthropology
Either semester. Course may be repeated, but credits may not exceed 12 by graduation. Hours by arrangement. Prerequisite: ANTH 249 or consent of instructor.

The investigation of a sociocultural and/or archaeological problem in some domestic or foreign field location.

297. Field Work in Archaeology
Summer session. Variable credits. Open only with consent of instructor. *McBride*

Training in the techniques of archaeological site excavation; mapping; recording; field conservation, and preliminary analysis of materials.

298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. With a change of content, may be repeated for credit.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Art (ART)

Head of Department: Professor Gina S. Werfel
Department Office: Room 100, Art Building

135. Art Appreciation
Either semester. Three credits. Not open to Art majors.

Introduction to the visual arts, past and present. The visual language of artists, historical and cultural significance of works of art.

193. Foreign Study
Both semesters. Credits and hours by arrangement. Consent of Department Head required, normally before the student's departure to study abroad.

Special topics taken in a foreign study program.

Studio Courses

111. Foundation: Studio Concepts
Either semester. Three credits. Two 3-hour studio periods.

Introduction to key concepts and practice in art making.

113. Foundation: Criticism and Interpretation
First semester. Three credits. One 3-hour class period. Not open to students who have taken ART 232.

An introduction to various current critical approaches to the producers, contexts, audiences, and histories of contemporary visual culture.

130. Drawing I
Either semester. Three credits. Two 3-hour or three 2-hour studio periods.

Fundamental principles of drawing based on observation.

152. Drawing II
Either semester. Three credits. Two 3-hour or three 2-hour studio periods. Prerequisite: ART 130.

Observational drawing; emphasis on spatial organization and structure.

153. Life Drawing I
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 152.

Introduction to figure drawing.

160. Basic Studio, Printmaking
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to practice and principles of printmaking, including intaglio, relief and lithographic processes.

163. Basic Studio, Sculpture
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to principles and techniques of sculpture.

164. Basic Studio, Painting
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to the principles and techniques of painting media.

165. Design Process
Either semester. Three credits. Two 3-hour periods. Prerequisite: ART 111 and 130.

Introduction to content, meaning, form, and structure in communication design, emphasizing conceptual analysis and approaches to visualization.

166. Basic Studio, Photography
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to techniques and aesthetics of photography, with emphasis on the camera.

195. Architectural Graphics I
First semester. Three credits. Two 3-hour studio periods.

Architectural graphics. Basic two- and three-dimensional delineation: axonometric, isometric and perspective drawing.

204. Life Drawing II
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 153. Open to sophomores.

Drawing from the figure.

211. Pottery and the Vessel
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163 or consent of instructor. Open to sophomores. May be repeated for credit with a change in course content to a maximum of 9 credits.

Vessel-oriented ceramics, wheel-thrown and handbuilt. Basic technical information on clay, glazes and kiln firings.

212. Sculpture: Clay
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163 or consent of instructor. Open to sophomores. 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.

216. Sculpture: Wood
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163. Open to sophomores. 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.

217. Sculpture: Metals
Either semester. Two 3-hour studio periods. Prerequisite: ART 163. Open to sophomores. 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.

219. Sculpture: Moldmaking/Casting
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163 or consent of instructor. Open to sophomores. 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.

220. Sculpture Seminar
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163 and 9 credits in any area of concentration.

For the advanced undergraduate in any area of concentration. Exploration of 3-dimensional issues in a studio seminar format.

221. Intaglio Printmaking
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 160 or consent of instructor. Open to sophomores.

Investigation of black-and-white and color intaglio techniques.

222. Lithography
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 160 or consent of instructor. Open to sophomores.

Investigation of lithographic techniques.

224. Intaglio II
Either semester. Three credits. Two 3-hour studio preiods. Prerequisite: ART 221. Open to sophomores.

Continuation of ART 221 with emphasis on color printing.

225. Lithography II
Either semester. Three credits. Two 3-hour studio preiods. Prerequisite: ART 222. Open to sophomores.

Continuation of ART 222 with emphasis on color printing.

226. Printmaking Workshop
Either semester. Variable credit. Two 3-hour studio periods. Required preparation: ART 221 or 222, or consent of instructor. Open to sophomores. 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.

228. Architectural Graphics II
Second semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 195 or consent of instructor. Open to sophomores.

Development of presentation skills and techniques. Graphic analysis of architectural forms using various drawing media and models.

235. Intermediate Painting I
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 164. Open to sophomores.

236. Intermediate Painting II
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 235. Open to sophomores.

Conceptually-oriented painting projects.

237. Advanced Painting I
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 236.
Individually determined painting projects.

238. Advanced Painting II
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 237. May be repeated once with change in course content.
Continuation of ART 237.

239. Aqua Media I
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 152. Open to sophomores.
Introduction to the materials and methods of painting in aqua media.

240. Aqua Media II
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 239. Open to sophomores.
Continuing study in aqua media.

255. Advanced Figure Drawing
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 204. May be repeated once.
Advanced studies in figure drawing.

256. Digital Imaging
Either semester. Three credits. Prerequisite: ART 166 and 261C.
Introduction to the use of the computer to digitize and manipulate photographic imagery.

257. Advanced Drawing
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 204 and consent of instructor. May be repeated with a change in course content to a maximum of 9 credits.
Advanced studies in drawing. Course content varies with instructor.

260. Communication Design I
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 165, portfolio review and consent of instructor. Open to sophomores.
Fundamentals of communication design.

261C. Introduction to Digital Media
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and ART 130. Open to sophomores.
Introduction to digital media.

262. Alternative Processes (Photography)
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 265. May be repeated once with a change of content. Open to sophomores. *Craig*
Photographic printmaking systems outside conventional silver imaging processes.

263. Color Photography
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 166. May be repeated once with a change of content. Open to sophomores.
The processes and aesthetics of color photography.

264. Communication Design II
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 260.
Creative, appropriate and effective communication design through the use of type and image.

265. Intermediate Photography
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 166 or consent of instructor. Open to sophomores.
Principles and techniques of black-and-white photography in fine-art applications, with emphasis on darkroom work.

266. Advanced Photography
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 265 or consent of instructor. May be repeated once with a change of content.
Advanced problems in the use of photography as an art medium.

267. Communication Design III
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 260. Prerequisite or corequisite: 264.
Exploration of form, content, and function using various communication design methodologies.

269. Communication Design IV
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 267.
Exploration of communication design as a social, political, and cultural activity.

270. Design Center
Either semester. Three credits. May be repeated to a maximum of six credits. Two 3- hour studio periods. Prerequisites: ART 267, portfolio review, and consent of instructor.
Introduction to professional design practice.

271. Illustration
Either semester. Three credits. Two 3-hour or three 2-hour studio periods. Prerequisite: ART 153 and 164, or consent of instructor. Open to sophomores.
Introduction to principles of illustration, media, and techniques.

272. Topics in Illustration
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 204 and 271 or consent of instructor. 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.

274. Communication Design Survey
Either semester. Three credits. Two $1^1/_2$-hour class periods. Open to sophomores.
A survey of the role and history of communication design.

276. Typography
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 165 and ART 261C. Open to sophomores.
Introduction to typographic design.

277. Publication Design
First semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 264.
Introduction to publication design.

278. Digital Multimedia
Second semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 264.
Introduction to time-based commmunication design.

279. Art Outside the Mainstream
Either semester. Three credits. One 3-hour seminar period.
An examination of the range of contemporary art produced by self-taught artists working outside the mainstream in the United States, Europe, and selected global areas.

280. Percussion Instrument Design and Fabrication
Second semester. Three credits. Two 3-hour studio periods.
Design and fabrication of traditional and traditionally inspired percussion instruments including: Tocajon, Udu Drum, Slit Drum, Mbira, Barimbow, Rhythm Bells.

281. Introduction to Video Art
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 166 or consent of instructor.
Introduction to techniques and aesthetics of video art.

283. Investigation of Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Consent of instructor. May be repeated for credit with a change in course content.
Special topics. See *Directory of Classes* for title. Field trips may be required.

290. Materials and Techniques of Painting
Either semester. Three credits. Two 3-hour studio periods. Prerequisite: Consent of instructor.
Media and techniques of traditional and experimental painting.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. Consent of department head required.
Special topics taken in a foreign study program.

295. Studio Internship
Either semester. Three credits. Hours by arrangement. Open only with consent of instructor.
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 267, 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 266 and consent of a photography instructor.
Section three: *Art Studio Internship*
Supervised practical experience in an art studio. Prerequisite: B average in major Upper Division course work and consent of instructor from the major.

†296. Cooperative Education in Art
Either semester. Three credits. Hours by arrangement. Prerequisite: Upper Division standing. Open only with consent of Department Head.
Practicum for students participating in the off-campus Cooperative Education Program.

297. Senior Project
Both semesters. Three credits. Hours by arrangement. Limited to advanced B.F.A. students seventh semester or higher. 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.

299. Independent Study
Either semester. Maximum of up to 6 credits. May be repeated for a total of 6 credits. Limited to advanced students 5th semester or higher. Must have department grade point average (DGPA) of at least 3.0 and no outstanding incompletes for any other 299. Exceptions only by approval of the department head.
For advanced students to develop a special project in advanced studio art.

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† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Art History (ARTH)

Head of Department: Professor Gina S. Werfel
Department Office: Room 100, Art Building

(Art History courses formerly offered as ART are now offered as ARTH under the same course numbers.)

136. Introduction to Art History I – Discussion
First semester. One credit. One class period. If elected, must be taken concurrently with Art History 137.
Discussion section for Art History 137.

137. Introduction to Art History I
First semester. Three credits.
Survey of art and architecture from prehistoric times through the fourteenth century.

138. Introduction to Art History II
Second semester. Three credits.
Survey of art and architecture from the fifteenth century to the present day.

139. Introduction to Art History II – Discussion
Second semester. One credit. One class period. If elected, must be taken concurrently with Art History 138.
Discussion section for ARTH 138.

140. Introduction to Asian Art
Either semester. Three credits.
Survey of art and its social context in China, India and Japan from prehistoric times to the present.

141. Introduction to Latin American Art
Either semester. Three credits.
A thematic survey of Latin American art from 200 B.C. to the present.

191. Introduction to Architecture
(Formerly offered as ART 191.) Either semester. Three credits.
An introduction to the history of architecture considered in its social, technological and urban context.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. Consent of department head required, normally before the student's departure to study abroad.
Special topics taken in a foreign study program.

209. History of the Print
Either semester. Three credits.
Survey of printmaking in Europe and America from the Renaissance to the present.

243. Greek Art
(Also offered as CAMS 251.) Either semester, alternate years. Three credits.
Greek art and architecture from the ninth century B.C. to the first-century A.D.

243W. Greek Art
Open to art history and art majors; others with consent of instructor.

246. Roman Art
(Also offered as CAMS 252.) Either semester, alternate years. Three credits.
History of Roman art and architecture.

246W. Roman Art
Open to art history and art majors; others with consent of instructor.

250. Art of the Northern Renaissance
Either semester, alternate years. Three credits.
Painting, sculpture, graphic arts of the Lowlands and Germany, 1400-1600.

250W. Art of the Northern Renaissance
Open to art history and art majors; others with consent of instructor.

251. Baroque Art
Either semester. Three credits.
Art and architecture of the seventeenth and early eighteenth centuries with emphasis on Italy, Netherlands, France and Spain.

251W. Baroque Art
Open to art history and art majors; others with consent of instructor.

252. Nineteenth Century European Art
Either semester. Three credits.
European art from Neo-Classicism to Realism.

252W. Nineteenth Century European Art
Open to art history and art majors; others with consent of instructor.

253. American Architecture
Either semester. Three credits.
American architecture from the colonial era to the present. Field trips may be required.

254. Nineteenth Century American Art
Either semester. Three credits.
Topics in American Art, 1770-1900.

254W. Nineteenth Century American Art
Open to art history and art majors; others with consent of instructor.

256. Native American Arts
(Also offered as ANTH 252.) Either semester. Three credits.
A topical survey of the arts of Native American cultures in the United States and Canada.

257. Early Medieval Art
Either semester, alternate years. Three credits.
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.

257W. Early Medieval Art
Open to art history and art majors; others with consent of instructor.

258. Romanesque Art
Either semester, alternate years. Three credits.
Topics in medieval painting, architecture and sculpture through the twelfth century.

258W. Romanesque Art
Open to art history and art majors; others with consent of instructor.

259. Gothic Art
Either semester. Three credits.
Gothic art and architecture, with emphasis on the court styles of England and France.

259W. Gothic Art
Open to art history and art majors; others with consent of instructor.

262. The Early Illustrated Book
Either semester. Three credits.
The early history of the illustrated book, from antiquity through the introduction of printing.

262W. The Early Illustrated Book
Open to Art History and Art majors; others with consent of instructor.

267. History of Photography I
Either semester. Three credits.
Topics in the history of photography from 1839 to World War I.

268. History of Photography II
Either semester. Three credits.
Topics in the history of photography from World War I to the present.

272. The Artist and Society
Either semester. Three credits.
An investigation of the artist's professional function throughout history in different Western societies.

273. Art of the Italian Renaissance
Either semester. Three credits.
Italian art and architecture 1400-1600.

273W. Art of the Italian Renaissance
Open to art history and art majors; others with consent of instructor.

275. Mexican and Chicano Art, 19th Century - Present
Either semester. Three credits.
Topics in Mexican and Chicano art from Mexican Independence to the present.

275W. Mexican and Chicano Art, 19th Century - Present
Open to Art History and Art majors; others with consent of instructor.

276. Caribbean Art, 19th and 20th Centuries
Either semester. Three credits. Open to Art History and Art majors, others with consent of instructor.
A survey of art and visual production in the Caribbean from the 1804 Haitian Revolution to the present.

276W. Caribbean Art, 19th and 20th Centuries
Open to ARTH and ART majors; others with consent of instructor.

277. Art of Mesoamerica
Either semester, alternate years. Three credits.
A survey of art from Mexico and Central America 2000 BS-CE 1500. Cultures covered include Olmec, Zapotec, Maya, Toltec, and Aztec.

277W. Art of Mesoamerica
Open to art history and art majors; others with consent of instructor.

278. Colonial Mexican Art
Either semester, alternate years. Three credits.

278W. Colonial Mexican Art
Open to art history and art majors; others with consent of instructor.

279. Modern Latin American Art
Either semester. Three credits.
A thematic survey of Latin American art from the nineteenth century to present.

279W. Modern Latin American Art
Open to art history and art majors; others with consent of instructor.

280. Early Christian and Byzantine Art
Either semester. Three credits.
Christian art and architecture of the late Roman empire and the Byzantine East up to the seventh century.

280W. Early Christian and Byzantine Art
Open to art history and art majors; others with consent of instructor.

281. Modern Art
Either semester. Three credits.

Topics in the art of the first half of the twentieth century.

281W. Modern Art
Open to art history and art majors; others with consent of instructor.

282. Architecture of the Twentieth Century
Either semester. Three credits.

283. Investigation of Special Topics
Either semester. Credits and hours by arrangement. May be repeated for credit with a change in course content.

Special topics. See *Directory of Classes* for title.

285. African Art
Either semester. Three credits.

A survey of African art from antiquity to present.

285W. African Art
Open to art history and art majors; others with consent of instructor.

286. The Art of China
Either semester. Three credits.

Survey of major art forms in China c. 2500 B.C. to the twentieth century.

286W. The Art of China
Open to art history and art majors; others with consent of instructor.

287. The Art of Japan
Either semester. Three credits.

A survey of major art forms in Japan, prehistoric to the present.

287W. The Art of Japan
Open to art history and art majors; others with consent of instructor.

288. Far Eastern Painting
Either semester, alternate years. Three credits. Recommended preparation: ARTH 286 or 287.

Major trends in painting in China from the Han Dynasty to the present; in Japan from the Nara Period to the present.

289. Buddhist Art in the Orient
Either semester, alternate years. Three credits.

Buddhist sculpture, painting, and architecture in India, China and Japan.

290. Ethnicities, Sexualities, Modernisms
(Also offered as Women's Studies 290.) Either semester. Three credits.

Topics in twentieth-century visual culture (film, advertising, fine arts, crafts, literatures), with emphasis upon matters related to social constructions of ethnicity and sexuality, and upon issues raised by feminist and postcolonial theories.

291. Contemporary Art
Either semester. Three credits.

Topics in the art of the second half of the twentieth century.

291W. Contemporary Art
Open to art history and art majors; others with consent of instructor.

292. Impressionism and Post-Impressionism
Either semester. Three credits.

Topics in French Painting, 1860-1900.

292W. Impressionism and Post-Impressionism
Open to art history and art majors; others with consent of instructor.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. Consent of Department Head required.

Special topics taken in a foreign study program.

294. Field Studies Internship in Art History
Both semesters. Variable credit to a maximum of 12 credits. May be repeated for credit. Prerequisite: Junior standing, two 100-level Art History courses, two 200-level Art History courses and consent of instructor.

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.

†296. Cooperative Education in Art
Either semester. Three credits. Hours by arrangement. Prerequisite: Upper Division standing. Open only with consent of Department Head.

Practicum for students participating in the off-campus Cooperative Education Program.

297. Art Historical Methods
Either semester. Three credits. Required preparation: Two Upper Division courses in Art History or consent of instructor.

An introduction to the methods of Art Historical analysis.

299. Independent Study
Either semester. Variable credit to a maximum of 6 credits. May be repeated for a total of 6 credits. Limited to advanced students 7th semester 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.

Asian American Studies Institute (AASI)

Director, Asian American Studies Institute:
Roger N. Buckley
Office: Room 416, Beach Hall

215. Critical Health Issues of Asian Americans
First semester. Three credits. *Palaniswamy*

Critical health issues affecting specific Asian American sub-populations. Gender specific health problems and the cultural issues in these populations. Comprehensive analysis of major health problems and healthcare issues confronted by Asian Americans.

216. Asian Medical Systems
(Also offered as AH 216.) Second semester. Three credits. *Palaniswamy*

Examination of traditional medical systems of Asian origin and their prevalence in the United States. Topics to include popular medical systems: Ayurveda, Traditional Chinese Medicine, Chinese, Indian and Japanese Herbal Medicine; the values and beliefs of different models.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

221. Sociological Perspectives on Asian American Women
(Also offered as SOCI 221.) Either semester. Three credits. *Purkayastha*

An overview of social structures and inter-group relations focusing on the experience of Asian American women.

221W. Sociological Perspectives on Asian American Women
(Also offered as SOCI 221W.)

239. Geograpy of Asian American Experience
(Also offered as GEOG 239.) First semester. Three credits. *Li*

Geographical perspective on issues facing Asian American communities: immigration, community formation, economic structure, race relations, and political participation. The changing dynamics of American ethnicity and study of the ethnoburb. Diversity among Asian Americans, and comparison with other ethnic groups.

274. Asian American Literature
(Also offered as ENGL 274.) Either semester. Three credits. Prerequisite: ENGL 109, or either 110 or 111. Open to sophomores. *Chow*

Literature, theatre, film about Asian American communities and culture in the United States from the mid-nineteenth century to the present.

277. Modern India
(Also offered as HIST 277.) Second semester. 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.

287. East Asia to the Mid-Nineteenth Century
(Also offered as HIST 287.) First semester. Three credits. *Wang*

The major problems and issues of traditional Chinese and Japanese history and historiography. Special emphasis on the "Great Tradition" in ideas of both civilizations.

287W. East Asia to the Mid-Nineteenth Century
(Also offered as HIST 287W.)

288. East Asia Since the Mid-Nineteenth Century
(Also offered as HIST 288.) Second semester. Three credits. *Wang*

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.

288W. East Asia Since the Mid-Nineteenth Century
(Also offered as HIST 288W.)

294. Asian American Experience Since 1850
(Also offered as HIST 294.) Either semester. Three credits. *Wang*

Survey of Asian Americans in the United States since 1850. Responses by Asian Americans to both opportunities and discrimination.

298. Special Topics in Asian American Studies
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

Biology (BIOL)

Students with inquiries about an undergraduate major should go to Torrey Life Sciences Building, Room 165.

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*:

Ecological and Evolutionary Biology (EEB)
Molecular and Cellular Biology (MCB)
Physiology and Neurobiology (PNB)

102. Foundations of Biology
Either semester. Four credits. Three class periods and one 2-hour laboratory period. Not open for credit to students who have completed a year of advanced biology in high school. Students may not receive more than 12 credits for courses in Biology at the 100's level.

A laboratory course designed for non-science majors; surveys major biological principles with emphasis on their importance to humans and modern society.

103. The Biology of Human Health and Disease
(Also offered as PVS 103.) First semester. Four credits. Three lecture periods and one 2-hour laboratory. This course may not be combined with BIOL 102 to satisfy the General Education Group VIII Requirement. Not open for credit to students who have passed PATH 103. *Smolin, Terry*

A laboratory course which introduces the concepts of biology and their application to the individual, society and humankind by focusing on health and disease issues.

107, 108. Principles of Biology
Either semester. 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 100's level. A course in high school level chemistry or concurrent enrollment in CHEM 127 are recommended for students enrolling in 107.

A course 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 107); ecology, evolution, genetics, and plant biology, (BIOL 108). Laboratory exercises in BIOL 107 include dissection of preserved animals.

110. Introduction to Botany
First semester. 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 100'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.

196. Topics in Modern Biology
Either semester. One credit. One class period. Concurrent enrollment in BIOL 107 or 108 required. May be repeated for credit with a change in content. Designed primarily for, but not restricted to, honors students. Students may not receive more than 12 credits for courses in Biology at the 100's level.

Readings, lectures, seminars, films and field trips exploring current developments in biology and their social and scientific implications.

199. Introduction to Biological Research
Either semester. Credits not to exceed 3. Hours by arrangement; three laboratory hours for each credit. May be repeated for credit with a change in content. Prerequisite: BIOL 107 or 108 and consent of instructor.

Internship in Biology research.

295. Introduction to Undergraduate Research
(Formerly offered as MCB 295.) Either or both semesters. One credit. Open to sophomores. Recommended preparation: BIOL 107 and 108, 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.

Biomedical Engineering (BME)

Program Director: Professor John Enderle
Department Office: 260 Glenbrook Road

210. Introduction to Biomedical Engineering
(Also offered as ECE 272.) First semester. Three credits. Prerequisite: BIOL 107. Corequisite: PHYS 151Q and MATH 210Q. Open to sophomores. *Fox*

Survey of the ways engineering and medical science interact. The art and science of medicine, and the process of medical diagnosis and treatment. Diagnostic instrumentation and measurements including medical imaging. Introduction to bioelectric phenomena, biomechanics, and biomaterials. Biochemical engineering. Computers in medicine. Molecular medicine and biotechnology.

221. Introduction to Biochemical Engineering
(Also offered as CHEG 273 and as ENVE 283.) Second semester. Three credits. Recommended preparation: CHEG 224 and 251.

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.

223. Fermentation and Separation Technologies Laboratory
Second semester. Three credits. One class and two 3-hour laboratories. Prerequisite: BME 221.

Introduction to techniques used for industrial mass culture of prokaryotic and eukaryotic cells, and methods used to extract useful products from these cultures. Metabolic processes, energentics, growth kinetics and nutrition of microorganisms. Synthesis of cellular material and end products. Heat exchange, oxygen transfer, pH control, sterilization and design of fermentors. Culture of eukaryotic cell mass. Immobilized enzyme and cell reactors. Product recovery methods of precipitation centrifugation, extraction filtration and chromatography.

251. Biosystem Analysis
Second semester. Three credits. Prerequisite: BME 210. This course and ECE 202 may not be both taken for credit.

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.

252. Biomedical Engineering Measurements
First semester. Four credits. Prerequisite: BME 210 or ECE 272.

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.

253. Physiological Control Systems
Semester by arrangement. Three credits. Prerequisite: BME 251 or ECE 232.

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.

255. Bioinstrumentation
Either semester. Three credits. Prerequisites: ECE 201 or ECE 220.

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.

261. Biomechanics
Second semester. Four credits. Prerequisites: BME 210.

A lecture and laboratory course that covers mechanics of bone and soft tissue. Biosolids and biofluids. Simple and combined stress and strain, torsion and flexure. Tissue strength and constitutive equations. Fatigue and fracture resistance of bone. Synovial joint mechanics. Friction and wear, gears, pins, clutches, joints, rivets, screws and other joining elements and their structural interactions. Material selections for the biomedical design.

271. Biomaterials
Second semester. Four credits. Prerequisites: MMAT 201, BME 210, BME 261.

A lecture and laboratory course that examines the structure and properties of materials used in surgical implants and medical devices. Consideration is given to issues of mechanical properties, biocompatibility, degradation of materials by biological systems, and biological response to artificial materials. Particular attention will be given to the materials for the total hip prosthesis, dental restoration, and implantable medical devices.

272. Advanced Biomaterials
Semester by arrangement. Hours by arrangement. Three credits. Prerequisites: BME 210 and BME 271.

The strategies and fundamental bioengineering design criteria behind the development of cell-based tissue substitutes, artificial skin, muscle, tendons, bone, and extracorporeal systems that use either synthetic materials or hybrid (biological-synthetic) systems. Topics include biocompatibility, biological grafts, gene-therapy-transfer, and bioreactors.

290. Biomedical Engineering Design I
Both semesters. Three credits. Prerequisites: This course is taken by seniors in the semester before BME 291.

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 291 is carried out. Written progress reports, a proposal, an interim project report, a final report, and oral presentations are required.

291. Biomedical Engineering Design II
Both semesters. Three credits. Prerequisite: BME 290.

Design of a device, circuit system, process, or algorithm. Team solution to an engineering design problem as formulated in BME 290, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentation are required.

295. Special Topics in Biomedical Engineering
Semester, credits and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course. 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.

299. Independent Study
Either semester. Credits and hours by arrangement or as announced. Prerequisite: Consent of instructor. With a change in content, this course may be repeated for credit.

Individual exploration of special topics as arranged by the student with an instructor of his or her choice.

Business Administration (BADM)

198. Contemporary Issues in the World of Business
Either semester. One credit. May be repeated in different sections for up to three credits maximum. Open to freshmen and sophomores; others with consent of instructor. May not be used to satisfy Upper Division/major requirements of the School of Business Administration.

The world of business has changed. No longer can we refer to the cliche "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.

Business Law (BLAW)

Courses are open to juniors and seniors only.

271. Business Law
Either semester. Three credits.

A study of the interaction between the business community and the legal environment through a systematic analysis, including cases, of the procedural and substantive rules of law with special emphasis placed on the jurisprudence governing contracts, torts, and property. Business ethics are also considered.

272. Business Law
Alternate semesters. Three credits. Prerequisite: BLAW 271.

The course acquaints the student with the fundamental legal principles surrounding the law of sales and negotiable instruments.

273. Business Law
Alternate semesters. Three credits. Prerequisite: BLAW 271.

This course covers the basic legal principles of agencies, partnerships, and corporations. Partnerships and corporations are examined from both legal and functional view points.

274. Real Estate Law
Alternate semesters. Three credits. Prerequisite: BLAW 271 or 275.

This course is designed to examine the legal aspects of land sale transactions. A study is made of typical documentation used in such transactions; the role of the real estate broker; the rights, liabilities and remedies of the buyer and seller arising out of their contract; sources and alternative forms of financing; basic tax devices; and development alternatives.

275. Business, Law and Society
Either semester. Three credits.

The meaning of law and the structure of the American legal system are studied with a view toward the impact of law upon the operation of American business. Philosophies of American business enterprise, as well as business ethics and morality, are examined and compared with the demands the law makes upon conduct of business people. Business and governmental relationships are explored, with special attention focused on governmental regulation of business by statutory and decision law.

277. Business Transactions and the Law
Either semester. Three credits. Prerequisite: BLAW 275. Not open to students who have passed BLAW 271.

This course provides an oveview of how key business transactions and the law are related. Specific topics included are contracts, sales, and negotiable instruments. Also covered are aspects of agency, partnerships, corporations, limited partnership, limited liability companies, secured transactions, and bankruptcy. This course is primarily designed for accounting majors.

280. International Business Law
Alternate semesters. Three credits. Prerequisite: BLAW 271 or BLAW 275.

This course is designed to acquaint the student with international business law and with the legal aspects of international business transactions. In examining the legal considerations involved in doing business internationally, this course explores the law surrounding international dispute resolution, the international sale of goods, the European Community, The General Agreement on Tariffs and Trade, the regulation of imports and exports, and a variety of other topics relevant to the legal relationship between business and the international community.

†289. Field Study Internship
Either or both semesters. One to six credits. Hours by arrangement. Prerequisite: Completion of Lower Division School of Business Administration Requirements and consent of instructor and Department Head.

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of Department Head required prior to student's departure.

Special topics taken in a foreign study program.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. With a change in content, may be repeated for credit.

Classroom course in special topics in law as announced in advance for each semester.

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor.

Individual study of special topics in law as mutually arranged between student and instructor.

Chemical Engineering (CHEG)

Head of Department: Professor Joseph J. Helble
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.

203. Introduction to Chemical Engineering
First semester. Three credits. Recommended preparation: CHEM 128, MATH 114 or MATH 116, ENGR 150 or CSE 110 or CSE 123C. Open to sophomores.

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.

211-212. Chemical Engineering Thermodynamics
Both semesters. Three credits each semester. Three class periods and one discussion period. Recommended preparation: MATH 210 and 211, CHEM 128, and CHEG 203 (or consent of Chemical Engineering Department Head). CHEG 211 and ME 233 may not both be taken for credit. CHEG 211 is open to sophomores. Consent of instructor and department head.

First semester: 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.

Second semester: properties of ideal and non-ideal mixtures; ideal and non-ideal phase equilibria; design of equilibrium flash separators; phase equilibria using equations of state; chemical equilibria; optimum condition for feasible reaction equilibria.

223-224. Transfer Operations
Both semesters. Three credits each semester. Three class periods and one discussion period. Recommended preparation: MATH 210 and 211, CHEM 128, and CHEG 203 (or consent of Chemical Engineering Department Head).

First semester: overall mass, energy, and momentum balances; fluid flow phenomena; theoretical and empirical relationships for design of incompressible fluid-flow systems; conductive heat transfer; heat transfer coefficients and design of heat exchange systems.

Second semester: radiation heat transfer, design of heat exchange equipment; evaporation; design of mass transfer processes including distillation and extraction; analysis and design of diffusional processes such as gas absorption and humidification.

225. Advanced Transfer Operations
Second semester. Three credits. Recommended preparation: CHEG 224.

An advanced study of transport phenomena, rate processes, and problems of a more complex nature.

237W. Chemical Engineering Laboratory
First semester. Three credits. Two 1-hour discussion periods. Two 3-hour laboratories. Recommended preparation: CHEG 212 and 224.

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.

239W. Chemical Engineering Laboratory
(Formerly offered as CHEG 238.) Second semester. Three credits. Two 1-hour discussion periods. Two 3-hour laboratories. Recommended preparation: CHEG 237W, 251 and 247.

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.

241. Process Design and Economics
First semester. Three credits. Recommended preparation: CHEG 212, 224, and 251. May not be substituted for CHEG 243.

Chemical engineering process synthesis and design; comparison of alternative processing steps; instrumentation; cost estimation; economic analysis; process optimization; emphasis on conceptual design in application of chemical engineering principles.

243. Process Design and Economics
Second semester. Four credits. Recommended preparation: CHEG 212, CHEG 224, and CHEG 251. Not open for credit to students who have passed CHEG 242.

Chemical engineering process synthesis and design; comparison of alternative processing steps; instrumentation; cost estimation; economic analysis; process optimization; emphasis on conceptual design in application of chemical engineering principles; design of process equipment, computer-aided design of equipment and flow sheets; design and analysis of complete process plants.

245. Chemical Engineering Analysis
First semester. Three credits. Recommended preparation: CHEG 203 and MATH 210 and 211.

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.

247. Introduction to Process Dynamics and Control
First semester. Three credits. Recommended preparation: CHEG 212 and 224 and MATH 210 and 211.

Chemical process modeling, dynamics, and analysis; measurement and control of process variables; design, and computer simulation of simple processes and control systems.

251. Process Kinetics
Second semester. Recommended preparation: CHEG 212.

Theory of chemical rate; homogenous, heterogenous 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.

256. Polymeric Materials
Either semester. Three credits. Recommended preparation: CHEM 244. Not open for credit to students who have passed CHEM 280.

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.

261. Introduction to Nuclear Engineering
First semester. Three credits. Recommended preparation: CHEG 211 and 223.

Nuclear physics, reactor kinetics, and the nuclear fuel cycle; classification and analysis of nuclear power reactors; environmental effects of nuclear power; analysis of severe nuclear accidents.

262. Engineering Entrepreneurship
Either semester. Three credits.

Students assume the role of engineer as entrepreneur and develop a business plan to launch a new technology as a business; course includes topics on intellectual property, venture capital, market analysis, advertising, incorporation, contracts and web development.

273. Introduction to Biochemical Engineering
(Formerly offered as CHEG 283.) (Also offered as BME 221 and as ENVE 283.) Second semester. Three credits. Recommended preparation: CHEG 224 and 251.

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.

274. Bioremediation
Either semester. Three credits. Recommended preparation: CHEG 251 and 273.

Application of engineering and biological principles toward remediation of hazardous waste; degradation of toxic chemicals using genetically-engineered microorganisms; and biological contacting devices for waste remediation.

275. Fermentation and Separation Laboratory
Either semester. Three credits. Recommended preparation: Course work in biochemistry or microbiology.

Introduction to industrial mass culture of prokaryotic and eukaryotic cells and methods used to extract useful products from these cultures. Metabolic processes, energetics, growth kinetics and nutrition of microorganisms. Heat exchange, oxygen transfer, pH control, sterilization, design of fermenters and product recovery.

280. Introduction to Environmental Rate Processes
(Also offered as ENVE 280.) First semester. Three credits. Recommended preparation: CHEM 128.

Application of thermodynamics, chemical kinetics and transfer operations to environmental problems; water pollution control. Open only to students not majoring in chemical engineering.

281. Introduction to Water Pollution
(Also offered as ENVE 281.) Second semester. Three credits. Recommended preparation: CHEG 224.

Water purification and water quality control; aeration and mass transfer, biological mechanisms and kinetics; design of biological reactors and sludge treatment facilities; design and operation of physical purification methods; alternative processes for industrial wastewater treatment.

285. Introduction to Air Pollution
(Also offered as ENVE 285.) Second semester. Three credits. Recommended preparation: CHEG 211 or ME 233 or ME 238.

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.

286. Energy Process Technology
(Formerly offered as CHEG 270.) Second semester. Three credits. Recommended preparation: CHEG 211 or ME 233 or 238.

Present and potential sources of energy; production and processing of fossil fuels; characteristics of energy utilization systems; design and analysis of power generation systems; design of building heating and cooling systems; solar energy technology.

295. Special Topics in Chemical Engineering
Semester, 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.

299. Introduction to Research
Either semester. Credits and hours by arrangement or as announced. Prerequisite: Consent of instructor. 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.

Chemistry (CHEM)

Head of Department: Professor Gary Epling
Department Office: Room 151, Charles E. Waring Chemistry Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog.*

101. Chemistry for an Informed Electorate
First semester. Three credits. Three class periods. Not open to students who have passed CHEM 127, 129, 137, or 153. *Knox*

Provides a basic understanding of chemistry and its applications, in a conceptual fashion. Addresses topics in chemistry of everyday interest, including problems that chemistry solves and creates in our society. Background material includes atoms and molecules, chemical bonding, chemical compounds, basic reactions, states of matter, solutions, and energy. Concepts such as chemical synthesis, analysis and structure will be addressed on a "need to know" basis. Topics will be chosen from but not restricted to biochemistry, food chemistry, agricultural chemistry, nuclear chemistry, pharmaceutical chemistry, home care and personal products, pollution of air and water, plastics and polymers, geochemistry, chemistry of outer space. Designed for students in fields outside of the sciences.

122. Chemical Principles and Applications
Second semester. 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 127 or 129 or 137 or 153.

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. With high grade, may serve as a prerequisite for CHEM 128 or 138 or 154.

127Q-128Q. General Chemistry
Either semester. Four credits. Three class periods and one 3-hour laboratory period. Students who have passed CHEM 122 will receive only 2 credits for CHEM 127 but 4 credits will be used for calculating the GPA. Very high standing in CHEM 122 may substitute for CHEM 127 with the consent of the instructor. CHEM 127 is not open for credit to students who have passed CHEM 129 or 137 or 153; CHEM 128 is not open to students who have passed CHEM 130 or 138 or 154.

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.

129Q-130Q. Honors General Chemistry
(Honors Course.) Both semesters. 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 112 or 115; 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 127Q-128Q is listed as a prerequisite. Not open for credit to students who have passed CHEM 137Q-138Q, or 153Q-154Q.

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.

137Q-138Q. Enhanced General Chemistry
(Formerly offered as Chemistry 153Q and 154Q.) Both semesters. Four credits each semester. Three class periods and one 3-hour laboratory period. Prerequisite: One year of high school chemistry and a high pass on the Q Test. Prerequisite or corequisite: MATH 112 or 115; or consent of instructor. Primarily for majors in chemistry and related disciplines. This course can be used as an alternate wherever CHEM 127Q-128Q is listed as a prerequisite. Not open for credit to students who have passed CHEM 129Q-130Q or 153Q-154Q.

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.

141. Organic Chemistry
First semester. Three credits. Prerequisite: CHEM 122 or 127 or 129 or 137 or 153. Not open for credit to students who have passed CHEM 243.

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.

142. Organic Chemistry Laboratory
First semester. One credit. One 4-hour laboratory period including discussion. Prerequisite or corequisite: CHEM 141. Not open to students who have passed CHEM 243.

155. Introduction to Chemical Research
Either semester. Credits, not to exceed 3 and hours by arrangement; three laboratory hours for each credit. Prerequisite: CHEM 127 or 129 or 137 or 151 or 153 and consent of instructor.

Internship in research laboratories.

195. The Science of Chemistry
Second semester. One credit. One 1-hour class period.

Readings, lectures, films and field trips exploring the field of chemistry and its scientific and social implications.

210. Descriptive Inorganic Chemistry
First semester. Two credits. Two class periods. Prerequisite: CHEM 128 or 130 or 138 or 154. Not open for credit to students who have passed CHEM 151.

Introduction to bonding, structure, spectroscopy, physical properties, and reactivity of inorganic compounds.

214. Intermediate Inorganic Chemistry
Second semester. Three credits. Prerequisite: CHEM 151 or 210. Recommended preparation: CHEM 264.

A systematic presentation of bonding, structure, properties, and reactions of inorganic compounds.

215. Inorganic Chemistry Laboratory
Second semester. Three credits. One class period and two 3-hour laboratory periods. Prerequisite or corequisite: CHEM 214.

The preparation, isolation, purification, and characterization of inorganic compounds; special techniques and instrumentation may be required.

216. Selected Topics in Inorganic Chemistry
Second semester. Three credits. Prerequisite: CHEM 214.

A systematic study in special topics format of the theory, bonding, and structure of the transition metals and their compounds. The correlation of structure and electronic states with physical properties will be developed.

232Q. Quantitative Analytical Chemistry
Second semester. Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: CHEM 128 or 130 or 138 or 154. (Two credits for students who have passed CHEM 152 or 230.) Recommended preparation: CHEM 263. Open to sophomores.

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.

234Q. Instrumental Analysis I
First semester. Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: CHEM 232 (or CHEM 152 or 230). Recommended preparation: CHEM 264.

Instrumental analytical techniques including molecular spectroscopy, atomic spectroscopy, electrochemistry, separations, and introductory electronics. This course is an extension of the instrumental portion of CHEM 232.

235. Instrumental Analysis II
Second semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CHEM 234.

Analytical aspects of electron, X-ray, vibrational, and other spectroscopic methods. Analysis of surfaces. Advanced topics in data analysis and modern analytical methodology.

240. Organic Chemistry Laboratory
First semester. One credit. One 4-hour laboratory period. CHEM 240 is not open for credit to students who have passed CHEM 245. Prerequisite or corequisite: CHEM 243. This course is open only to Chemical Engineering majors or by consent of instructor. Open to sophomores.

Introduction to techniques, manipulations, calculations and spectroscopy.

242W. Advanced Organic Chemistry Laboratory
Either semester. Three credits. One class period and two 3-hour laboratory periods. Prerequisite: CHEM 245.

Advanced techniques and fundamentals of organic synthesis and identification.

243. Organic Chemistry
Either semester. Three credits. (Two credits for students who have passed CHEM 141.) Prerequisite: CHEM 128 or 130 or 138 or 152 or 154. Open to sophomores.

Structure and reactions of the simpler classes of the compounds of carbon.

244. Organic Chemistry
Either semester. Three credits. Prerequisite: CHEM 243. Open to sophomores.

A continuation of CHEM 243.

245. Organic Chemistry Laboratory
Either semester. Three credits. (Students who have passed CHEM 240 will receive only 2 credits for CHEM 245. Students who have passed CHEM 142 will receive only 2 credits for CHEM 245, but 3 credits will be used for calculating QPR scores.) Two 3-hour laboratory periods and one 1-hour discussion period. Prerequisite or corequisite: CHEM 244. Open to sophomores.

251Q. Introduction to Quantum Chemistry
First semester. Three credits. Prerequisite: CHEM 264.

An introduction to quantum theory and its applications to atomic and molecular structure and spectroscopy.

256. Physical Chemistry Laboratory
First semester. One credit. One 3-hour laboratory period. Prerequisite or corequisite: CHEM 263. Not open for credit to students who have passed CHEM 265. 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.

263Q-264Q. Physical Chemistry
Both semesters. Four credits each semester. Prerequisite: CHEM 128 or 130 or 138 or 152 or 154; PHYS 123, or 132, or 142, or 152; MATH 210 or 220 for CHEM 263; and MATH 211 or 221 for CHEM 264.

A study of gases, liquids, solids, solutions, and thermodynamics in CHEM 263 and kinetics, atomic and molecular theory and spectroscopy in CHEM 264.

265S. Physical Chemistry Laboratory (W,C)
Either semester. Two credits. Two 3-hour laboratory periods. Prerequisite or corequisite: CHEM 264.

270W. Technical Communications
First or second semester. Three credits. Prerequisite: CHEM 243.

This course will cover 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.

280. Polymeric Materials
Second semester. Three credits. Prerequisite: CHEM 244. Not open for credit to students who have passed CHEG 256.

Structure, properties and chemistry of high polymers. Methods of production and applications.

291. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

295. Undergraduate Seminar
First semester. One credit. Open only with consent of instructor. With a change of subject, this course may be repeated once for credit.

Reports and discussions of topics relevant to further study in the field of chemistry.

296. Undergraduate Research
Either or both semesters. Credits, not to exceed 3 each semester, and hours by arrangement (three laboratory hours for each credit). 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.

297W. Thesis for Undergraduate Chemistry Majors
Either semester. Three credits. Hours by arrangement. Prerequisite: A minimum of three credits in CHEM 296 or 299. Open only with consent of instructor.

A formal thesis is required, based on original investigation carried on by the student.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits, not to exceed 3 per semester, and hours by arrangement. Open only with consent of instructor. With a change of subject, this course may be repeated for credit.

Civil & Environmental Engineering (CE)

Head of Department: Professor Erling Murtha-Smith
Associate Head of Department: Associate Professor Ramesh Malla
Department Office: Room 302, F.L. Castleman Building

For major requirements, see the School of Engineering section of this *Catalog*.

Courses in Applied Mechanics are listed under that heading, immediately following the Civil Engineering courses. Also see courses listed under Engineering.

222. Civil Engineering Materials
Second semester. Three credits. Two lectures. One 3-hour Laboratory. Prerequisite: CE 287 which may be taken concurrently. *Accorsi, Davis, Frantz, Murtha-Smith*

Engineering properties of steel, Portland cement concrete, bituminous cement concrete, and timber; laboratory measurement of properties; interpretation of results. Written reports.

222P. Civil Engineering Materials
Must be taken with another P course in Civil Engineering to equal one W course.

230. Mechanics of Materials and Structures Laboratory
Two credits. One hour lecture and one 2-hour Laboratory. Prerequisite: CE 234 and CE 236, which may be taken concurrently, and CE 222. *Murtha-Smith, Davis*

Laboratory experiments to complement, reinforce and develop concepts learned in Mechanics of Materials, Basic Structural Analysis and Basic Structural Design. Topics include tension, torsion, flexure and buckling. Written reports.

234. Basic Structural Analysis
Second semester. Three credits. Prerequisite: CE 287. *Accorsi, DeWolf, Epstein, Frantz, Leonard, Malla*

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.

236. Basic Structural Design
Second semester. Four credits. Three class periods and one 3-hour Laboratory. Prerequisite: CE 287. *DeWolf, Epstein, Frantz, Malla, Murtha-Smith*

Loads; design of principal components – beams, columns and simple connections – of steel and reinforced concrete structures. Design projects.

237. Advanced Structural Analysis
First semester. Three credits. Prerequisite: CE 234. *DeWolf, Epstein, Leonard, Malla*

Approximate analysis techniques, analysis of indeterminate elastic structures using classical and matrix methods of analysis. Computer programming

238. Reinforced Concrete Structures Design
First semester. Three credits. Prerequisite: CE 234 and 236.D*eWolf, Epstein, Frantz*

Design for flexure, shear, torsion, and axial loads; two-way slabs; serviceability considerations. Applications to buildings.

239. Steel Structures Design
Second semester. Three credits. Prerequisite: CE 234 and 236. *DeWolf, Frantz*

Beam columns, composite members, plate girders, connections; introduction to plastic design. Applications to buildings. Written reports.

239P. Steel Structures Design
Must be taken with another P course in Civil Engineering to equal one W course.

240. Soil Mechanics and Foundations
First semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CE 287 and CE 297, both of which may be taken concurrently. *Demars*

Fundamentals of soil behavior and its use as a construction material. Effective stress principle, seepage and flow nets, consolidation, shear strength, limit equilibrium analysis. Written reports.

240P. Soil Mechanics and Foundations
Must be taken with another P course in Civil Engineering to equal one W course.

241. Foundation Design
First semester. Three credits. Prerequisite: CE 240. *Demars*

Application of soil properties to design of foundations, retaining structures, excavation drainage, shallow footings, deep foundations, specifications, subsurface exploration.

242. Soils Engineering
Second semester. Three credits. Prerequisite: CE 240.

Earth structures, slope stability, consolidation and settlement of soil, vertical drains, surcharging, pressures on buried pipes, and tunnels, numerical solutions.

242P. Soils Engineering
Must be taken with another P course in Civil Engineering to equal one W course.

251. Civil Engineering Systems
(Also offered as ENVE 251.) First semester. Three credits. Open to sophomores. *Anagnostou, Garrick*

Application of statistical principles to the analysis of problems. Topics covered include normal, poisson, and binomial distributions, chi square, comparison of means and variances, least square and regression analysis.

254. Transportation Facilities Design
Second semester. Three credits. Recommended preparation: CE 271 or consent of instructor. Open to sophomores. *Garrick, Ivan*

Design and horizontal and vertical curves, earthwork, runoff and simple drainage structures. Elements of traffic engineering and site development.

255. Case Studies in Transportation Engineering
(Also offered as CE 302.) First semester. Three credits. Prerequisite: CE 254. *Ivan, Garrick*

Analysis of transportation case studies in road design, metropolitan planning and corridor study. Application of transportation engineering and planning skills. Oral and written group reports, group discussions, individual written papers.

256. Advanced Civil Engineering Systems
Second semester. Three credits. Prerequisite: CE 251, or consent of instructor.

Optimization, decision and risk analysis, and simulation in design of civil engineering systems. Network analysis and project scheduling.

256P. Advanced Civil Engineering Systems
Must be taken with another P course in Civil Engineering to equal one W course.

260. Water Quality Engineering
(Also offered as ENVE 260.) Second semester. Three credits. Prerequisite: CE 263 and CE 297 or CHEG 223. *Abboud, Smets*

Physical, chemical, and biological principles for the treatment of aqueous phase contaminants; reactor dynamics and kinetics. Design projects.

262. Environmental Engineering Laboratory
(Formerly offered as CE 264.) (Also offered as ENVE 262.) Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: CE 263 and CE 297 or CHEG 223 (which may be taken concurrently). *Abboud, Smets*

Aqueous analytical chemical techniques, absorption, coagulation/flocculation, fluidization, gas stripping, biokinetics, interpretation of analytical results, bench-scale design projects, written and oral reports.

262P. Environmental Engineering Laboratory
(Also offered as ENVE 262P.) Must be taken with another P course in Civil Engineering to equal one W course.

263. Environmental Engineering Fundamentals
(Also offered as ENVE 263.) First semester. Three credits. Prerequisite: CHEM 128 or 130 and MATH 211 (which may be taken concurrently). Open to sophomores. *Hoag, MacKay, Nikolaidis, Smets*

Concepts from 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.

265. Hydraulic Engineering
(Also offered as ENVE 265.) Second semester. Three credits. Prerequisite: CE 297 or CHEG 223 and CHEG 224. *Anagostou, Nikolaidis, Ogden*

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.

266. Hydraulic Engineering Laboratory
(Also offered as ENVE 266.) Second semester. Two credits. One class period. One 2-hour Laboratory. Prerequisite CE 297.

Tests of the flow of water in pipes and open channels. Theory and calibration of flow measurement devices. Study of velocity profiles. Generation of pump performance curves. Physical hydraulic modeling and similitude.

267. Engineering Hydrology
(Also offered as ENVE 267.) First semester. Three credits. Prerequisite: CE 297 or CHEG 223 and CHEG 224. *Anagnostou, Nikolaidis, Ogden*

Hydrologic cycle: precipitation, interception, depression storage, infiltration, evaportranspiration, overland flow, snow hydrology, groundwater and streamflow processes. Stream hydrographs and flood routing. Hydrologic modeling and design. Computer applications. Design project.

267P. Engineering Hydrology
Must be taken with another P course in Civil Engineering to equal one W course.

268. Limnology
(Also offered as EEB 247 and ENVE 268.) First semester. Three credits. Prerequisite: MATH 109 or 112 or 115 and an introductory course in CHEM (CHEM 122, 127, or 129); an introductory course in Biology is recommended.

Physical, chemical, and biotic interrelationships of freshwater habitats.

269. Selected Environmental Problems
Second semester. Three credits. Open to sophomores.

Ecological effects of pollution and despoilment. Organized and rational study of specific environmental problems, including social, economic, political and legislative aspects.

271. Elementary Surveying
First semester. Four credits. Three lecture periods and one 3-hour Laboratory. Prerequisite: MATH 107 or MATH 112 or 115, or consent of instructor. Open to sophomores.

The theory and practice of plane surveying including: error analysis, measurement of horizontal distances, leveling, traverse and area computations, adjustments of traverses and level nets, adjustments of instruments, topographic mapping, state coordinate systems, and boundary surveys.

274. Photogrammetry
Second semester. Three credits. Two class periods. One 3-hour Laboratory. Prerequisite: CE 271. Offered in alternate years.

The fundamentals of aerial photogrammetry, including: flight planning, the geometry of the aerial photograph, ground control, radial line plotting, tilt, stereoscopy and parallax, stereoscopic measurements, and topographic mapping.

275. Route Surveying
Second semester. Three credits. Two class periods. One 3-hour Laboratory. Prerequisite: CE 271. Offered in alternate years.

Reconnaissance and route selection, simple, compound and reverse horizontal curves, spirals, vertical curves, earthwork, cross-sectioning, slope staking, and observations for the meridian.

276. Computer Aided Civil Engineering Design
Second semester. Three credits. One 3-hour class period. Prerequisite: CE 254, which may be taken concurrently, and CE 271.

Design of Civil Engineering projects using computer software to analyze engineering problems and create design drawings.

279. Environmental Modeling
(Also offered as ENVE 279.) Second semester. Three credits. Prerequisite: CE 263 and CHEG 223 or CE 297 or consent of instructor. *Nikolaidis*

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.

280W. Civil Engineering Projects
Either semester. Three credits. Two 3-hour laboratory periods. Prerequisite: Departmental consent required. 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.

281. Engineering Economics
Second semester. One credit. Given as two 1-hour class periods weekly during first half of semester only. Prerequisite: Senior standing. *Leonard, Murtha-Smith*

Costs of Civil Engineering projects; components of cost estimating; comparison of alternate designs; cost/benefit analysis; useful life and depreciation; basic methods of project financing.

†291. Civil and Environmental Engineering Professional Issues Seminar
Either semester. No credits. One 1-hour period. Open to sophomores. May be repeated.

Issues in the practice of Civil & Environmental Engineering: professional ethics, law/contracts, insurance/liability, global/societal issues (e.g., sustainable development, product life cycle), construction management and professional development.

294. Special Topics in Civil Engineering
Semester, credits, and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course. Course may be repeated for credit.

Classroom or laboratory courses as announced for each semester. For independent study see Civil Engineering 299.

299. Independent Study for Undergraduates
Either or both semesters by arrangement. Credits by arrangement, not to exceed 4 per semester. Open only with consent of supervising instructor. Course may be repeated for credit.

Designed for students who wish to extend their knowledge in some specialized area of civil engineering.

Applied Mechanics

211. Applied Mechanics I
Either semester. Three credits. Not open to students who have passed CE 213 or 214. Prerequisite: MATH 210, which may be taken concurrently, and ENGR 150 or CSE 110 or CSE 123C. Open to sophomores. *Accorsi, Demars, Leonard, Malla, Uthgennant*

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. Computer applications.

212. Applied Mechanics II
Either semester. Three credits. Not open to students who have passed CE 215. Prerequisite: CE 211, MATH 210. This course and CE 213 may not both be taken for credit. Open to sophomores. *Epstein, Malla, Uthgennant*

Fundamentals of dynamics using vector methods. Rectilinear and curvilinear motion, translation, rotation, plane motion; work, energy and power; impulse and momentum. Computer applications.

287. Mechanics of Materials
Either semester. Three credits. Prerequisite ENGR 150 or CSE 110, CE 211 or CE 214 and CE 215, which may be taken concurrently. Open to sophomores. *Davis, Malla, Uthgennant*

Simple and combined stress, torsion, flexure and deflection of beams, continuous and restrained beams, combined axial and bending loads, columns. Computer applications.

289. Intermediate Mechanics of Materials
Second semester. Three credits. Prerequisite: CE 287. This course and ME 229 may not both be taken for credit.

Stresses and strains, curved beams, torsion of noncircular sections, flat plates, strain-energy, deflections. Impact and energy loads, repeated stress, mechanical properties of materials and theories of failure, influence of stress concentration.

297. Fluid Mechanics
Either semester. Three credits. Prerequisite: CE 212 or CE 215, which may be taken concurrently, and MATH 210 and 211. This course and ME 250 may not both be taken for credit. *Anagnostou, Ogden*

Fluid properties, 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.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Classics and Ancient Mediterranean Studies (CAMS)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical Languages Department section of this *Catalog* for requirements for Majors in Classics and Ancient Mediterranean Studies.

(*Taught in English*)

101. Greek Civilization
(Formerly offered as CLAS 101.) First semester. Three credits. A knowledge of Greek is not required. *Travis*

A survey of classical Greece, with emphasis on literature, thought, and influence on contemporary culture.

102. Roman Civilization
(Formerly offered as CLAS 102.) Second semester. Three credits. A knowledge of Latin is not required. *Johnson*

A survey of classical Rome, with emphasis on literature, thought, and influence on contemporary culture.

103. Classical Mythology
(Formerly offered as CLAS 103.) Either semester. Three credits. A knowledge of Greek or Latin is not required. *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.

104. The Greek and Latin Elements in English
(Formerly offered as CLAS 104.) Either semester. Three credits. A knowledge of Greek or Latin is not required.

The historical relationship of English to Greek and Latin in vocabulary and structure. Greek and Latin prefixes, suffixes and bases, learned and applied to the analysis of unfamiliar words. Introduction to the specialized vocabularies of various academic areas.

105. Greek and Latin in Bioscientific Terminology
(Formerly offered as CLAS 105.) Either semester. Three credits. A knowledge of Greek or Latin is not required.

The Greek and Latin elements most used in the technical vocabulary of the biological and health sciences, with practice in the analysis of representative terms.

***193. Foreign Study**
(Formerly offered as CLAS 193.)

241W. Greek and Roman Epic
(Formerly offered as CLAS 241W.) Either semester, alternate years. Three credits. Recommended preparation: CAMS 101 or 102 or 103. A knowledge of Greek or Latin is not required.

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.

242W. Greek and Roman Drama
(Formerly offered as CLAS 242W.) Either semester, alternate years. Three credits. Recommended preparation: CAMS 101 or 102 or 103. A knowledge of Greek or Latin is not required.

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.

243. World of Late Antiquity
(Also offered as HIST 217.) (Formerly offered as CLAS 243.) Either semester. 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.

244. Ancient Fictions
(Formerly offered as CLAS 244.) Either semester. Three credits. A knowledge of Greek and Latin is not required. *Johnson*

This course will examine 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 Apeleius, and a variety of other pagan, Jewish, and Christian fictions.

251. Greek Art
(Also offered as ARTH 243.) (Formerly offered as CLAS 251.) Either semester, alternate years. Three credits.

Greek art and architecture from the ninth century B.C. to the first-century A.D.

252. Roman Art
(Also offered as ARTH 246.) (Formerly offered as CLAS 252.) Either semester, alternate years. Three credits.

History of Roman art and architecture.

253. Ancient Near East
(Also offered as HIST 213.) (Formerly offered as CLAS 253.) Either semester. 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 and cultural achievements of ancient near-Eastern peoples.

254. Ancient Greece
(Also offered as HIST 214.) (Formerly offered as CLAS 254.) Either semester. 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.

255. Ancient Rome
(Also offered as HIST 216.) (Formerly offered as CLAS 255.) Either semester. 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.

256. Palestine under the Greeks and Romans
(Formerly offered as CLAS 256.) (Also offered as HEB 218, HIST 218, and JUDS 218.) Either semester. Three credits. Recommended preparation: HIST 213 or 214 or 216 or INTD 294 or HEB 202. *Miller*

The political, historical and religious currents in Greco-Roman Palestine. Includes the Jewish Revolts, sectarian developments, the rise of Christianity and the Talmudic academics.

257. Ancient Philosophy
(Also offered as PHIL 221.) Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Greek philosophy from its origin in the Pre-Socratics through its influence on early Christianity. Readings from the works of Plato and Aristotle.

*** 293. Foreign Study**.

*** 295. Variable Topics**

*** 298. Special Topics**.

Greek

171-172. Elementary Greek I and II
(Formerly offered as CLAS 171-172.) Both semesters. Four credits each semester. 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.

An intensive introduction to ancient Greek. First semester: basic morphology, syntax, and vocabulary through simple readings from the *New Testament*; second semester: transition to classical Greek through selections from Xenophon, reading of Plato's *Apology* complete.

***193. Foreign Study**

207. Greek Philosophical Writings
(Formerly offered as CLAS 207.) Either semester, alternate years. Three credits. Prerequisite: CAMS 172.

Selections from Plato and Aristotle.

208. Homer
(Formerly offered as CLAS 208.) Either semester, alternate years. Three credits. Prerequisite: CAMS 172.

Selections from the *Iliad* or *Odyssey*.

211. Greek Drama
(Formerly offered as CLAS 211.) Either semester, alternate years. Three credits. Prerequisite: CAMS 172.

Selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes.

212. Greek Historical Writings
(Formerly offered as CLAS 212.) Either semester, alternate years. Three credits. Prerequisite: CAMS 172.

Selections from Herodotus and Thucydides.

214. Greek Lyric Poetry
(Formerly offered as CLAS 214.) Either semester, alternate years. Three credits. Prerequisite: CAMS 172.

Selections from the early Greek lyric, elegiac, and iambic poets, including but not limited to Archilochus, Mimnermus, Solon, Sappho, Alcaeus, Anacreon, Xenophanes, Theognis, and Simonides.

215. The Greek New Testament
(Formerly offered as CLAS 215.) Either semester, alternate years. Three credits. Prerequisite: CAMS 172.

Selected readings, ordinarily including Acts of the Apostles and at least one Pauline letter.

*** 293. Foreign Study**

*** 295. Variable Topics**

*** 298. Special Topics**

*** 299. Independent Study**

Latin

121-122. Elementary Latin I and II
(Formerly offered as CLAS 121-122.) Both semesters. 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.

* See description at end of Classics and Ancient Mediterranean Studies section.

A study of the essentials of Latin grammar designed to prepare the student to read simple classical Latin prose.

123-124. Intermediate Latin I and II
(Formerly offered as CLAS 123-124.) Both semesters. Three credits each semester. Prerequisite: CAMS 122 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.

***193. Foreign Study**

213. Ovid and Mythology
(Formerly offered as CLAS 213.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Selections from Ovid, mainly from the Metamorphoses, and a study of the myths of Greece and Rome.

221. Survey of Classical Latin Literature
(Formerly offered as CLAS 221.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Extensive reading of a relatively wide range of authors of representative classical Latin prose and poetry.

224. Vergil and the Roman Epic
(Formerly offered as CLAS 224.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

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.

225. Latin Drama
(Formerly offered as CLAS 225.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Selected plays of Plautus, Terence, and Seneca, with lectures on Roman theatre and the development of drama.

226. Latin Lyric Poetry
(Formerly offered as CLAS 226.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Selections from the lyrics of Horace and Catullus, with lectures on metrical patterns and the influence of Greek lyrics.

227. Latin Historical Prose
(Formerly offered as CLAS 227.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Selections from Sallust, Livy, and Tacitus.

230. Latin Philosophical Prose and Poetry
(Formerly offered as CLAS 230.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Selections from Lucretius, Cicero, and Seneca.

231. Latin Elegiac Poetry
(Formerly offered as CLAS 231.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Selections from Tibullus, Propertius, and Ovid's *Amores*.

232. Medieval Latin
(Formerly offered as CLAS 232.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Reading of texts from a number of periods and in a variety of styles, with consideration of morphological, syntactical, and semantic developments.

*** 293. Foreign Study**

*** 295. Variable Topics**

*** 298. Special Topics**

*** 299. Independent Study**

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193. Foreign Study
(Formerly offered as CLAS 193.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the student's departure.

Special topics taken in a foreign study program.

293. Foreign Study
(Formerly offered as CLAS 293.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally 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.

295. Variable Topics
(Formerly offered as CLAS 295.) Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
(Formerly offered as CLAS 298.) Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
(Formerly offered as CLAS 299.) Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Communication Sciences (COMS)

Head of Department: Professor Harvey R. Gilbert
Department Office: Room 213, Communication Sciences Building.

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

102. The Process of Communication
Either semester. Three credits.

A study of modern communication theories and principles useful in understanding how people affect and are affected by others through communication.

105. Principles of Public Speaking
Either semester. 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.

135. Mass Communication Systems
Either semester. 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.

150. Introduction to Communication Disorders
First semester. Three credits. *Robb*

A survey of Audiology and Speech-Language Pathology.

201. Speech Science
First semester. Three credits. Three class periods.

Acoustic, anatomical, neurological and physiological principles fundamental to the understanding of voice and speech production.

202. Speech and Language Acquisition
Either semester. Three credits. *Grela*

How children learn their first language; the effects of language on their thinking and behavior.

204. Methods and Issues in Child Language Research
Second semester. Three credits. Two class periods, and child observations and individual conferences by arrangement. Prerequisite: COMS 202. Open only with consent of instructor.

Critical discussion of recent research in child language, and supervised individual research projects.

205. Interpersonal Communications
Either semester. Three credits. Prerequisite: COMS 102 or consent of instructor. *VanLear*

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.

206W. Global Communication
Either semester. Three credits. Recommended preparation: COMS 135.

International communication patterns; globalization of media industries; new technologies; communication in war and peace; political, economic, social and cultural effects.

207. Nonverbal Communication
First semester. Three credits. Recommended preparation: COMS 231Q. *Buck*

Facial expression, body movement, spatial behavior and para-language, with a consideration of applications for information theory.

208. Communication and Change
First semester. Three credits. Recommended preparation: COMS 235 and 210. *Snyder*

The role of communication and communication technologies in social change, diffusion of new ideas, and education. Special application to third world development.

209. Cross-Cultural Communication
Either semester. Three credits. Recommended preparation: COMS 205.

Communication behavior within and across cultures and subcultures.

210. Persuasion
Either semester. Three credits. Three class periods or two class periods with one discussion period. Prerequisite: COMS 102 or consent of instructor. *Hamilton*

Introduction to theories of attitude formation, change and reinforcement. Research is used to evaluate past and present models of persuasion.

211. Research Practicum in Communication
Either semester. Credits and hours by arrangement, with a maximum of three credits per semester. Prerequisite: At least 12 credits of 200-level Communication Sciences courses which must include COMS 231Q and consent of instructor. Should be taken during the senior year. May be repeated once for credit.

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* See description at end of Classics and Ancient Mediterranean Studies section.

This course is designed to provide students with an opportunity to participate in a variety of supervised research activities in communication.

†212. Internship in Communication
Either semester. Credits and hours by arrangement, with a maximum of three credits per semester. Prerequisite: At least 12 credits of 200-level Communication Sciences courses and consent of instructor. Should be taken during the senior year. May be repeated once for credit.

This course is designed to provide students with opportunity for supervised field work in a professional communication organization. Student's performance will be evaluated both by the field supervisor and course instructor.

213W. Media, State, and Society
Either semester. Three credits. Prerequisite or corequisite: COMS 135 and 235.

Forms of, rationales for, and effects of state involvement in mass media. The development of alternative media. Cultural implications of transnational media influences.

214W. Advanced Nonverbal Communication
Second semester. Three credits. Prerequisite: COMS 207 or consent of instructor. Recommended preparation: COMS 205. *Buck*

Selected issues and research techniques current in the literature. Research projects of kinetic proxomic, and/or paralinguistic behaviors involved in communication.

215. Public Relations
Either semester. Three credits. Prerequisite: COMS 135, 231Q, and 235.

Practical applications of major theories of communication and mass media to public relations practiced by organizations. Based on readings, student research, and case histories.

216W. Small Group Communication
Either semester. Three credits. Prerequisite: COMS 205 or consent of instructor. Recommended preparation: COMS 210. *VanLear*

Approaches, methods, and findings of research in small group communication and development of an ability to engage effectively in small group situations.

217. Organizational Communication
Second semester. Three credits. Prerequisite: COMS 205 and 231Q or consent of instructor.

Communication in formal organizations; horizontal and vertical communication; effectiveness of different organizational structures and channels; feedback; networks; norms and roles.

218. Communication Campaigns and Applied Research
Second semester. Three credits. Prerequisite: COMS 231Q, or STAT 100V or 110V. Recommended preparation: COMS 135, 235, and 210. *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.

219. Advanced Persuasion and Communication
Either semester. Three credits. Prerequisite: COMS 210 or consent of instructor. Recommended preparation: COMS 231Q and COMS 235.

Advanced consideration and criticism of selected modern persuasion theories and research in communications.

220. Communication Processes in Advertising
Either semester. Three credits. Prerequisite: COMS 135, 235 and 210.

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.

222W. Government Communication
Either semester. Three credits. Prerequisite: COMS 102.

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.

224. Introduction to Semantics
Either semester. Three credits. Prerequisite: COMS 102 or consent of instructor.

The relationship among people, words, and meaning.

226. Gender and Communication
Either semester. Three credits. Prerequisite: COMS 102.

Differences in male/female communication, and the role of discourse in the production of those differences. The politics of gender and communication.

230. Introduction to Research Literature in Communication
First semester. Three credits. Prerequisite: COMS 205, 210, 231Q and 235.

A survey of research in major sub-areas of communication.

231Q. Research Methods in Communication
Either semester. Three credits. Prerequisite: COMS 102 or consent of instructor.

The scientific approach as it specifically applies to communication.

233. Television Production
Either semester. Three credits. Prerequisite: COMS 102 and 135 and consent of instructor.

This course provides the student with hands-on broadcast and industrial video production. The students will rotate through all studio positions for a televised production and complete field shoots and editing for an electronic field production project. Preproduction skills such as proposal and script writing, storyboarding and budgeting will be included in each class project.

234. Information and Communication
Either semester. Three credits. Prerequisite: COMS 231Q or consent of instructor.

Approaches to studying communication including cybernetics, general systems theory, information theory, and human information processing.

235. Effects of Mass Media
Either semester. Three credits. Prerequisite: COMS 102 or consent of instructor.

An analysis of the roles of the mass media and of the effects they exert on individuals and society.

236. Protest and Communication
Either semester. Three credits. Prerequisite or corequisite: COMS 235. 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.

237. Design of Human Communication Systems
Either semester. Credits and hours by arrangement. Prerequisite: COMS 135. Recommended preparation: COMS 235. With a change in content, this course may be repeated once for credit.

Application of communication theory and principles of information science to the design of modern systems of communication, with consideration given to the physical and social settings in which they will be used.

238. Mass Media and Political Process
Either semester. Three credits. Prerequisite: COMS 135, 235 and 210.

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.

239. New Communication Technologies
Second semester. Three credits. Recommended preparation: COMS 135 and 235.

An overview of new communication technologies, their operation, future potential, dangers, and effects on social structure.

240. Visual Communications
Second semester. Three credits. Prerequisite: COMS 102, completion of at least one C course or permission of instructor. 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.

241. Sign Language: Theory and Practice
Second semester. Three credits.

Information about the history, structure and use of sign languages, and instruction in the basics of American Sign Language (ASL) and Signed English.

244. Introduction to Neurogenic Communication Disorders
Three credits. Prerequisites: COMS 201 and 202. *Coelho*

Acquired and developmental neurogenic communication disorders. Brain mechanisms that underlie speech and language and their disorders.

247. Introduction to Phonetic Principles
Second semester. Three credits. Prerequisite: COMS 201. *Robb*

The analysis of speech through the application of phonetic theory.

248. Introduction to Audiology
Second semester. Three credits. Prerequisite: COMS 250. *Cienkowski*

An Introduction to the nature, causation, assessment and management of hearing impairment and the principles and techniques of public school conservation programs.

249. Introduction to Aural Rehabilitation
First semester. Three credits. Prerequisite: COMS 248.

An introduction to the effects of hearing impairment on communication. Communication strategies for adults and children with impaired hearing are discussed.

250. Audition
First semester. Three credits.

The response to acoustic stimuli including methodology and instrumentation.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

251. Introduction to Articulation, Voice, and Fluency Disorders
Three credits. Prerequisites: COMS 201, 202, and 247. *Gilbert*

Communication problems resulting from disorders of speech, voice, and fluency. Assessment and management strategies in settings including public schools, hospitals, and rehabilitation centers.

253. Introduction to Language Pathology in Children
Three credits. Prerequisite: COMS 202. *Grela*

Development, measurement, and function of language in children. Emphasis on child language disorders and their causes. Introduction to assessment and management strategies in settings including public schools and private clinics.

255. Motivation and Emotion
(Also offered as PSYC 255.) Either semester. Three credits. Prerequisite: PSYC 135 or 133. *Buck*

Cognition, brain mechanisms, biofeedback, aggression, sex, competence, social influence, and conformity.

260. Media and Special Audiences
(Also offered as PRLS 260.) Either semester. Three credits. Recommended preparation: COMS 102. *Rios*

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, Lesbians.

293. Foreign Study

Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor.

Special topics taken in foreign study program.

296W. Senior Thesis
Either semester. Credits and hours by arrangement. Open only with consent of instructor.

Preparation of a thesis and its presentation to the department.

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

Comparative Literary and Cultural Studies (CLCS)

Program Chair: Associate Professor Lucy McNeece
Office: Room 242, J.H. Arjona Building

101. Classics of World Literature I
Either semester. 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).

201. Comparative Literature
(Formerly offered as COML 201.) Either semester. Three credits. This course may be repeated for credit with a change of topic.

Lectures and discussion sessions devoted to the study of major literary questions which go beyond national boundaries. (No foreign language required.)

203. Comparative Studies in Cultural History
Either semester. 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.

214. Introduction to World Cinema and Comparative Film Theory
Either semester. Three credits. Open to sophomores.

Introduction to the theory and criticism of film, applied to classics of world cinema. Comparative study of the development of cinematic techniques, and comparative approach to film as cultural production.

Computer Science and Engineering (CSE)

Interim Head of Department: Professor Reda Ammar
Department Office: Room 460, United Technologies Engineering Building

For major requirements, see the School of Engineering section of this *Catalog*.

(Computer Science and Engineering courses were formerly offered under the CS department abbreviation using the same course numbers.)

101C. Computers in Modern Society
Second semester. Three credits. Two class periods and two 1-hour program design periods. Not open for credit to students who have passed CSE 110C or CSE 123C or CSE 130C. Students who anticipate extensive study or use of computers in their future work should take CSE 110C-111, or CSE 123C-124C, or CSE 130C rather than this course. *Ungar*

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.

110C. Introduction to Numerical Computation
Either semester. Three credits. Two 1-hour class periods and two 1-hour program design periods. Prerequisite: MATH 110Q or MATH 113Q or MATH 115Q, which may be taken concurrently. Not open for credit to students who have passed CSE123C or CSE 130C. Either CSE 110C-111 or CSE 123C-124C or CSE 130C is required of students planning on taking advanced CSE courses. *Demurjian, Ungar*

Introduction to computer organization and the computing process. Design of algorithms for computer solutions of problems, structured programming, and data organization. Analysis of computational errors and their minimization. Methods of solving numerical problems. Logic, design, verification and documentation of programs using current programming languages.

111. Introduction to Non-Numerical Computation
Either semester. Two credits. Two 1-hour class periods and one 1-hour program design period. Prerequisite: CSE 110C or consent of instructor. Not open for credit to students who have passed CSE 124C or CSE 130C. Either CSE 110C-111 or CSE 123C-124C or CSE 130C is required of students planning on taking advanced CSE courses. *Ungar*

Design of algorithms for the processing of non-numerical information. Linked lists, trees and other advanced data structures. Practice in the design and realization of complex information processing programs.

123C. Introduction to Computing
Both semesters. Two credits. Two class periods of lecture and one 1-hour of laboratory period per week. Prerequisite: Passed Q test. No previous programming experience required. Not open for credit to students who have passed CSE 110C or CSE 130C. *Ungar*

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.

124C. Computing
Second semester. Four credits. Three class periods of lecture and one 1-hour laboratory per week. Prerequisite: CSE 123C or CSE 110C. Not open for credit to students who have passed CSE 111 or CSE 130C. *Ungar*

Principles of object oriented programming including polymorphism, information hiding, and inheritance. Principles of object oriented design. Recursion. Strings, lists, stacks, queues, trees, priority queues, heaps and graphs including their use and various implementations using automatic and dynamic data allocation, linked representations, and templates. Algorithm and complexity issues involved with these data types. Sorting and searching algorithms. Introduction to computer history. Programming problems drawn from areas of computer science and engineering.

130C. Fundamentals of Computation
First semester. Four credits. Two 1-hour class periods and two 1-hour program design periods. Prerequisite: MATH 110Q or MATH 113Q or MATH 115Q, which may be taken concurrently. This is a very demanding course and is recommended for students who have had previous programming experience and have a high level of motivation for using computers in future work. Not open for credit to students who have passed CSE 110C or CSE 111 or CSE 123C or CES 124C. Either CSE 110C–111 or CSE 123C-124C or CSE 130C is required of students planning on taking advanced CSE courses. *Ungar*

Design of algorithms to solve numerical and non-numerical problems. Top-down design techniques and structured programming. Investigation and selection on data organizations for efficient problem solutions. Analysis of computational errors in numerical calculations. Methods for the design, implementation, verification and documentation of programs using current programming languages.

201. Computer Architecture
Either semester. Three credits. Prerequisites: CSE 111 or 124C or 130. Not open to students who have credit for CSE 207 or CSE 241. Open to sophomores.

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, CICS, and various parallel architectures.

207. Digital Logic
Either semester. Three credits. Three class periods and one 1-hour discussion period. Prerequisite: CSE 110C or 123C or 130C. Open to sophomores. *Ammar, Lipsky, McCartney*

Representation of digital information. Introduction to the analysis and design of combinational and sequential logic networks using Boolean algebra and register transfer techniques. Structure and operation of digital systems and computers. Introduction to programming at the machine and assembler language level. Design projects.

208W. Logic Design Laboratory
Either semester. Two credits. One 1-hour lecture and one 2-hour laboratory period. Prerequisite: Secondary school physics or PHYS 101, and CSE 207 which may be taken concurrently. Open to sophomores. *Barker*

Design and evaluation of combinational and sequential logic circuits. Debugging techniques. Use of computer facilities for circuit simulation, CAD and report preparation and presentation.

221. Probabilistic Performance Analysis of Computer Systems
Either semester. Three credits. Prerequisite: CSE 124C and one of STAT 220Q or 230Q or MATH 231Q. *Ammar, Lipsky*

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.

228. Parallel Systems
Either semester. Three credits. Prerequisite: CSE 201 or 243, and CSE 259. *Greenshields*

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.

230. Introduction to Software Engineering
Either semester. Three credits. Three class periods and one problem session. Prerequisite: CSE 254. Open to sophomores. *Demurjian, Peters*

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. Introduction to a modern programming language and the associated design and debugging tools. Homework and laboratory projects that emphasize design and the use/features of a modern programming language.

233. Programming Languages
Either semester. Three credits. Prerequisite: CSE 237.

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.

237. Theory of Computation
Either semester. Three credits. Prerequisite: CSE 254.

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.

240. Intermediate Computer Systems Laboratory
Either semester. Three credits. Two hours lecture and 4 hours laboratory. Prerequisite: CSE 111 or 124C or 130C, and CSE 241 which may be taken concurrently.

Chip level programming of microprocessor type systems. Topics covered include I/O ports, I/O devices and controllers, DMA channels, priority interrupts, networking, multitasking. Design projects.

241. Computer Organization
Either semester. Three credits. Prerequisite: CSE 207, and CSE 208W which may be taken concurrently. *Ammar, Peters*

Fundamentals of computer organization. Instruction sets and addressing modes. The control path and microprogramming. The data path; fast arithmetic. The memory hierarchy, both logical and physical aspects. The input/subsystem; interrupts, DMA, structure and function. SIMD and MIMD parallelism. Modern architectural theories.

243. Introduction to Computer Architecture and Hardware/Software Interface
Either semester. Four credits. Three hours lecture and three hours laboratory. Prerequisite: CSE 207 and CSE 208W. Not open for credit to students who have credit for CSE 241. *Ammar, Greenshields*

An integrated introduction to computer organization and the hardware/software interface as seen at the assembly-language level. Topics included: basic machine organization; instruction sets and addressing modes; CPU design; the control path and microprogramming; FSM design; the data path; integer and floating-point arithmetic; busses; the memory hierarchy; the i/o subsystem; RISC architectures; pipelining; basic performance analysis; fundamentals of networking. Lab activities include (but are not limited to): basic assembly language programming on a CICS and RICS processor; processor benchmarking; use of cache; polled, interrupt driven and DMA I/O files; optimizing code.

244. Programming Language Translation
Either semester. Three credits. Prerequisite: CSE 230 and 237. *Santos*

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.

245. Computer Networks and Data Communication
Semester by arrangement. Three credits. Prerequisite: CSE 221 which may be taken concurrently. *Ammar, Greenshields, Ting*

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.

252. Digital Systems Design
(Also offered as ECE 252.) Either semester. Three credits. Prerequisite: CSE 201 or 243. *Greenshields*

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.

254. Introduction to Discrete Systems
Either semester. Three credits. Prerequisite: CSE 111 or 124C or 130C. Not open for credit to students who have passed MATH 214Q. Open to sophomores. *Selfridge*

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.

255. Principles of Data Bases
Either semester. Three credits. Prerequisite: CSE 259. *Shin*

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.

257. Numerical Methods in Scientific Computation
(Also offered as ECE 257.) Either semester. Three credits. Prerequisite: Either CSE 123C or 243 or consent of instructor. *Peters, Roulier*

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.

258. Operating Systems
Either semester. Three credits. Prerequisite: Either CSE 201 or 243. *Demurjian, Santos*

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.

259. Algorithms and Complexity
Either semester. Three credits. Two class periods and two hours laboratory. Prerequisite: CSE 254. *Peters, Selfridge*

Theoretical aspects of computer science. Equivalent models of computation, the role of mathematical induction, graph algorithms, complexity theory, computability, use of standard algorithmic techniques – such as divide-and-conquer. Investigation of novel examples from fields such as graphics, computational geometry, and artificial intelligence. Emphasis in lab will be on analysis of supplied software examples, although some original software development will also occur.

261. Digital Hardware Laboratory
(Also offered as ECE 281.) Second semester. Three credits. One 4-hour laboratory period. Prerequisite: CSE 201 or 243. Recommended preparation: CSE 252. *Barker*

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.

262. Software Engineering Laboratory
Second semester. Three credits. Four program design periods. Prerequisite: CSE 230. *Demurjian, Peters*

A major software design project addresses specification through delivery phases of the lifecycle. The major focus of the course is utilization and application of concepts from CSE 230 to a straightforward semester long project. This allows the student to explore programming-in-the-large with an emphasis on techniques for teamwork, walk through, design, documentation, implementation, and debugging. Data structures and algorithm alternatives for the design and implementation phases of the lifecycle are also stressed. Formal design presentations are required by all students.

263. Networking and Distributed Systems Laboratory
Second semester. Three credits. Four hour laboratory. Prerequisite: CSE 228 and 245. *Greenshield*

Software laboratory that explores selected issues in networking and distributed systems. Topics include: Berkely 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.

265. Independent Design Laboratory
Either semester. Three credits. Prerequisite: CSE 230. May be taken twice for credit. Instructor and department head consent.

Experimental design project undertaken by the student by special arrangement with a faculty member of the Department of Computer Science and Engineering.

267W. Software Laboratory on Large Computers
Semester by arrangement. Three credits. Two class periods and one 2-hour program design period. Prerequisite: CSE 240.

Investigation of instruction sets, internal data representations, interrupt systems, and the input/output system of a large computer available in the Computer Center. Assembler language, related job control language, supervision conventions, linkage methods, data storage techniques and access methods. Design projects.

268. Microprocessor Laboratory
First semester. Three credits. One 4-hour laboratory period. Prerequisite: CSE 201 or 243. Recommended preparation: CSE 252. *Shvartsman*

The design of microcomputer systems, including both hardware and software, for solving application problems. Hardware and software design and implementation techniques for interfacing microcomputers to other systems. Use of modern microcomputer software/hardware development facilities. Projects to design and apply microcomputer systems.

269. Computer Science Design Laboratory
Either semester. Three credits. One 4-hour laboratory period. Prerequisite: Announced separately for each course. 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.

275. Principles of Computer Graphics
Semester by arrangement. Three credits. Prerequisite: CSE 111 or 124C or 130C, and either MATH 227Q or 215Q and MATH 210Q. Not open for credit to students who have passed MATH 255. *Peters, Roulier*

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.

278. Social, Ethical and Professional Issues in Computer Science and Engineering
Either semester. Three credits. Prerequisite: CSE 230. *Engel*

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.

280. Digital Design Laboratory
(Also offered as ECE 280.) Second semester. Three credits. Four hours of laboratory. Prerequisite: Either CSE 252 or consent of instructor.

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 trouble shooting; PBC; design and manufacturing.

282. Artificial Intelligence
First semester. Three credits. Prerequisite: CSE 259 or consent of instructor. *McCartney*

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. Programming will be done primarily in Lisp, which will be covered briefly at the beginning of the course.

290. Computer and Electrical Engineering Design I
(Also offered as ECE 290.) Either semester. Two credits. This course is taken by seniors in the semester before CSE/ECE 291.

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/ECE 291 is carried out. Written progress reports, a proposal, an interim report, a final report, and oral presentations are required.

291. Computer and Electrical Engineering Design II
(Also offered as ECE 291.) Either semester. Three credits. Prerequisite: CSE/ECE 290.

Design of a device, circuit, system, process, or algorithm. Team solution to an engineering design problem formulated in CSE/ECE 290, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentations are required.

293. Computer Science and Engineering Design Project
Either semester. Three credits. Prerequisite: CSE 258 and either CSE 261 or 262 or 263 or 265 or 268 or 269.

This course is the second semester of the required major design experience. In one semester-long team project, students will propose, design, produce, and evaluate a software and/or hardware system. The project will culminate in the delivery of a working system, a formal public presentation, and written documentation. Oral and written progress reports are required.

298. Special Topics in Computer Science and Engineering
Semester and credits by arrangement. Prerequisite: Announced separately for each course. With a change in content, this course may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

299. Independent Study in Computer Science and Engineering
Semester by arrangement. Credits by arrangement, not to exceed 4 in any semester. Prerequisite: Consent of instructor and department head.

This course 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.

Critical Languages Program (CRLP)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the *Departmental Handbook* for courses being offered in the appropriate semesters and further description of these courses.

***101-102. Elementary Levels I and II**

***103-104. Intermediate Levels I and II**
Either semester. Four credits each semester. Four 1-hour class periods and a 1-hour laboratory practice except for languages taught in the Self-Instructional mode which have two 1-hour sessions with a native-speaking tutor and five 1-hour laboratory periods. Open only with consent of the Director.

Languages with low enrollment may be offered through the Self-Instructional Language Program (SILP) method involving intensive, independent study on the part of the student, supplemented by a native speaker who serves as a drill master or monitor during the period of study. The offering of a language course for any given semester will depend on a sufficient number of interested students (ordinarily at least five) and the availability of native speakers. Academic performance in the course will be evaluated by an outside examiner who is an instructor in the target language at another institution. When this is not feasible, an examiner with credentials equivalent to those of an outside examiner may be utilized. The capability of students to undertake a SILP course of study will be determined by the Program Director, who may utilize scores from the Modern Language Aptitude Test (MLAT). Students should plan to devote at least as much total time to a SILP course as to any other regular language course.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student's departure.

Special topics taken in a foreign study program.

***NOTE**: When American Sign Language is offered as a Critical Language it does not count toward fulfillment of the General Education Group 1 Foreign Language Requirement.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Director 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.

295. Variable Topics
Either semester. Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of Director. With a change in content, may be repeated for credit.

The most frequently offered languages in CRLP are:

Arabic	Japanese
Chinese	Korean
Greek (Modern)	Polish
Hindi	Vietnamese
Hungarian	

If there is sufficient student interest, additional languages may be offered.

Study Abroad

The University sponsors semester, academic year or summer programs in Tianjin, Beijing, Nanjing, Shanghai and Taipei. Courses are offered in Chinese language and area studies.

Cytotechnology (CYTO)

Cytotechnology Program Academic Coordinator:
Associate Professor Denis A. Coble
Program Office: Room 306, Koons Hall

For major requirements, see the School of Allied Health section of this *Catalog*.

220. Cancer and Your Health
First semester. Three credits. Three hours of lecture. Prerequisite: One course in Biology or concurrent enrollment in a Biology course.

This course introduces students to cancer risk education, causes, early detection, prevention and public education.

221. Introduction to Cancer and Diagnostic Cytology
Second semester. Three credits. Three hours of lecture. Open only to Cytotechnology majors; others by consent.

This course introduces students to the microscopic study of cancer. The basic cytology and pathology of the female genital tract will be presented from a Woman's Health Perspective.

243. Cytology of the Female Genital Tract
First semester. Six credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of the female genital tract cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cells of the female genital tract.

244. Cytology of the Respiratory Tract
First semester. Four credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of respiratory tract cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cellular changes in the respiratory tract.

245. Cytologic Techniques
First semester. Three credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course provides the student with both didactic knowledge and technical skills necessary to ensure optimum specimen preparation.

246. Cytology of the Alimentary Tract
Second semester. Three credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of alimentary tract cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cellular changes in the alimentary tract.

247. Cytology of Miscellaneous Fluids
Second semester. Four credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of miscellaneous fluids cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal changes in miscellaneous fluids.

248. Cytology Aspiration Biopsy
Second semester. Three credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course provides the student with comprehensive cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cellular changes in aspiration biopsies.

249. Senior Seminar in Cytotechnology
Second semester. Three credits. Prerequisite: All other degree requirements must be completed. Open only to Cytotechnology majors.

This course 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.

250. Clinical Practicum
Second semester. Four credits. Prerequisites: CYTO 243, 244, 245, 247 and 248. Open only to Cytotechnology majors.

This course provides the student with clinical experience to complete the integration of didactic and laboratory components of Cytotechnology.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: The completion of all Lower Division requirements in the Cytotechnology Program. Open only with consent of instructor. May be repeated for credit.

Application of the scientific method of inquiry to planning, implementing, evaluating, and reporting a study of a problem related to Cytotechnology.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

This course is primarily for students who wish to extend their knowledge in some specialized area in the field of Cytotechnology.

Diagnostic Genetic Sciences (DGS)

Diagnostic Genetic Sciences Program Director:
Martha B. Keagle
Program Office: Room 222, Koons Hall

For major requirements, see the School of Allied Health section of this *Catalog*.

222. Medical Cytogenetics
Both semesters. Four credits. Two 2-hour lectures. Prerequisite: MCB 203; MCB 200 or 213; all of which may be concurrent. Open to students in the Diagnostic Genetic Sciences Program; others who have met the prerequisites.

Birth defects, prenatal assessment, cell culture and harvest, staining and banding techniques, mechanisms of numerical and structural chromosome abnormality, numerical syndromes, duplication and deletion syndromes, the sex chromosomes, sex chromosome abnormalities, human chromosome nomenclature, mosaicism, genetic imprinting, cancer cytogenetics, molecular cytogenetic testing.

223. Laboratory in Cytogenetics
Both semesters. Three credits. One 3-hour laboratory period and 1-hour discussion. Four additional laboratory sessions are required during the first half of the semester. Prerequisite: DGS 222 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, karotyping and microscopic analysis of normal and abnormal cases.

224. Cancer Cytogenetics
Offered Summer I. Variable credits. Prerequisite: DGS 222. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of instructor.

Chromosome instability syndromes, genetic basis of cancer, cytogenetics of solid tumors and hematologic malignancies, and nomenclature of acquired changes.

234. Diagnostic Molecular Technologies
Both semesters. Three credits. Prerequisite: MCB 200 or 213; and MLS 208 or MCB 211 which may be taken concurrently. Open only to students enrolled in the Diagnostic Genetic Sciences Program; 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.

235. Laboratory in Molecular Diagnostics
Both semesters. Four credits. Prerequisite: DGS 234 or MLS 217 which may be taken concurrently. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others by consent of instructor.

DNA isolation, blotting techniques, fluorescent in situ hybridization, polymerase chain reaction and Genprobe assay.

242. Chromosome Imaging
First semester and Summer Session I. Two credits. Two hours of lecture and 1 hour of discussion. Prerequisites: DGS 222 and 223. Open only to DGS majors;

others with consent of instructor. Fall offering open only to DGS students with a Spring Clinical.

Theory and techniques of bright field microscopy, black and white film processing and printing, and computerized imaging for karyotype production.

246. Contemporary Issues in Human Genetics
Both semesters. Three credits. Prerequisite: DGS 223 and DGS 222. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of the instructor.

Advanced karotyping and microscopic diagnosis; report writing; historical perspective; recent advances and future trends in human genetics; ethical issues of genetic research, technological advances, genetic diagnosis and the practice of medical genetics; exploration of the lay person's understanding of human genetics and genetic diagnosis.

260. Blotting Methods
Both semesters. Six credits. Prerequisite: DGS 234 and 235. Open only to DGS molecular certificate students.

Practicum experience with blotting technologies stressing complete Southern analysis.

261. Amplification Methods
Both semesters. Six credits. Prerequisite: DGS 234 and 235. Open only to DGS molecular certificate students.

Practicum experience in DNA and/or RNA amplification stressing polymerase chain reaction.

273. Research in Molecular Genetics
Both semesters. One credit. Prerequisites: DGS 234 and DGS 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Design and implementation of a research project in molecular genetics.

275. *In Situ* Hybridization Methods
Both semesters. Two credits. Prerequisites: DGS 234 and 235. Open only to DGS molecular certificate students.

Practicum in fluorescence *in situ* hybridization or other *in situ* hybridization techniques.

276. Topics in Molecular Genetics
Both semesters. Two credits. Prerequisite: DGS 234 and DGS 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Exploration of an individual area of interest in molecular genetics.

277. Mutagenesis
Both semesters. Two credits. Prerequisite: DGS 234 and DGS 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Practicum experience in mutagenesis, including Ames assays and mammalian mutagenesis assays.

278. DNA Sequencing
Both semesters. Two credits. Prerequisite: DGS 234 and DGS 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Practicum experience in DNA sequencing.

279. Microbiological Applications of Molecular Diagnostics
Both semesters. Two credits. Prerequisite: DGS 234 and DGS 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Practicum experience in the application of molecular technologies to microbiology.

280. Bone Marrow Cytogenetics
Both semesters. Two credits. Prerequisite: In order to enroll in the course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

Culture, harvest, banding and analysis of leukemic bone marrow samples; chromosomal abnormalities associated with hematologic malignancies.

281. Peripheral Blood Cytogenetics
Both semesters. Four credits. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

Culture, harvest, banding and analysis of peripheral blood samples.

282. Practicum in Staining and Karyotyping
Both semesters. One credit. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223 . Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

Utilization and application of special staining and banding techniques, karotyping of normal and abnormal metaphases from all specimen types.

283. Practicum in Photomicroscopy/Imaging
Both semesters. One credit. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222, DGS 223, and DGS 242. Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

Techniques of photomicroscopy, B/W film development, print enlargement, computer imaging.

284. Variable Topics in Cytogenetics
Both semesters. One credit. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

In-depth examination of a topic of the students' choosing in the field of human genetics.

285. Research in Cytogenetics
Both semesters. One credit. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

Design and implementation of a research project in clinical cytogenetics.

286. Prenatal Cytogenetics
Both semesters. Four credits. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors. *Clinical Staff*

Culture, harvest, banding and analysis of amniotic fluids, products of conception, and other fetal samples.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: The completion of all Lower Division requirements in the Diagnostic Genetic Sciences Program. 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.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement. 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.

Dietetics (DIET)

Interim Dietetics Program Director: Martha Ludemann
Dietetics Program Office: Room 314, Koons Hall

For major requirements, see the School of Allied Health 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.

204. Food Service Systems
Second semester. Three credits. Hours by arrangement. Prerequisite: DIET 208.

Concepts, methods and experiences in food service systems. The relationship of nutrition care services and food service units.

208. Introduction to Nutritional Care I
First semester. Four credits. Hours by arrangement. Prerequisite: A course in nutrition, a course in biochemistry and course work in anatomy and physiology. Supervised practice is required.

Nutritional care for people throughout the lifecycle. Nutrition care processes, nutritional assessment, nutrition care plans.

209. Introduction to Nutritional Care II
Second Semester. Three credits. Hours by arrangement. Prerequisite: DIET 208. Supervised practice is required.

Continuation of DIET 208. Planning, implementation, counseling techniques, and evaluation of client-centered nutritional care.

210. Community Nutrition
Second semester. Three credits. Hours by arrangement. Prerequisite: DIET 208. Supervised practice is required.

Assessment of community structure, agencies and resources. Plan, implement, and evaluate nutritional care and nutritional education in the community setting.

210W. Community Nutrition

210S. Community Nutrition (W,C)
Second semester. Four credits. Hours by arrangement. Prerequisite: DIET 208. Open only with consent of the program director. Clinical experiences and hands-on computer experiences are required.

235. Applied Dietetics
First semester. Eight credits. Hours by arrangement. Prerequisite: DIET 204, 209, 210. Supervised practice is required.

Advanced planning, implementing, counseling and evaluating nutritional care in health care environments. Introduction to professional issues in dietetics.

238. Advanced Nutrition for the Clinical Practitioner
First semester. Three credits. Hours by arrangement. Prerequisite: DIET 209 and 210.

Relationship of nutrients to each other and to body function.

244. Practicum in Foodservice Management
Second semester. Four credits. 160-hour practicum. Prerequisite: DIET 204 and 235.

Application and synthesis of performance requirements in the food service system.

247. Seminar in Dietetics
Second semester. Three credits. Hours by arrangement. Prerequisite: DIET 235. To be taken concurrently with DIET 248.

Special problems and issues in dietetics. The

management role in patient care, nutrition education, and the integration of nutrition and food service units.

248. Applied Clinical Dietetics
Second semester. Six credits. 256 hour practicum. Prerequisite: DIET 235.

Application and synthesis of performance requirements in clinical dietetics. Practicum.

250. Dietetic Practice
Second semester. Four credits. 160-hour self-planned supervised practice. Prerequisite: DIET 235.

Student defines objectives to extend knowledge in a specialized area of dietetics. Research project.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: The student must have completed all other requirements in the Program in 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.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

The course is designed primarily for students who wish to extend their knowledge in some specialized area in the field of dietetics.

Dramatic Arts (DRAM)

Head of Department: Professor Gary M. English
Department Office: Room 242, Drama – Music Building

For major requirements, see the School of Fine Arts section of this *Catalog*.

101. Introduction to the Theatre
Either semester. Three credits.

Analysis of the functions of the theatre artists and their contributions to the modern theatre.

107. Theatre Production Studio
Either semester. Two credits. Two 2-hour studio periods. May be repeated to a maximum of eight credits. *Franklin, McCaw*

Elements of costume, lighting, management and stagecraft with application to departmental productions.

108. Fundamentals of Theatrical Design
Either semester. Three credits. *Saternow*

Introduction to theories of theatrical design and their application.

110. Introduction to Film
Either semester. 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.

120. Production of the Speaking Voice
Either semester. Three credits. *Stern*

Study and practice in the development of an expressive, injury-free speaking voice capable of filling most performance spaces without amplification. Students concentrate on breathing technique, throat relaxation, resonance enhancement, and the use of variety in pitch and speaking rate. The course also integrates these technical voice skills with the principles of the inner acting process.

130. History of Drama I
First semester. Three credits. Not open for credit to students who have passed DRAM 180. *McDermott*

Dramatic literature and theatre history from Classical Greece through the Spanish Golden Age, including an examination of non-western theatre traditions, especially Japanese.

131. History of Drama II
Second semester. Three credits. Recommended preparation: DRAM 130. Not open for credit to students who have passed DRAM 181. *McDermott, Molette*

Dramatic literature and theatre history from the French Renaissance to Contemporary Theatre, including an examination of non-western theatre traditions, especially Chinese.

141. Oral Interpretation
Either semester. Three credits.

An intensive study of background and thought content of literary material and the development of techniques of oral interpretation.

143-144. Introduction to Acting
Both semesters. Three credits each semester. Concurrent enrollment in DRAM 149-150 required for all acting majors.

First semester: Basic acting techniques, including improvisation and the use of the stage environment. Second semester: continuation of basic techniques with emphasis on the presentation of scenes from contemporary plays.

149. Introduction to Movement for the Actor I
First semester. Three credits. Three 2-hour studio periods. *Sabatine*

Conditioning the body to increase stretch, strength, flexibility, and sensitivity. Exploration of movement concepts in space, time and energy values, and mind body and environment relationships.

150. Introduction to Movement for the Actor II
Second semester. Three credits. Three 2-hour studio periods. *Sabatine*

Continuation of Dramatic Arts 149. Emphasis on the organization of movement expression using essence theory of emotion, intentions, gestures and physical characterization through movement.

153. Theatre Jazz Dance I
Either semester. Three credits. Three 2-hour studio periods.

Basic techniques, styles, and composition of jazz dance. Emphasis placed on technique.

154. Theatre Jazz Dance II
Either semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 153.

Continuation of Dramatic Arts 153.

163-164. Introduction to Directing
Both semesters. Three credits each semester. Prerequisite: DRAM 143.

First semester: Emphasis on theory and play analysis from the director's point of view. Second semester: Emphasis on practical staging experience, including casting techniques and rehearsal and performance methods.

180. Masterpieces of the Drama: Aeschylus to Shakespeare
Either semester. Three credits.

A study of masterpieces of Greek, Roman and Elizabethan drama with emphasis on analysis of form and content and attention to staging conventions.

181. Masterpieces of the Drama: Molière to the Present
Either semester. Three credits. *McDonald*

A study of masterpieces of French 17th Century; English Restoration and 18th Century; European, English, and Japanese 19th Century; and European, English, African, and American 20th Century drama. Emphasis on analysis of form and content and attention to staging conventions.

181W. Masterpieces of the Drama: Molière to the Present

191. Performance Techniques in Ethnic Arts
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change in course content. Open only with consent of instructor.

Performance study and practice in selected areas of ethnic and minority dramatic arts. Topics to be alternated may include Afro-American dance, Black Heritage theatre, Indian dance.

200. Scene Construction
First semester. Three credits. Recommended preparation: DRAM 107 (Stagecraft). *McCaw*

Basic techniques of constructing two dimensional and three dimensional scenery.

201. Rigging
Second semester. Three credits. Recommended preparation: DRAM 107 (Stagecraft). *McCaw*

Rigging systems and the basic techniques for flying scenery, with an emphasis on rigging safety.

203. Stage Management for the Theatre
Either semester. Three credits.

A study of the roles of the stage manager and assistant stage manager.

205. Scenographic Techniques for the Theatre
Either semester. Three credits. Two 3-hour laboratory periods. Recommended preparation: DRAM 107 (Stagecraft). *McCaw*

A laboratory course for designers and technicians in the techniques of preparing a scene design for production in a shop. Drafting techniques, sheet layout, conventions and symbols are stressed.

206. CAD for the Theatre
Either semester. Two 3-hour laboratory periods. Recommended preparation: DRAM 205. *Macaw*

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.

207C-208. Lighting for the Theatre
Both semesters. Three credits each semester. Two class periods and one 2-hour laboratory period. Recommended preparation: DRAM 107 (Lighting), 108. *Franklin*

209 Principles of Design and Rendering
Either semester. Three credits. Two class periods and one 2-hour studio period. Recommended preparation: DRAM 108. *Crow*

Composition and color theory for designers as well as an exploration of graphic techniques in mixed media for expression of design ideas.

211-212. Scene Design
Both semesters. Three credits each semester. Two class periods and one 2-hour laboratory period. Prerequisite: DRAM 108. *Saternow*

213. Costume History
Either semester. Three credits. Two class periods and one 2-hour studio period. *Crow*

A slide survey class covering the origins and development of dress to the present day. Specifically African, Middle Eastern, an Euro-Centric dress, along with the societies and manners which created fashion.

214. Costume Design
Either semester. Three credits. Two class periods and one 2-hour studio period. Recommended preparation: DRAM 108 or consent of instructor. *Crow*

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.

215. Sound for the Theatre
Either semester. Three credits.

Art of sound design for the theatre. Organizing and creating sound for production.

218C. Computer Rendering
Either semester. Three credits. Two class periods and one 2-hour studio period. Recommended preparation: DRAM 108 or consent of instructor. *Crow*

Computer rendering for the theatre in 2-D and 3-D format.

219. Advertising, Publicity, and Promotion in the Dramatic Arts
Either semester. Three credits. Open only with consent of instructor.

An introduction to the basic techniques of advertising copy, news releases, and feature stories.

220. Voice and Diction I
First semester. Three credits. Prerequisite: DRAM 120 and concurrent enrollment in DRAM 268. *Stern*

Study and practice in the continued development of breathing, phonation and resonance skills, with added attention being paid to non-regional pronunciation (including the standard sounds and symbols of the International Phonetic Alphabet), articulation (of colloquial and classical diction styles), and phrasing.

222. Voice and Diction II
Prerequisite: DRAM 220 and concurrent enrollment in DRAM 269. *Stern*

Continued exploration of voice production and elevated diction skills required for acting in classical and period styles. Particular attention is given to textual analysis, verse performance, and the specialized voice techniques required for highly emotional scenes.

230. Women in Theatre
Either semester. Three credits. Open to sophomores. *McDermott*

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.

230W. Women in Theatre

231. African-American Theatre
Either semester. Three credits. Open to sophomores. *Molette*

The significant developments in African American theatre and its antecedents and an examination of selected play scripts that exemplify those developments.

231W. African-American Theatre

235. Period Studies in Theatre
Either or both semesters. Three credits. Prerequisite: DRAM 131 or consent of instructor. May be repeated for credit with change in course content.

An in-depth examination of a major period or periods of theatre history and dramatic literature. Topics will vary.

235W. Period Studies in Theatre

238. Theatre Jazz Dance III
Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 154 and consent of instructor. May be repeated for credit with a change in course content to a maximum of 9 credits. *Sabatine*

Further work in techniques and styles of jazz dance. Projects in jazz choreography.

239. Theatre Dance I
First semester. Three credits. Prerequisite: DRAM 149, 150. *Sabatine*

Stage movement and dances from Greek to Renaissance.

240. Theatre Dance II
Second semester. Three credits. Prerequisite: DRAM 239. *Sabatine*

Stage movement and dances from the Renaissance through the Restoration.

241. Oral Interpretation of the Drama
Second semester. Three credits. Recommended preparation: DRAM 141, 143.

242. Stage Make-Up
Either semester. Two credits. One class period and one 2-hour laboratory period. Open only with consent of instructor.

243. Acting Technique I
First semester. Three credits. Three 2-hour studio periods. Open only with consent of instructor. Open to sophomores. *Hill*

Voices of naturalism and realism: the study and practice of techniques utilized in the performance of modern realists.

244. Acting Technique II
Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 243. Open to sophomores. *McDonald*

A continuation of the study and practice of techniques utilized in the performance of modern realists.

247-248. Puppetry
Both semesters. Three credits each semester. May be repeated for credit with change in course content to a maximum of 12 credits. Open only with consent of instructor. Open to sophomores. *Roccoberton*

First semester: Rod puppetry or Shadow theatre.

Second semester: Hand puppetry or Mask theatre.

Topics to alternate on a two-year rotation.

249. Acting for the Media
Either semester. Credits and hours by arrangement. Open only with consent of instructor.

Study and practice in the principles and techniques of television performance and acting before the camera.

250. Musical Theatre Dance
First semester. Three credits. Three 2-hour studio periods. Recommended preparation: DRAM 154 or consent of instructor. May be repeated for credit with a change in course content to a maximum of 6 credits. *Sabatine*

Tap, free style, folk and social dance forms used in musical theatre. Integration of dance with song.

251. The American Film
First semester. Three credits. Two class periods and one 2-hour laboratory period. 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.

252. World Film
Second semester. Three credits. Two class periods and one 2-hour laboratory period. May be repeated for credit with a change in course content to a maximum of 6 credits.

A critical analysis of representative world films.

257. Fundamentals of Television I
First semester. Three credits. Two 3-hour laboratory periods. Open only with consent of instructor.

258. Fundamentals of Television II
Second semester. Three credits. Two 3-hour laboratory periods. Prerequisite: DRAM 257.

†259. Practicum in Dramatic Arts
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. Open to sophomores.

Practical work in all areas of dramatic arts.

265. Stage Dialects
Either semester. Two credits. One class period and one 2-hour lab. Recommended preparation: DRAM 220 or consent of instructor. *Stern*

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.

268. Acting Technique III
First semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 244 and consent of instructor, and concurrent enrollment in DRAM 220 and DRAM 239 required. *McDonald*

Poetic voices of world theatre: Greek, Elizabethan, and others.

269. Acting Technique IV
Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 268 and consent of instructor, and concurrent enrollment in DRAM 222 and DRAM 240 required. *McDonald*

The study and practice of acting techniques utilized in the performance of Shakespeare's plays.

272. Playwriting
Either or both semesters. Three credits. Open only with consent of instructor. May be repeated for credit with a change in course content to a maximum of 9 credits. *McDermott*

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.

274-275. Film Writing
Both semesters. Three credits each semester. Open only with consent of instructor.

Theoretical and practical work in the content and form of the fiction scenario.

276. Acting Technique V
First semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 269 and consent of instructor.

The study and practice of acting techniques utilized in a range of comic styles.

277. Acting Technique VI
Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 276 and consent of instructor.

The study and practice of acting techniques utilized in the performance of modern non-realists.

278. Advanced Puppetry Techniques I
First semester. Three credits. Two 3-hour laboratory periods. May be repeated for credit with change in course content to a maximum of six credits. Open only with consent of instructor. *Roccoberton*

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† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Laboratory practice in advanced production techniques or paper sculpture for the puppet theatre.

279. Advanced Puppetry Techniques II
Second semester. Three credits. Two 3-hour laboratory periods. May be repeated for credit with change in course content to a maximum of six credits. Open only with consent of instructor. *Roccoberton*

Advanced puppetry production techniques for television or laboratory practice in materials techniques.

282. Trends in Contemporary Theatre
Either semester. Three credits. Open to sophomores.

A study of the major trends in drama and theatrical production of the western world today.

282W. Trends in Contemporary Theatre

285. Trends in the Contemporary Puppet Theatre
Either semester. Three credits. Additional project required for graduate credit. *Roccoberton*

A study of the major trends in drama, design styles and production of the puppet theatre in the western world today.

289. Theatre Administration and Organization
Either semester. Three credits.

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.

291. Performance Techniques
Either or both semesters. Credits and hours by arrangement. 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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

Coursework undertaken within approved Study Abroad programs, with a focus on the theatre history, dramatic literature and production in a particular country or region.

295. Environmental Theatre
Either or both semesters. Three credits. Three 2-hour studio periods. May be repeated for credit. Open only with consent of instructor.

An analysis of New Theatre concepts throughout the twentieth century, with workshops in performance.

298. Seminar
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Studies in selected areas of dramatic arts. Topics to be alternated.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

A reading or project course under the direction of an appropriate staff member.

Ecology and Evolutionary Biology (EEB)

Head of Department: Professor Gregory J. Anderson
Department Office: Room 314, Torrey Life Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

200. Biology of Fishes
Second semester, alternate years. Four credits. Two 1 1/2-hour class periods, one three-hour laboratory period. Prerequisite: BIOL 108. Not open for credit to students who have passed RNR/NRME 200, 201 or 202 or MARN 200, 201 or 202. *Schultz*

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. Laboratory periods will include field and laboratory exercises; field trips required.

203. Developmental Plant Morphology
(Also offered as EEB 303.) First semester, alternate years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108 or consent of instructor. *Jones*

Analysis of diversity in plant form; principles of plant construction and development.

204. Aquatic Plant Biology
(Also offered as EEB 304.) First semester, alternate years. Four credits. Two lectures and two 3-hour field trip/laboratory periods. Prerequisite: BIOL 108 or 110, or consent of instructor. *Les*

Field and laboratory-oriented study of the anatomy, morphology, ecology, physiology, systematics and evolution of vascular aquatic and wetland plants.

205. Current Issues in Environmental Science
(Also offered as GEOL 205.) Second semester, alternate years. Three credits. Open to honors students. Open to non-honors students only with consent of instructor. Prerequisite: 8 credits of college level science. *Simon, Thorson*

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.

214. Biology of the Vertebrates
First semester. Three credits. Two 1-hour lecture periods, with demonstrations. Prerequisite: Three credits of introductory Biology. Open to sophomores. *Rubega, Schwenk, Wells*

Evolutionary history and diversity of vertebrates with emphasis on classification, fossil history, feeding, locomotion, physiological ecology, reproduction, defense, and social behavior.

227. Biology of Plants
First semester. Three credits. Prerequisites: BIOL 108 or 110, or consent of instructor. Open to sophomores. *L. Lewis*

Structure, function, evolution, and ecology of plants. Importance of plants for ecosystems and human life.

238. Limnological Methods
Second semester. Three credits. One class period and two 3-hour field/laboratory periods. Prerequisite: Consent of instructor and CE 268 or EEB 247, either of which may be taken concurrently. This course and CE 207 may not both be taken for credit. *Rich*

Field and laboratory study of physical, chemical, and biotic elements of freshwater habitats. Field trips required.

240. Biology of Bryophytes and Lichens
(Also offered as EEB 340.) Second semester, alternate years. Four credits. Three class periods and one 3-hour laboratory period. Prerequisites: Six credits of 200-level biology or consent of instructor. *Goffinet*

Diversity, evolution, ecology, development and taxonomy of the bryophytes (mosses, liverworts and hornworts) and lichen-forming fungi.

243. Insect Classification and Identification
Second semester, alternate years. Four credits. Two 1-hour lecture periods and one 4-hour laboratory. Prerequisite: EEB 286 or consent of instructor. Not open for credit to students who have passed EEB 253. *Henry*

Insect classification, evolution, and phylogeny.

243W. Insect Classification and Identification
(Formerly offered as EEB 253.) Second semester, alternate years. Four credits. Two 1-hour lecture periods plus individual tutorial. Prerequisite: Consent of instructor. *Henry*

Content as in EEB 243; field, museum, and library research; requires major writing assignment.

244. General Ecology
Either semester. Four credits. Prerequisite: Six credits of college biology. Three lectures and one 2-hour discussion section. Open to sophomores. *Adams, Cardon, Chazdon, Colwell, Silander, Turchin*

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.

244W. General Ecology
Four credits. *Adams, Cardon, Chazdon, Colwell, Silander, Turchin*

Content as in EEB 244; requires major writing assignment.

245. Evolutionary Biology
Either semester. Three credits. Prerequisite: Six credits of college biology and three credits of college chemistry. Open to sophomores. *Caira, Henry, Holsinger, Jockusch, Simon*

Introduction to evolutionary mechanisms, biogeography, and the history of major groups of plants and animals.

245W. Evolutionary Biology
Four credits. Four class periods.

Content as in EEB 245; requires major writing assignment.

247. Limnology
(Also offered as CE 268 and ENVE 268.) First semester. Three credits. Prerequisite: MATH 109 or 112, or 115 and three or more credits in chemistry (CHEM 122, 127, or 129); three credits of introductory biology are recommended. Not open for credit to students who have passed CE 268. *Rich*

Physical, chemical, and biotic interrelationships of freshwater habitats (see also EEB 238).

249. Biology of the Honey Bee
Summer session, alternate years. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Three credits of introductory biology. Open to sophomores.

Chemical communication, structure and function in honey bee hives and colonies; practical beekeeping.

252. Field Entomology
Either semester, summer sessions, or any fractions thereof. Credits and hours by arrangement, to permit offering special sessions of the course to interested students during the spring recess or over Christmas break. Consent of instructor required.

Collection, identification, and ecology of insects.

256. Plants and Civilization
Either semester. Three credits. Prerequisite: Three credits of introductory biology. *Anderson*

Plants and animals used by people; origin, history, biology, distribution, and role in development of civilizations.

268. Ecological Plant Geography
Second semester, alternate years. Three credits. Three class periods and one weekend field trip. Prerequisite: EEB 244 and 245 or consent of instructor.

Geographical differences in vegetation composition and plant adaptation. A global perspective on effects of climate, soil, local conditions and ecosystem processes.

269. Social Insects
(Also offered as EEB 369.) Second semester, alternate years. Three credits. Prerequisite: Six credits of introductory biology. *Adams*

Behavior, ecology, evolution of social insects: ants, wasps, bees, and termites.

271. Systematic Botany
Second semester, alternate years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108 or 110. *Les*

Classification, identification, economic importance, evolution and nomenclature of flowering plants. Laboratory compares vegetative and reproductive characters of major families.

272. The Summer Flora
Summer session. Three credits. Prerequisite: Three credits of college botany. *Mehrhoff*

Identification of Connecticut's native and exotic plants; lecture, laboratory and field study.

273. Comparative Vertebrate Anatomy
Second semester, alternate years. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 108. Open to sophomores. *Schwenk*

Anatomy, development, functional morphology, and evolution of living vertebrate animals.

275. Invertebrate Zoology
First semester, alternate years. Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of introductory biology or permission of instructor. *Caira*

Body organization, functional morphology and evolution compared among major invertebrate phyla. Field trips required.

276. Plant Anatomy
First semester, alternate years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108 or 110, or consent of instructor. *Jones*

Internal structure of seed plants: development and environmental responses.

277. Floristics of Vascular Plants
First semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 110.

Taxonomy of common local vascular plants.

280. Evolution of Green Plants
(Also offered as EEB 380.) Second semester, alternate years. Four credits. Two one and a half class periods and one 3-hour laboratory period. Prerequisite: BIOL 108 or 110, or permission of instructor. *Goffinet, L. Lewis*

Introduction to morphological, ultrastructural, and molecular characters used for inferring evolutionary relationships of green plants, from green algae to flowering plants, with emphasis on evolutionary changes involved in the transition from aquatic to terrestial habitats.

281. Ornithology
Second semester. Two credits. Two class periods. Not open for credit to students who have passed EEB 285. *Rubega*

Adaptations, habits, and importance of birds.

281W. Ornithology
(Formerly offered as EEB 285.) Second semester. Three credits. Prerequisite: Consent of instructor. *Rubega*

Content as in EEB 281; requires major writing assignment.

283. Introduction to Animal Parasitology
First semester, alternate years. Four credits. Two class periods, and two 2-hour laboratory periods. Prerequisite: BIOL 108. *Caira*

Protozoan and metazoan parasites of humans and other animals.

284. Medical Entomology
Second semester, alternate years. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: BIOL 108. *Schaefer*

Identification and biology of disease-spreading poisonous, and parasitic arthropods.

284W. Medical Entomology
Four credits.

Content as in EEB 284; requires major writing assignment.

286. General Entomology
First semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108. *Henry, Schaefer, Wagner*

The biology of insects: anatomy, physiology, ecology, behavior, development, evolution, and diversity.

287. Ornithology Laboratory
Second semester. 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 281. *Rubega*

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.

288. Concepts of Applied Entomology
Second semester, alternate years. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 108 or 110. *Schaefer*

Control, ecology, economics, damage assessment and detection of insect infestations.

289. Variable Topics
Either semester. Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

290. Biology of the Algae
(Also offered as EEB 390.) First semester, alternate years. Four credits. Three lectures and one 4-hour laboratory. Prerequisite: BIOL 108 or 110 or consent of instructor. *L. Lewis*

Laboratory and field-oriented study of major groups of algae, emphasizing structure, function, evolution, systematics, and ecology.

292W. Senior Research Thesis in Ecology and Evolutionary Biology
Either semester. Three credits. Hours by arrangement. Prerequisite: Three credits of EEB 299, which may be taken concurrently. 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.

293S. Methods of Ecology (W,C)
First semester. Four credits. Two class periods and two 3-hour laboratories. Prerequisite: EEB 244 or consent of instructor. Recommended: One course in statistics and one course in calculus. *Chazdon, Silander*

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.

294. Marine Biology
(Also offered as MARN 294.) First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of laboratory biology. *Whitlatch*

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.

296. Physiological Ecology
Second semester, alternate years. Three credits. Three lectures. Recommended preparation: PNB 250 or MCB 259. *Schultz*

Physiological adaptations and responses of plants and animals to different environments.

297. Undergraduate Seminar
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change in topic. Content varies with instructor.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

Economics (ECON)

Head of Department: Professor Stephen M. Miller
Department Office: Room 328, Monteith Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

101. Essentials of Economics
Either semester. Three credits. Not open for credit to students who have passed ECON 102, 111, 112, or 113.

A one-semester general introduction to micro- and macroeconomics. Economic concepts to be taught include: opportunity costs, demand and supply, incentives, comparative advantage, inflation and employment policies, balance of international payments, and economic growth.

102. Principles of Economics (Intensive)
(Formerly offered as ECON 113.) Either semester. Four credits. Four class periods. Recommended preparation: ECON 101. Not open for credit to students who have passed ECON 102, 111, 112, or 113. May not be taken concurrently with ECON 111 or 112.

Same core principles as ECON 111 and 112. One half macroeconomics and one half microeconomics. More demanding than ECON 111 and 112. Substitutes for ECON 111 or 112 as a prerequisite for all upper division courses. May or may not substitute for ECON 111 and 112 outside economics; check *Catalog*.

111. Principles of Macroeconomics
Either semester. Three credits. May be taken before or after ECON 112. Not open for credit to students who have passed ECON 102 or 113. May not be taken concurrently with ECON 102.

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).

111C. Principles of Macroeconomics

112. Principles of Microeconomics
Either semester. Three credits. May be taken before or after ECON 111. Not open for credit to students who have passed ECON 102 or 113. May not be taken concurrently with ECON 102.

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).

201. Economic History of Europe
Second semester. Three credits. Prerequisite: Either ECON 102, 111 and 112, or 113. (112 may be taken concurrently). Open to sophomores. *Cosgel, Langlois*

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.

201W. Economic History of Europe
Open to sophomores.

202. Topics in Economic History and Thought
Either semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113, or consent of the instructor. May be repeated for credit, with change of topic. *Carstensen, Cosgel, Langlois, Minkler, Sazama*

Special topics in economic history, the history of economic thought, the philosophy and methodology of economics, or alternative economic theories.

202W. Topics in Economic History and Thought.

203. Economic History of the United States
Either semester. Three credits. Prerequisite: Either ECON 111 and 112, or 102 or 113. (112 may be taken concurrently). Open to sophomores. *Carstensen*

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.

203W. Economic History of the United States
Open to sophomores.

204. Economic History of the Middle East
Either semester. Three credits. Prerequisites: Either ECON 111 and 112, or 102 or 113. (ECON 112 may be taken concurrently). Open to sophomores. *Cosgel*

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.

204W. Economic History of the Middle East
Open to sophomores.

205. History of Economic Thought
First semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. *Cosgel, Cunningham, Langlois*

The evolution of economic ideas significant to their own times and to the state of current theory. Mainly nineteenth and twentieth century thinkers.

205W. History of Economic Thought

206. Philosophy and Economics
(Also offered as PHIL 245.) Either semester. Three credits. Prerequisite: ECON 102, 112, or 113.

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.

207. Beyond Self-Interest
Either semester. Three credits. Prerequisite: ECON102, 112, or 113. *Minkler*

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.

207W. Beyond Self-Interest

208. Political Economy of Capitalism
Either semester. Three credits. Prerequisite: ECON 102, 111, or 112, or 113. *Sazama*

Application of socialist economic theory to structural issues of capitalist societies: distribution of power; causes of poverty and discrimination; military spending; stagnation and growth.

212V. Empirical Methods in Economics I (Q,C)
Either semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ECON 102, 111 and 112, or 113; MATH 106Q or 110Q or 113Q or 115Q or 118Q; and STAT 100V. Open to sophomores. A course advised for all major students in economics. *Couch, Lott, Ray*

Introduction to the empirical testing of economic theories. Student projects testing simple economic models.

213Z. Empirical Methods in Economics II (W,Q,C)
Second semester. Three credits. Prerequisite: ECON 212V. *Lott, Ray*

Analysis of economic time series, estimation of single- and simultaneous-equation economic models, and statistical decision theory.

214Q. Mathematical Economics
Either semester. Three credits. Prerequisite: ECON 102, 111 and 112, or 113; MATH 106Q or 110Q or 113Q or 115Q or 118Q. *Heffley, Lott, Ray, Segerson*

Application of mathematical techniques to economic problems. Methods studied: set theory, linear algebra, equilibrium analysis, unconstrained and constrained optimization, comparative statics, and linear programming.

216V. Operations Research (Q,C)
First semester. Three credits. Two 75-minute classes per week. Seven of the classes will be held at the computer lab. Recommended preparation: ECON 111 and 102, 112, or 113. *Sacks*

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.

217. Information Technology for Economics
Either semester. Three credits. Prerequisites: ECON 102, 111 and 112, or 113. and STAT 100V or 110V. *Ahking, Cosgel, Sacks*

The presentation of economic data and testing of economic theory through the use of appropriate computer based tools. Analysis of microeconomics 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 the application of these to an 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.

218. Intermediate Microeconomic Theory
Either semester. Three credits. Prerequisite: ECON102, 112, or 113. Recommended preparation: ECON 111. Open to sophomores. ECON 218 or 218Q is required of all economics majors. *Cosgel, Heffley, Kimenyi, Lott, Miceli, Minkler, Randolph, Ray, Sacks, Segerson*

Intermediate microeconomic theory, covering demand and supply, exchange and production, pricing, and welfare economics.

218Q. Intermediate Microeconomic Theory
Prerequisite: ECON 102, 112, or 113, MATH 106Q or 110Q or 113Q or 115Q or 118Q. Recommended preparation: ECON 111. Open to sophomores. ECON 218 or 218Q is required for all economics majors. *Randolph, Segerson*

Applies mathematical techniques to intermediate microeconomic theory.

219. Intermediate Macroeconomic Theory
Either semester. Three credits. Prerequisite: ECON 102, 111, or 113. Recommended preparation: ECON 112. Open to sophomores. ECON 219 or 219Q is required of all economics majors. Not open for credit to students who have passed ECON 229 or 219Q. *Ahking, Allen, Cunningham, Miller, Morand*

Intermediate macroeconomic theory, covering national income accounting; the determination of aggregate output, employment and price levels; elements of business cycles and economic growth.

219Q. Intermediate Macroeconomic Theory
Prerequisite: ECON 102, 111, or 113, MATH 106Q or 110Q or 113Q or 115Q or 118Q. Recommended preparation: ECON 112. Open to sophomores. ECON 219 or 219Q is required for all economics majors. *Ahking, Cunningham, Morand*

Applies mathematical techniques to macroeconomic theory.

220. Economics of Taxation and Government Spending
Either semester. Prerequisite: ECON 102 or 112 or 113. Recommended preparation for students who have passed ECON 112: ECON 111. Open to sophomores.

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.

223. Economics of Poverty
(Formerly offered as ECON 257.) First semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. Open to sophomores. Not open for credit to students who have passed ECON 257. *Kimenyi*

Analysis of poverty and income maintenance programs: theories of income distribution and comparison of public policies in the U.S. and other countries.

224. Women and Minorities in the Labor Market
(Formerly offered as ECON 279.) Either semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. Open to sophomores. Not open for credit to students who have passed ECON 279. *Kimenyi, Randolph*

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.

225. Labor Economics
(Formerly offered as ECON 274.) Either semester. Three credits. Prerequisite: ECON 112, or 102 or 113. Recommended preparation: ECON 218. Open to sophomores. Not open for credit to students who have passed ECON 274. *Barth, Couch, Kimenyi*

Economics of labor: human capital theory, discrimination, unemployment, manpower policy, and trade unions.

225W. Labor Economics
(Formerly offered as ECON 274W.)

226. Labor Legislation
(Formerly offered as ECON 276.) Second semester. Three credits. Prerequisite: ECON 112, or 102 or 113. Open to sophomores. Not open for credit to students who passed ECON 276. *Barth*

Legal status of labor, unorganized and organized, in legislation and court decisions. Emphasis on the labor contract, bargaining procedures, and union and employer tactics. Also, legislation dealing with wages, hours, child labor, old-age benefits, and accident and unemployment compensation.

228. Transitional Economies of Russia and East Europe
(Formerly offered as ECON 244.) Either semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. Open to sophomores. Not open for credit to students who passed ECON 244. *Allen*

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.

230. Money and Banking
Either semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. (112 may be taken concurrently.) Open to sophomores. *Ahking, Cunningham, Lott, Miller*

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.

232. Government and Industry
(Formerly offered as ECON 264.) Second semester. Three credits. Prerequisite: ECON 112, or 102 or 113. Open to sophomores. Not open for credit to students who have passed ECON 264. *Langlois, Minkler, Sacks*

Relations between government and business. Public policies enforcing, supplementing, or replacing competition in particular markets, studies of selected industries and legal cases.

233. Economics of the Oceans
Either semester. Prerequisite: ECON 102 or 112 or 113. Recommended preparation for students who have completed ECON 112: ECON 111. Open to sophomores.

Economies of industries that use and manage ocean resources. Applications of industrial organization, law and economics, natural resource theory, and environmental economics.

237. Special Problems in Money and Banking
(Formerly offered as ECON 231.) Second semester. Three credits. Prerequisites: ECON 230, and 219 or 219Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. Not open for credit to students who have passed ECON 231. *Ahking*

Emphasis on public policy: commercial bank regulations; the relation of liquidity to economic fluctuations; government lending agencies; and central bank policies and credit control.

242. International Trade
Either semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111 or 102, or 113, and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Allen*

Economic basis of international trade, trade policies, and international economic organizations.

242W. International Trade

243. International Finance
Either semester. Three credits. Prerequisites: ECON 219 or 219Q, Recommended preparation: ECON 112, or 102, or 113, and one of: MATH 106Q, 113Q, 115Q, or 120Q. *Ahking, Allen, Miller*

Payments and financing of international trade: foreign exchange markets, the balance of payments, capital flows, and international monetary arrangements.

247. Economic Development
First semester. Three credits. Prerequisites: ECON 111, or 102, or 113 and 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Randolph*

Economics of problems facing developing nations: theories of development, and strategies and policies to promote economic development.

247W. Economic Development

253. Public Finance
Either semester. Three credits. Prerequisites: ECON 218 or 218Q. Recommended preparation: ECON 111, 102, or 113, and One of: MATH 106Q, 113Q, 118Q, or 120Q. *Kimenyi, Miceli, Sacks, Sazama, Segerson*

Government expenditures and tax policies: theories of public choice, size and mix of government budgets, alternative tax systems, and tax reform.

253W. Public Finance

258. Contemporary Problems in Economics
Either semester. Three credits. Prerequisites: ECON 218 and 219 (one of which may be taken concurrently). Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Wright*

Current issues of government economic policy, primarily microeconomic: energy, income maintenance, labor markets for minorities and women, government regulation, health care, and others.

258W. Contemporary Problems in Economics

259. Urban and Regional Economics
(Also offered as URBN 259.) Second semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111, 102 or 113 and One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. Not open for credit to students who have passed URBN 259. *Heffley, Miceli*

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.

259W. Urban and Regional Economics

261. Health Economics
Either semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Heffley*

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.

267. Organization of Industry
First semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Langlois, Minkler*

The nature of competition and economic organization. Competitive effects of business practices, and their influence on price, production, and technological change.

268. Economics of the Law
Second semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111, or 102 or 113 and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Langlois, Miceli*

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.

275. Theory of Labor Markets
Either semester. Three credits. Prerequisite: ECON 112 or 102 or 113. Recommended preparation: ECON 218 and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Barth, Couch, Kimenyi*

Theoretical analysis of labor markets: labor supply and demand; wage differentials; human capital; and the inflation-unemployment tradeoff.

286W. Seminar in Economics
Either semester. Three credits. Prerequisites: ECON 218 and 219, one may be concurrent. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q,

or 120Q.

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 University Scholars in Economics, Economics Scholars, and Candidates for a Degree with Distinction in Economics.

289W. Senior Thesis in Economics
Either semester. Three credits. Hours by arrangement. Open only with consent of instructor. Prerequisite: ECON 286W or consent of the Department Honors Advisor.

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, prior to the student's departure. May count toward the major with consent of the advisor.

Special topics taken in a foreign study program.

†294. Internship – Field Study
Either semester. Two credits. Hours by arrangement. Consent of instructor is required. Students must have: nine credits of 200-level economics courses (six of which may be concurrent). Students must be at least 6th-semester and have a minimum TGPA of 2.25 or a minimum of 2.5 in 200-level economic courses. Students must secure a satisfactory intern position before the end of the second week of the semester enrolled in the course. They should begin consultation with the instructor several months in advance. Does not count toward the economic major. Must be taken concurrently with ECON 295; no credit will be given for one course without the other. *Sazama*

Supervised field work, of six-eight hours per week, 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).

295. Internship – Research Paper
Either semester. One credit. Hours by arrangement. Consent of instructor required. Students must have nine credits of 200-level economic courses (six of which may be concurrent). Students must be at least 6th-semester and have a minimum TGPA of 2.25 or a minimum of 2.5 in 200-level ECON courses. Must be taken concurrently with ECON 294; no credit will be given for one course without the other. *Sazama*

Research paper of 3,000-4,000 words on approved topic related to the internship field study.

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in topic, this course may be repeated for credit. Prerequisites and recommended preparation vary.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only to seniors with consent of instructor. A student may receive credit for no more than 6 credits of ECON 299.

Tutorial course to enable qualified students to round out their training in economics. Independent reading conferences and short research papers.

Education (EGEN)

294. Seminar/Clinic: The Student as Learner
First semester. One credit. 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.

295. Seminar/Clinic: The Student in the School Context
Second semester. One credit. Prerequisite: EGEN 294. Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Integration of concepts of linguistic diversity, social and community issues, and exceptionality with clinical experiences.

296. Seminar/Clinic: Methods of Teaching
First semester. Three credits. Prerequisite: EGEN 295. Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

Integration of concepts of learning assessment and exceptionality with area specific methods.

296W. Seminar/Clinic: Methods of Teaching

297. Seminar/Clinic: Analysis of Teaching
Second semester. Three credits. Prerequisite: EGEN 296 and 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.

298. Honors Seminar
Either semester. Three credits. Restrictions: Students must be accepted by the School of Education Honors Committee as candidates for Degrees with Distinction, Honors Scholars, or University Scholars. Can be repeated for credit.

299. Independent Study: Honors Thesis Preparation
Either semester. Three credits. Restrictions: Students must be accepted by the School of Education Honors Committee as candidates for Degrees with Distinction, 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 336, Gentry Building

For major requirements, see the School of Education section of this *Catalog*.

201. Introduction to Teaching
First semester. 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.

204. Introduction to Bilingual-Bicultural Education
Semester by arrangement. Three credits. *Diaz, Leach, Minaya-Rowe, Reagan*

This course deals with cultural-historical background and processes of establishment and implementation of bilingual-bicultural education program.

211. Curriculum and Teaching of Reading
Semester and hours by arrangement. Variable credits, not to exceed three. Prerequisite: EGEN 294 and EGEN 295 or consent of instructor. *Doyle, Irwin, Meagher, M. Weinland*

An introduction to the principles and practices of teaching reading in the elementary school. Field experience may be included.

212. Introduction to Outdoor Education
Semester and hours by arrangement. Three credits. *Goodkind*.

An introduction to the elements and philosophy of outdoor education. The development of knowledge, understanding and appreciation of educational values inherent in the natural environment.

220. Teaching the Language Arts in the Elementary School
Second semester. Three credits. Prerequisite: Open only to Elementary Education and Elementary Special Education/Elementary Education students. *Doyle, Irwin*

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.

221. Teaching Reading and Writing in the Elementary School
First semester. Three credits. Prerequisite: Open only to Elementary Education and Elementary Special Education/Elementary Education students. *Doyle, Irwin*

An Introduction to the teaching of reading and writing in the elementary school. Field experiences may be included.

222. Teaching Mathematics in the Elementary School
First semester. One credit. Prerequisite: Open only to Elementary Education and Elementary Special Education/Elementary Education students. *DeFranco*

A study of current approaches to teaching and learning school mathematics. Opportunities will be provided for participants to develop an awareness and knowledge of the Standards for Teaching School Mathematics.

223. Teaching Science in the Elementary School
First semester. One credit. Prerequisite: Open only to Elementary Education and Elementary Special Education/Elementary Education students.

A study of curriculum materials, laboratory experiences and teaching techniques in science.

224. Teaching Social Studies in the Elementary School
First semester. One credit. Prerequisite: Open only to Elementary Education and Elementary Special Education/Elementary Education students.

A study of the organization of learning experiences and teaching methods emphasizing the social sciences as the foundation of the social studies.

231. Foundations of Education: Social Context of Schooling
Second semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Weibust*

Social nature of schools: standards, values, socialization, social function of schooling.

232. Foundations of Education: Philosophical Tools for Teachers
Second semester. One credit. Prerequisite: Open only to students in the Music Education Teacher Preparation Program. *Reagan*

Philosophical trends in schooling, and applications of philosophy for prospective teachers.

233. Social and Community Issues in Education
Second semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Mannebach*

Social and community issues, including the effect of alcohol, drugs and tobacco, confronting teachers in contemporary society.

258. Methods in Elementary School Music
Semester by arrangement. Three credits. Prerequisite: Satisfactory progress in applied music, and consent of instructor.

260. Methods of Foreign Language Instruction, Pre K-12
First semester. Three credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

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.

262. Directed Observation and Participation
Credits by arrangement, not to exceed three. Open only with consent of instructor. This course may be taken for more than one semester.

This course gives prospective teachers an opportunity to see secondary and elementary school teachers and pupils in action, to discuss with supervisors and teachers problems related to work in designated field, and to study school resources from the standpoint of good teaching.

265. General Teaching Methods
First semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

An introduction and overview of teaching roles and responsibilities. Topics include setting goals and objectives; planning lessons and units; teaching inductively, deductively and interactively; selecting appropriate instructional media; organizing time, space, materials and learners in groups of varying sizes; assigning homework, practice and review, and evaluation techniques.

266. Instruction and Curriculum in the Secondary School
Semester and hours by arrangement. Variable credit not to exceed 6. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program.

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.

272. The Teaching of Reading in Middle and High Schools
Semester and hours by arrangement. Variable credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Irwin*

Methods of teaching reading to middle and high school students.

273. Teaching Reading and Writing in the Content Areas
Second semester. Two credits. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Irwin*

A study of the role of reading and writing in the learning of the content areas taught in secondary schools.

276. Directed Student Teaching
Either semester. 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.

277. Directed Student Teaching
Either semester. 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.

297. Computer Literacy
Either semester. Variable credit, not to exceed three. Prerequisite: Admission to School of Education or consent of instructor.

This course will provide an Introduction to the nature, functioning and application of microcomputers. The major languages typically used with microcomputers will be surveyed.

298. Variable Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

299. Independent Study for Undergraduates
Either semester. 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.

Education Kinesiology (EKIN)

Head of Department: Professor Carl M. Maresh
Department Office: Room 223, Sports Center

For major requirements, see the School of Education section of this *Catalog*.

All EKIN 200 level courses are open to EKIN majors only or by consent of instructor.

160. Courses in Lifetime Sports Program
(Formerly offered as ESLE 160.) Either semester. One credit. Two 1-hour laboratory periods. Repeatable with change of activity or change of level of activity. Not to exceed 2 credits. Students majoring in Kinesiology may repeat five times for a total of six credits in six different topics.

A variety of lifetime sports and skills are offered. The teaching of each activity will be geared to individual, dual, and team sport activities.

161. Introduction to Athletic Injuries I
Fall semester. First seven weeks. One credit. Open to all students. Pre-athletic Training students enroll as sophomores. *Mansell*

A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers training and conditioning, nutrition, environment, and legal issues.

162. Introduction to Athletic Injuries II
Fall semester. Second seven weeks. One credit. Open to all students. Pre-athletic Training students enroll as sophomores. *Mansell*

A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers tissue healing, rehabilitation, modalities, taping, and bandaging.

163. Introduction to Athletic Injuries III
Spring semester. First seven weeks. One credit. Open to all students. Pre-athletic Training students enroll as sophomores. *Mansell*

A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers the lower extremity.

164. Introduction to Athletic Injuries IV
Spring semester. Second seven weeks. One credit. Open to all students. Pre-athletic Training students enroll as sophomores. *Mansell*

A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers the upper extremity, head, face, neck, abdomen, thorax, and spine.

201. The Camping Experience
(Formerly offered as ESLE 201.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Morrone*

A study of the various aspects of camping: the staff; campers; program; site and facilities; management, business and finance; support services; and marketing.

203. History, Trends, and Professional Orientation of Recreational Service
(Formerly offered as ESLE 203.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Shivers*

Historical background of the recreational service movement; the significance of recreational service in society; and professional opportunities in the field of recreational service.

204. Principles of Recreational Service
(Formerly offered as ESLE 204.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Servedio*

The evolvement of present day recreational service, and basic concepts.

205. Introduction to Therapeutic Recreational Service
(Formerly offered as ESLE 205.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Shivers*

Recreational Rehabilitation for special populations. The practice of therapeutic recreational service for clients in treatment centers or communities.

227. Psychomotor Development Activities
(Formerly offered as ESLE 227.) First semester. Three credits. Open to sophomores.

Selection and implementation of physical activities, guided by motor skill development of children.

228. Motor Learning
(Formerly offered as ESLE 228.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Garrett*

Learning of motor skills: practice, feedback, motor programs, transfer, memory, retention.

230. Nature and History of Sport
(Formerly offered as ESLE 230.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Hurwitz*

Historical perspective of sport: ancient and modern Olympics, physical education, collegiate sports, participation by women.

234. Rehabilitation of Athletic Injuries
(Formerly offered as ESLE 234.) First semester. Three credits. Prerequisite: Open only to students in Athletic Training. *Casa*

The multi-dimensional approaches to rehabilitation of athletic injuries. The restoration of strength, range-of-motion, neuromuscular control, balance, cardiovascular endurance, and other components will be covered as it applies to specific athletic injuries.

236. Sport and Society
(Formerly offered as ESLE 236.) First semester. Three credits. Prerequisite: SOCI 107 or 107W, or SOCI 115 or 115W and open only to students in Kinesiology Programs.. *Yiannakis*

Sport as an institution. Sociological issues involving gender, race, and intercollegiate, professional, and children's sports.

236W. Sport and Society

238. Sport and the Individual
(Formerly offered as ESLE 238.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Tomporowski*

Psychological perspectives of sport participation. Motivation, self-confidence, attentional focus, anxiety/arousal levels.

239. Therapeutic Modalities for Athletic Injuries
Second semester. Three credits. Prerequisite: Open only to students in Athletic Training.

Techniques and rationale pertaining to treatment and prevention of athletic injuries through the modalities of heat, cold, electricity, massage, ultrasound, and others. Also, the pharmacology of therapeutic medications.

248. Physiological Systems in Human Performance
(Formerly offered as ESLE 248.) First semester. Three credits. Prerequisite: PNB 264-265 and open only to students in Kinesiology Programs. *Armstrong, Maresh, Van Heest*

An organ systems approach to optimal human performance including metabolism, energy transfer, nerve transmission, muscle contraction, endocrine control, and cardiopulmonary physiology.

250. Clinical Instruction for Athletic Trainers I
First semester. Three credits. Prerequisite: Open only to students in Athletic Training.

Hands on instruction/demonstration/practice/implementing of basic emergency procedures, training room procedures, and taping/bracing/wound care procedures. Also, the first of four practical field experiences.

251. Clinical Instruction for Athletic Trainers II
Second semester. Three credits. Prerequisite: Open only to students in Athletic Training.

Hands on instruction/demonstration/practice/implementing of basic rehabilitation modalities and conditioning procedures. Also, the second of four practical field experiences.

252. Clinical Instruction for Athletic Trainers III
First semester. Three credits. Prerequisite: Open only to students in Athletic Training.

Hands on instruction/demonstration/practice/implementing of basic evaluation and treatment procedures of specific body regions. Also, the third of four practical field experiences.

253W. Current Research in Athletic Training
First semester. Three credits. Prerequisite: Open only to students in Athletic Training. *Casa*

Acquaint students with the recent research in the field, the components of conducting and publishing research in the field, and preparation for research endeavors at the graduate level.

254. Athletic Training Administration
Second semester, even years. Three credits. Prerequisite: Open only to students in Athletic Training. *Casa*

Administrative/Management concerns for the athletic trainer. Insurance, budgeting, counseling, facility design, hiring, record keeping, and other issues will be covered.

256. Physical Activity and Health
(Formerly offered as ESLE 256.) First semester. One credit. Required of undergraduate students in the teacher preparation program leading to teacher certification.

Physical fitness concepts that relate to health.

257. Strength and Conditioning for Athletic Trainers
(Formerly offered as ESLE 257.) Second semester. Three credits. Prerequisite: Open only to students in Athletic Training. *Casa*

The focus of this class is the prevention of athletic injuries via the proper implementation of strength and conditioning principles. To include frequency, intensity, recovery, periodization, components of a fitness program, ergogenic aids, and protective bracing.

258. Mechanisms and Adaptations in Sport and Exercise
(Formerly offered as ESLE 258.) Second semester. Four credits. Prerequisite: PNB 264-265 and open only to students in Kinesiology Programs. *Armstrong, Maresh, Van Heest*

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.

259. Fitness Management
(Formerly offered as ESLE 259.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Van Heest*

Health fitness programming; a management perspective.

259W. Fitness Management

260. Assessment of Athletic Injuries
(Formerly offered as ESLE 260.) Second semester. Three credits. Prerequisite: Open only to students in Athletic Training. *Casa*

Techniques and procedures that athletic trainers use to evaluate injuries to the extremities. Includes history, observation, palpation, special tests, manual muscle testing, blood flow, nerve function, and other injury specific skills.

261. Fitness Testing and Programming
(Formerly offered as ESLE 261.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs.

Physical fitness assessment and individualized fitness programs.

262. Directed Observation and Participation
(Formerly offered as ESLE 262.) Credits by arrangement. Prerequisite: Open only to students in Kinesiology Programs. May be taken more than one semester, but total credits cannot exceed three. Prior to registration, students must apply for Directed Observation and provide for their own transportation.

Mentors include educators, recreationists, athletic trainers, sport professionals.

263. Applied Anatomy and Kinesiology
(Formerly offered as ESLE 263.) Spring semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs.

Human anatomy and its application to physical activity, exercise and sport. *Van Heest*

272. Sport Biomechanics
(Formerly offered as ESLE 272.) First semester. Three credits. Prerequisite: PHYS 101Q or 121Q. PNB 264-265 and open only to students in Kinesiology Programs. *Garrett*

Qualitative analysis of linear and angular motion, force and torque, momentum, energy, equilibrium, projectiles, aerodynamics.

273. Special Physical Education: Adapted, Corrective, Developmental
(Formerly offered as ESLE 273.) First semester. Four credits. Three class periods and laboratory/clinic periods by arrangement. Prerequisite: PNB 265 and open only to students in Kinesiology Programs. *Castagno*

Physical activity for persons with disabilities.

280. Recreational Services for the Mentally Ill
(Formerly offered as ESLE 280.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Shivers*

Planning, implementation, programming, evaluation, and treatment team functions for clients, using systematic practice.

281. Introduction to Sport Marketing
(Formerly offered as ESLE 281.) Second semester. Three credits. Prerequisite: ECON 111, 112 and open only to students in Kinesiology Programs.

This course introduces the basic concepts, principles, and tools for sport marketing.

282. The Sociology of Leisure
(Formerly offered as ESLE 282.) Second semester. Three credits. Prerequisite: SOCI 107 or 107W or SOCI 115 or 115W and open only to students in Kinesiology Programs. *Yiannakis*

An examination of the functions of leisure (& tourism) for society and the individual, with special

emphasis on life satisfaction, self actualization over the life course, gender issues, and societal constraints with regard to leisure satisfaction.

283. The Organization of Recreational Services
(Formerly offered as ESLE 283.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Servedio*

Programming activities in public and private agencies emphasizing personnel needs, facilities, marketing, and organization.

284. Introduction to Recreational Service Administration
(Formerly offered as ESLE 284.) First semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Servedio*

Management practices, legal issues, budgeting, and supervision.

285. Therapeutic Recreational Service for the Physically Disabled and the Neurologically Impaired
(Formerly offered as ESLE 285.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Shivers*

Adaptive programming for clients with permanent disabilities.

286. Issues in Sport
(Formerly offered as ESLE 286.) Either semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Morrone*

Contemporary issues in sport and physical education: leadership, communication, time management, future trends.

289. Leadership in Recreational Services
(Formerly offered as ESLE 289.) Second semester. Three credits. Prerequisite: Open only to students in Kinesiology Programs. *Shivers*

Group dynamics and interpersonal behavior theories with leadership techniques for field application.

289W. Leadership in Recreational Services

290. Internship
(Formerly offered as ESLE 290.) Either semester or summer. Variable credits. Prerequisite: In accordance with departmental policy, students will have completed all academic course work in their concentration excluding Sport Medicine/Athletic Training prior to undertaking the internship. May be repeated for credit. Open only to students in Kinesiology Programs.

Field service or experiences in cooperating agencies.

292. Emergency Procedures in Athletic Training
(Formerly offered as ESLE 292.) First semester. Three credits. Prerequisite: Open only to students in Athletic Training. *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.

295. Introduction to Honors Research
Both semesters. Three credits. Prerequisite: Open only to Honors Students in Kinesiology Programs.

The student will meet with EKIN faculty members and attend laboratory/program staff meetings to survey the opportunities available for future Honors Thesis research.

296. Honors Literature Review
Both semesters. 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.

297W. Honors Thesis
Both semesters. Three credits. Prerequisite: 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 EKIN 296.

298. Variable Topics
(Formerly offered as ESLE 298.) Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change in content.

299. Independent Study for Undergraduates
(Formerly offered as ESLE 299.) Either semester. Credits and hours by arrangement. Open only to seniors with consent of the Department Head. 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.

Educational Leadership (EDLR)

Head of Department: Associate Professor Patrick B. Mullarney
Department Office: Room 406, Gentry Building

For major requirements, see the School of Education section of this *Catalog*.

250. Experiential Learning and Education
First semester. Three credits.

Experiential learning, individual values, personality characteristics. Learning as a life-long process, adult transition research.

251. Introduction to Organizations and Human Resources Education
Either semester. Three credits.

Theories and principles of organizations and organizational behavior as they relate to human resources development in education.

252. Introduction to Management and Human Resources Education
Either semester. Three credits.

Issues and tasks of human resources management (HRM) in educational settings. Theory and practice.

253. Introduction to Planning and Evaluation and Human Resources Education
Either semester. Three credits.

Planning and evaluating human resources management subsystems in educational settings, staffing, organizational development, compensation and benefits, labor relations, communication, training and development, supervision and information systems.

254. Introduction to Budget Planning and Human Resources Education
Either semester. Three credits.

Comprehensive budgeting, profit planning and control applied to human resources development. Fiscal management problems, budget planning in educational programs.

255. Contemporary Labor Issues
Either semester. Three credits. May be repeated for credit, not to exceed 6 credits.

Labor issues in work organization, employees, and the labor movement. Patterns of jobs and career problems of labor organizations. Role of multi-national corporations in changing the job mix, collective bargaining.

282. College Freshmen: Their Characteristics and Their Adjustment to College Life
Second semester. Three credits. Prerequisite: Consent of instructor.

Personal and social characteristics of college freshmen; adjustment to college life. Techniques for successful transitions.

283. Student Organization Leadership
Three credits. Prerequisite: Consent of instructor.

Examination of leadership issues and development of skills in leading organizations. Experiential application to student's current co-curricular involvement in UConn clubs and organizations.

291. Practicum: Black Experience in Education
Either semester. Not to exceed three credits. Hours by arrangement. Prerequisite: Consent of instructor.

Experiences, cooperatively arranged by the department, with an educational agency that addresses issues and problems of importance to Black people.

298. Variable Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change in content.

299. Independent Study for Undergraduates
Either semester. 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.

Educational Psychology (EPSY)

Head of Department: Professor Scott W. Brown
Department Office: Room 210, Gentry Building

For major requirements, see the School of Education section of this *Catalog*.

206. Introduction to Exceptionality
Either semester. Three credits. Prerequisite: PSYC 132. *Roberts*

This course considers the nature of exceptionalities as well as current policy and programs in the schools and community.

207. Exceptionality I
Second semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Karan*

Characteristics of students with exceptionalities.

208. Exceptionality II
First semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Campbell*

Educational programming for learners with special needs.

210. Collaborative Program Planning in Special Education
First semester. Three credits. Prerequisite: Open only to Elementary Special Education/Elementary Education students. *Campbell, Karan, Norlander-Case, Roberts*

Covers basic knowledge and skills related to collaboration with families, paraprofessionals, other teachers, and professionals from other disciplines, including specialized services for childern with disabilities (EG, Health, Assistive Technology, Related Services). Introduction to library and computer resources for school leaders.

212. Diagnosis, Assessment, and Program Planning
First semester. Three credits. Prerequisite: Open only to Elementary Special Education/Elementary Education students. *Madaus, McGuire, Norlander-Case*

Diagnosis of students with special needs, use of test data in planning instruction and report writing.

221. Educational Psychology
Either semester. Three credits. Prerequisite: PSYC 132. *Brown, Kulikowich, Young*

The psychology of learning and teaching, and the study of the nature and development of children and adolescents.

226. Field Study in Education
Semester by arrangement. Credits and hours by arrangement. 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.

230. Peer Counseling
Either semester. Three credits. Prerequisite: Consent of instructor.

This course will focus 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.

240. Technology in Education
Both semesters. One credit. Open to first year students in the teacher preparation program. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Puntambekar, Young*

The use of educational technology in the education profession. Emphasis is placed on computer technology, software evaluation and instructional devices.

250. Learning I
First semester. One credit. Prerequisite: PSYC 132 and open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Brown, Reis, Young*

Theory and practices of learning.

251. Learning II
First semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Brown, Reis, Young*

Theory and practices of learning.

252. Assessment of Learning I
First semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Archambault, Kulikowich, O'Connell*

Theory and practices of the assessment of learning.

253. Assessment of Learning II
First semester. One credit. Prerequisite: Open only to students in the Integrated Bachelor's/Master's Teacher Preparation Program. *Archambault, Kulikowich, O'Connell*

Theory and practices of the assessment of learning.

262. Directed Observation and Participation
Credits by arrangement, not to exceed three. Open only with consent of instructor. Prior to registration, students must apply for Directed Observation. This course may be taken more than one semester. *McGuire*

This course 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.

277. Directed Student Teaching: Special Education
Either semester. Credits and hours by arrangement. Prerequisite: Open only to Elementary Education/Elementary Special Education students. 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. *Abdulaziz, Campbell, Norlander*

Practicum experience with mentally retarded, learning disabled and/or emotionally disturbed students.

298. Variable Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

299. Independent Study for Undergraduates
Either semester. 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.

Electrical and Computer Engineering (ECE)

Head of Department: Professor A.F.M. Anwar
Department Office: Room 312, A.B. Bronwell Building (Engineering III)

For major requirements, see the School of Engineering section of this *Catalog*.

201. Fundamentals of Circuit Analysis
(Formerly offered as EE 201.) Either semester. Three credits. Three class periods and one discussion period. Prerequisite: MATH 211 and PHYS 152, both of which may be taken concurrently. Open to sophomores. This course and ECE 220 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. Periodic excitation and frequency response.

202. Signals and Systems
(Formerly offered as EE 202.) Either semester. Three credits. Three class periods and one discussion period. Prerequisite: ECE 201 or ECE 220.

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.

204. Electronic Devices and Circuits
(Formerly offered as EE 204.) Either semester. Three credits. Prerequisite: ECE 201. This course and ECE 239 may not both be taken for credit.

Physical electronics underlying the operation of modern solid-state devices. Diodes and diode circuits. The bipolar junction transistor and field-effect transistors. Models of transistors. Applications of transistors to integrated circuits such as operational amplifiers and logic gates.

205. Electromagnetic Fields and Waves
(Formerly offered as EE 205.) Either semester. Three credits. Prerequisite: PHYS 152 and MATH 210 and 211. Not open for credit to students who have received credit for ECE 206.

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.

209W. Electrical Circuit Design Laboratory
(Formerly offered as EE 209W.) Either semester. Two credits. One 2-hour laboratory period and one 1-hour discussion period. Prerequisite: ECE 201, which may be taken concurrently. Open to sophomores.

Design and evaluation of analog electrical and electronic circuits. Emphasizes out-of-laboratory preparation and troubleshooting. Introduction to laboratory instruments including oscilloscopes, signal sources and meters.

215. Digital Integrated Circuits
(Formerly offered as EE 215.) Semester by arrangement. Three credits. Prerequisite: ECE 204 and CSE 207.

Switching, timing, wave shaping, and logic circuits to generate waveforms and functions used in pulse systems, instrumentation and computers. Emphasis is on integrated circuits.

220. Electrical and Computer Engineering Principles
(Formerly offered as EE 220.) First semester. Three credits. Prerequisite: MATH 210 and 211, which may be taken concurrently, and PHYS 152. This course and ECE 201 may not both be taken for credit.

Basic concepts of circuit analysis as applied to electronic circuits and electromechanical devices, including measuring instruments.

228. Fiber Optics
(Formerly offered as EE 228.) First semester. Three credits. Prerequisite: ECE 205 or ECE 207 or PHYS 255.

Application of Maxwell's equations and geometric optics first to two-dimensional dielectric waveguides and then to cylindrical fibers. Ray and mode theory, eigenvalues, Goos-Haenchen shift. Step-index, graded-index, and single-mode fibers. Splicers, couplers, sources, detectors and optical design. Fiber manufacturing techniques.

229. Fiber Optics Laboratory
(Formerly offered as EE 229.) Second semester. Three credits. One four-hour laboratory period. Prerequisite: ECE 228.

Hands-on design and measurement of fiber-optic applications. Fiber-optic communications and fiber-optic sensors. Structured experiments and design projects centered around available equipment.

230. Electrical Instrumentation
(Formerly offered as EE 230.) First semester. Three credits. Prerequisite: ECE 202, ECE 204 and CSE 207.

Measurements of physical quantities by means of electrical circuits and electronic instruments. Analysis of measurement systems using equivalent circuits. Methods of measuring signals in the presence of noise. Use of computers in measurement systems. Recording and display devices.

232. Systems Analysis
(Formerly offered as EE 232.) Either semester. Three credits. Prerequisite: ECE 202.

Modeling and analysis of physical systems using frequency and time-domain methods. State variable techniques for continuous and discrete-time systems. Controllability and observability. Stability of linear systems with feedback; root locus, Bode and Nyquist methods. Linearization of nonlinear systems. Computational methods for analysis of linear systems.

233. Basic Feedback Control Theory
(Formerly offered as EE 233.) First semester. Three credits. Prerequisite: ECE 232.

Design of linear feedback control systems emphasizing stability, accuracy, dynamic response, and sensitivity to parameter variations. Frequency domain compensation methods. State variable design techniques and use of observers. Lyapunov stability theory. Linear optimum control. Use of computer for simulation and design.

234. Digital Control Systems
(Formerly offered as EE 234.) Second semester. Three credits. Prerequisite: ECE 232.

Analysis and design of control systems incorporating digital computers. Building blocks of digital control. Methods of control algorithm design. Alternate control strategies. System integration. Experimental design project.

240. Electronic Circuits and Applications
(Formerly offered as EE 240.) Second semester. Three credits. Prerequisite: ECE 204 and 232.

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.

241. Communication Systems
(Formerly offered as EE 241.) First semester. Three credits. Prerequisite: ECE 202, and STAT 224Q or consent of instructor.

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.

242. Digital Communications and Networks
(Formerly offered as EE 242.) Second semester. Three credits. Prerequisite: ECE 202 and STAT 224Q or consent of instructor.

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.

245. Micro/Opto-electronic Devices
(Formerly offered as EE 245.) Second semester. Three credits. Prerequisite: ECE 204 or consent of instructor.

Principles and applications of contemporary solid state devices such as light-emitting diodes, injection lasers, solar cells, p-n-p-n diodes, SCR and Triacs, IMPATT diodes, Schottky devices, bipolar and MOS transistors, MESFETs and MODFETs, and fundamentals of integrated circuits.

246. Introduction to Dielectric and Magnetic Materials
(Formerly offered as EE 246.) Semester by arrangement. Three credits. Prerequisite: ECE 205 or ECE 206.

Complex permittivity and permeability of isotropic materials. Polarization and magnetization. Ferroelectric and ferromagnetic materials. Electrostriction and magnetostriction. The Meissner effect and superconducting magnets. Engineering applications.

247. Introduction to Digital Signal Processing
(Formerly offered as EE 247.) Second semester. Three credits. Prerequisite: ECE 202.

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.

249. Very Large Scale Integrated Circuit (VLSI) Design and Simulation
(Formerly offered as EE 249.) First semester. Four credits. Two-hour lecture and three-hour laboratory period. Prerequisite: ECE 215 or consent of instructor, and ECE 245. Not open for credit to students who have passed ECE 248 or ECE 269.

Design of MOS transistors, including short channel effects in sub-micron devices; scaling laws; fabrication technologies. Layout of NMOS and CMOS logic gates; power-delay calculations. Design of static and/or dynamic memories. Laboratory emphasizes schematic capture, simulation, timing analysis; layout of custom IC's; use of VHDL; scaling laws and design of 0.25 micro circuits.

252. Digital Systems Design
(Also offered as CSE 252.) (Formerly offered as EE 252.) Either semester. Three credits. Prerequisite: CSE 201 or 243.

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.

257. Numerical Methods in Scientific Computation
(Also offered as CSE 257.) (Formerly offered as EE 257.) Either semester. Three credits. Prerequisite: Either CSE 123C or 243 or consent of instructor.

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.

261. Analog Electronics Design Laboratory
(Formerly offered as EE 261.) Either semester. Three credits. One class period and one 4-hour laboratory period. Prerequisite: CSE 208W, ECE 209W, ECE 202 and ECE 204, which may be taken concurrently or consent of instructor.

Introductory design laboratory. Use of personal computers to design and measure performance of analog electronic circuits and systems. Design with both integrated circuits and discrete components. Design of active filters, effects of feedback, broadbanding, oscillator design, A/D and D/A conversion systems, and low-noise amplifier design.

262W. Electrical and Computer Engineering Laboratory B
(Formerly offered as EE 262W.) Either semester. Three credits. One class period and one 4-hour laboratory period. Prerequisite: ECE 261.

Intermediate design laboratory. Solution of practical design problems in electronic circuits, control systems, digital systems, physical electronics, biomedical electronics and power systems.

263. Communications Systems Design Laboratory
(Formerly offered as EE 263.) Either semester. Three credits. One 4-hour laboratory. Prerequisites: ECE 205 or ECE 207, and 262W.

Design and experimental evaluation of circuits and systems useful in communication, control, and other applications. Typical subject areas are: transmission lines, microwaves, antennas, AM/FM transmitters and receivers, TV cameras and receivers, communication between computers, laser communication, fiber-optics, pulse-code modulation, acoustics, hearing, rotating machines, servomechanisms, and microprocessors.

265. Independent Design Laboratory
(Formerly offered as EE 265.) Either or both semesters. Three credits. Prerequisite: ECE 262 and consent of instructor. 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.

266. Microprocessor Applications Laboratory
(Formerly offered as EE 266.) First semester. Three credits. One class period and one 4-hour laboratory. Prerequisite: ECE 262, and ECE 232 which may be taken concurrently.

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

267. Systems Laboratory
(Formerly offered as EE 267.) Second semester. Three credits. One 4-hour laboratory period. Prerequisite: ECE 232 and ECE 262.

Real-time digital control and signal processing systems. Typical topics include liquid level control, velocity and position control, digital filters, image processing, and power control electronics. Written and oral presentations of laboratory results.

268. Micro/Opto-electronic Devices and Circuits Fabrication Laboratory
(Formerly offered as EE 268.) Second semester. Three credits. One class period, and one 4-hour laboratory period. Prerequisite: ECE 245, ECE 215 or consent of instructor.

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.

271. Physiological Control Systems
(Formerly offered as EE 271.) Semester by arrangement. Three credits. Prerequisite: ECE 232.

Analysis of human physiological control systems and regulators through the use of mathematical models. Identification and linearization of system components. System interactions, stability, noise, and the relationship of system malfunction to disease. The analysis and design of feedback systems to control physiological states through the automatic administration of drugs.

272. Introduction to Biomedical Engineering
(Also offered as BME 210.) (Formerly offered as EE 272.) First semester. Three credits. Prerequisite: BIOL 107. Co-requisite: PHYS 151Q and MATH 210Q. Open to sophomores.

Survey of the ways engineering and medical science interact. The art and science of medicine, and the process of medical diagnosis and treatment. Diagnostic instrumentation and measurements including medical imaging. Introduction to bioelectric phenomena, biomechanics, and biomaterials. Biochemical engineering. Computers in medicine. Molecular medicine and biotechnology.

280. Digital Design Laboratory
(Also offered as CSE 280.) (Formerly offered as EE 280.) Second semester. Three credits. Four hours of laboratory. Prerequisite: Either CSE 252 or consent of instructor.

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 trouble shooting; PBC; design and manufacturing.

281. Digital Hardware Laboratory
(Also offered as CSE 261.) (Formerly offered as EE 281.) Second semester. Three credits. One 4-hour laboratory period. Prerequisite: CSE 201 or 243. Recommended preparation: CSE 252. *Barker*

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.

290. Computer and Electrical Engineering Design I
(Also offered as CSE 290.) (Formerly offered as EE 290 and EE 297.) Either semester. Two credits. Prerequisite: This course is taken by seniors in the semester before ECE 291.

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 a of design project to be undertaken in CSE/EE 291 is carried out. Written progress reports, a proposal, an interim project report, a final report, and oral presentations are required.

291. Computer and Electrical Engineering Design II
(Also offered as CSE 291.) (Formerly offered as EE 291 and EE 270.) Either semester. Three credits. Prerequisite: CSE/ECE 290. Hours to be arranged.

Design of a device, circuit, system, process, or algorithm. Team solution to an engineering design problem as formulated in CSE/EE 290, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentation are required.

292. Information Processing Systems Laboratory
Second semester. Three credits. Prerequisite: ECE 262W.

Laboratory experiments in signal processing, real-time digital filters, image processing, imaging systems, data aquisition 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.

295. Special Topics in Electrical and Computer Engineering
(Formerly offered as EE 295.) Semester by arrangement. Credits by arrangement. Prerequisite: 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.

299. Independent Study in Electrical and Computer Engineering
(Formerly offered as EE 299.) Semester by arrangement. Credits by arrangement, not to exceed four in any semester. Prerequisite: Consent of instructor. 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.

Engineering (ENGR)

Dean: Amir Faghri
Assistant Dean for Undergraduate Education: M.E. Wood
Office: Room 304, EII Castleman Building
Director of Undergraduate Advising: David Jordan
Office: Room 326, EII Castleman Building

†100. Orientation to Engineering
First semester. One credit. Fifteen class periods of lecture, and eight seminar and discussion periods. Not open for credit to upper division students in the School of Engineering. Not open for credit for students who have passed ENGR 150.

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.

150C. Introduction to Engineering I
Either semester. Three credits. Two lecture periods and one 2-hour discussion period. Not open for credit to upper division students in the School of Engineering. Not open for credit for students who have passed ENGR 100 or 166.

Introduction to engineering and the engineering profession. Topics include: problem solving, design projects, group work, oral and written reports, Fortran computer programming, and engineering graphics.

151. Introduction to Engineering II
Either semester. Three credits. Two lecture periods and one 2-hour discussion period. Prerequisite: ENGR 150C or CSE 110C, and MATH 110Q or 113Q or 115Q, which may be taken concurrently. Not open for credit to upper division students in the School of Engineering. Not open for credit for students who have passed ENGR 100 or 166.

Introduction to engineering and the engineering profession through application of physical conservation principles in analysis and design. Topics include: problem solving, conservation laws, materials properties and selection, engineering economics, group design projects, and oral and written reports.

166. Foundations of Engineering
Second semester. Three credits. Two class periods of lecture, and one two period laboratory per week. Not open for credit to upper division 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.

200. History of Materials and Technology
First semester. Three credits. Open to sophomores. May not be used as a professional requirement in the School of Engineering. *Kattamis*

Evolution of man's knowledge of materials and technology from prehistoric cultures until the Industrial Revolution. Interaction between materials, art, science and technology. Goals, status and methods of the materials technologist in Sumerian, Babylonian, Egyptian, Greek, Roman, Extreme Oriental, Islamic civilizations and through the Middle Ages and the Renaissance in modern civilizations set in the political, social, and economic frames of the times.

201. History of Engineering
Second semester. Three credits. Open to sophomores. May not be used as a professional requirement in the School of Engineering. *Kattamis*

History of civil, electrical, mining, metallurgical, chemical, mechanical, naval, aeronautical and textile engineering from the Industrial Revolution to the dawn of the twentieth century. Interaction between technology, and industrial, economic, political and cultural forces.

†289. EUROTECH Internship Abroad
Semester by arrangment. No credit. Prerequisite: consent of instructor.

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.

295. Special Topics in Engineering
Either semester. 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.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

English (ENGL)

Head of Department: Professor John Abbott
Department Office: Room 332, Arjona Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

Registration restrictions: Students must have satisfied the Freshman English requirement by successfully completing ENGL 110 or ENGL 111 before taking any 200-level English Department course, except ENGL 250.

103. English for Foreign Students
Either semester. Three credits. Course may be repeated for credit. Graduate students may elect this course.

Instruction in English for non-native speakers of the language.

104. Basic Writing
Either semester. Two credits.

Development of the reading and writing skills essential to university work. Students placed in ENGL 104 must pass the course before electing ENGL 105, 110, or 111. Not open to students who have passed ENGL 105, 109, 110, or 111.

105. English Composition
Either semester. Three credits. Not open for credit to students who have passed ENGL 110.

Instruction in composition through critical reading and frequent short essays.

109. Literature and Composition
Either semester. Three credits. Prerequisite: ENGL 105. Not open for credit to students who have passed ENGL 111 or 250.

Continued training in writing expository prose through the study of selections from prose, poetry, and drama.

110. Seminar in Academic Writing
Either semester. Four credits. Not open for credit to students who have passed ENGL 105. Students placed in ENGL 104 must pass that class before enrolling in ENGL 110.

Instruction in academic writing through interdisciplinary reading. Assignments emphasize interpretation, argumentation, and reflection. Revision of formal assignments and instruction on grammar, mechanics and style.

111. Seminar in Writing through Literature
Either semester. Four credits. Not open for credit to students who have passed ENGL 109. Students placed in ENGL 104 must pass that class before enrolling in ENGL 111.

Instruction in academic writing through literary reading. Assignments emphasize interpretation, argumentation, and reflection. Revision of formal assignments and instruction on grammar, mechanics and style.

112. Classical and Medieval Western Literature
First semester. Three credits. Prerequisite: ENGL 105 or 110 or 111. Not open for credit to students who have passed ENGL 114 at the regional campuses.

This and ENGL 113 offer a study of European literature from ancient times to the present. ENGL 112 considers ancient and medieval literature through Dante.

#112W. Classical and Medieval Western Literature
(Formerly offered as ENGL 114 at the regional campuses.) Prerequisite: ENGL 110 or 111 or both 105 and 109; the latter may be taken concurrently.

113. Renaissance and Modern Western Literature
Second semester. Three credits. Prerequisite: ENGL 105 or 110 or 111. Not open for credit to students who have passed ENGL 115 at the regional campuses.

Literature in the European tradition from the Renaissance through the modern periods.

#113W. Renaissance and Modern Western Literature
(Formerly offered as ENGL 115 at the regional campuses.) Prerequisite: ENGL 110 or 111 or both 105 and 109; the latter may be taken concurrently.

120. Major Works of Eastern Literature
Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111.

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.

127. Major Works of English and American Literature
Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111. Not open for credit to students who have passed ENGL 128 at the regional campuses.

Includes important works from the major genres and historical periods since Beowulf.

#127W. Major Works of English and American Literature
(Formerly offered as ENGL 128 at the regional campuses.) Prerequisite: ENGL 110 or 111 or both 105 and 109; the latter may be taken concurrently.

146. Creative Writing I
Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111.

First course in creative expression in fiction, poetry, and other forms.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head or advisor may be required prior to the student's departure.

Special topics taken in a foreign study program.

200. Children's Literature
Either semester. Three credits.

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.

201. Literature for High School Students
Either semester. Three credits. Designed primarily for English education majors. May not be used to meet the English major requirement.

An introduction to the guidance of high school reading in literature.

204. Milton
Either semester. Three credits.

The lyric, epic and dramatic poetry of Milton, with some consideration of his prose writing.

205. British Literature I
Either semester. Three credits. Open to sophomores. Prerequisite: ENGL 105 and 109, or either 110 or 111.

British literature, medieval through 18th century. Intended to provide preparaton for more advanced courses in British literature. This course is strongly recommended for English majors.

206. British Literature II
Either semester. Three credits. Open to sophomores. Prerequisite: ENGL 105 and 109, or either 110 or 111.

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.

209W. Advanced Composition for Prospective Teachers
Either semester. Three credits. Open to sophomores. Designed primarily for English education majors. May not be used to meet the English major requirement.

Advanced training in composition, with consideration of the problem of teaching writing.

210. Poetry
Either semester. Three credits. Open to sophomores.

A study of the techniques and conventions of the chief forms and traditions of poetry in English.

211. Modern Poetry in English
Either semester. Three credits.

Poetry of the 20th century, from the major modernist innovators to significant contemporaries.

212. The Modern Novel
Either semester. Three credits. Open to sophomores.

Major twentieth-century novels.

216. The Short Story
Either semester. Three credits. Open to sophomores.

The short story as a literary form with study of significant Continental, British, and American writers.

217. Studies in Literature and Culture
Either semester. Three credits. May be repeated for credit with a change in topic. Open to sophomores.

An examination of social and culture aspects of printed literature and of its relationship to other media. Contents will vary by section.

218. Literature and Culture of the Third World
Either semester. Three credits. May be repeated for credit with a change in topic. Open to sophomores.

The literature of regions outside North America and Europe. Contents of the course will vary according to regional focus.

219. Drama
Either semester. Three credits. Open to sophomores.

An introduction to the chief forms and traditions of dramatic literature through the study of a broad range of major works.

220. Medieval English Literature
Either semester. Three credits. Open to sophomores.

Readings in the literature of the English Middle Ages — lyrics, narratives, dramas, and didactic forms.

220W. Medieval English Literature

221. Renaissance English Literature
Either semester. Three credits. Open to sophomores.

Writers studied include More, Spenser, Shakespeare, Donne, Jonson, and Milton.

221W. Renaissance English Literature

222. Restoration and 18th-Century English Literature
Either semester. Three credits. Open to sophomores.

Includes such writers as Dryden, Pope, Swift, Johnson, Burney, and Austen.

222W. Restoration and 18th-Century English Literature

223. Romantic and Victorian English Literature
Either semester. Three credits. Open to sophomores.

Includes such writers as Austen, Wordsworth,

English 112W, 113W, 127W, and 230W are offered at regional campuses only.

Coleridge, Keats, Tennyson, Browning, the Brontes, G. Eliot, and Arnold.

223W. Romantic and Victorian English Literature

226. Modern English Literature
Either semester. Three credits. Open to sophomores.

Modern literature from the British Isles, including such writers as Yeats, Eliot, Joyce, Woolf, Lawrence, Lessing, and Shaw.

226W. Modern English Literature

227. World Literature in English
Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed ENGL 279.

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.

227W. World Literature in English

230. Shakespeare I
Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed ENGL 229 at the regional campuses.

Romantic comedies and principal tragedies.

#230W. Shakespeare I
(Formerly offered as ENGL 229 at the regional campuses.) Open to sophomores.

231. Shakespeare II
Second semester. Three credits. Recommended preparation: ENGL 230.

The early plays, problem plays, and late plays.

232. Chaucer
Either semester. Three credits.

The Canterbury Tales and other selected works, and such attention to the Middle English language as is necessary to an understanding of the text.

233. Early and Modern Irish Literature
Either semester. Three credits.

Irish literature in English to 1939: fiction, drama, and verse, including such early Irish myth as the *Tain bo Cualnge* and such writers as Mangan, Somerville & Ross, Yeats, Gregory, Synge, Joyce, and O'Connor.

234. Contemporary Irish Literature
Either semester. Three credits.

Irish literature in English since 1939: fiction, drama, and verse by such writers as Beckett, Bowen, O'Brien, Friel, Murdoch, O'Faolain, McGahern, McGinley, Heaney, Muldoon, and Doyle.

236. Modern Drama
Either semester. Three credits.

Modern British, American, and Continental drama, with the reading and discussion of some 25 representative plays.

242. The English Language
First semester. Three credits.

A descriptive study of modern American English: constituent sound (phonology), structure of words (morphology), and syntax, with some attention to lexicography and usage.

244. The History of the English Language
Either semester. Three credits.

Readings in Old English, Middle English, and Early Modern with a survey of the main developments in the language since Anglo-Saxon times.

246. Creative Writing II
Either semester. Three credits. Open only with consent of instructor. May be repeated for credit with a change in topic.

For student writers of proved ability who wish training in techniques of fiction or verse. Emphasis on poetry.

247. Writing Workshop
Either semester. Three credits. Open only with consent of instructor or Department Head. May be repeated for credit with a change in topic.

For student writers of proved ability who wish training in techniques of fiction or verse. Emphasis on prose fiction.

248W. Writing Tutorial
Either semester. Three credits. Hours by arrangement. This course may be taken only in conjunction with specially designated sections of English courses numbered 200 or above and may be repeated once for credit in conjunction with a different course.

Intensive supervised practice in writing about literature.

249S. Advanced Expository Writing
Either semester. Three credits. Three class periods.

Writing on topics related, usually, to students' individual interests and needs.

249W. Advanced Expository Writing

Honors Course Sequence

The Honors course sequence, ENGL 250 through ENGL 258, is recommended for students in the Honors Program but is also open to other qualified students. Most courses are weekly seminars on major writers and topics relating to intellectual and cultural backgrounds of English and American literature.

250. Honors I: Approaches to Literature
First semester. Three credits. Hours by arrangement. Open only with consent of instructor. May be used to satisfy the ENGL 110 or 111 requirement. Not open for credit to students who have passed ENGL 109 or 110 or 111. May not be used to meet the English major requirements.

Study of a variety of approaches to literature and of their critical assumptions.

251W. Honors II: American Literature
Second semester. Three credits. Hours by arrangement. Open only with consent of instructor.

Early writers and Romantics through Twain and James.

252W. Honors III: American Literature
First semester. Three credits. Hours by arrangement. Open only with consent of instructor.

Realism, naturalism, modern American authors.

253W. Honors IV: English Literature
First semester, alternate years. Three credits. Open only with consent of instructor. Hours by arrangement.

Medieval through Jacobean literature.

254W. Honors V: English Literature
First semester, alternate years. Three credits. Hours by arrangement. Open only with consent of instructor.

Seventeenth and eighteenth century to Romantics.

255W. Honors VI: English Literature
Second semester, alternate years. Three credits. Hours by arrangement. Open only with consent of instructor.

Nineteenth century literature.

256W. Honors VII: English Literature
Second semester, alternate years. Three credits. Hours by arrangement. Open only with consent of instructor.

Twentieth century literature.

258. Honors VIII: Honors Thesis
Either semester. Credits and hours by arrangement. 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.

264. Studies in Individual Writers
Either semester. Three credits.

Concentrated study in one or two authors writing in English. May be repeated for credit with a change in topic.

266. Studies in Criticism
Either semester. Three credits.

Studies in the history and theories of literary criticism.

267. Studies in Literature
Either semester. Three credits. 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.

268W. Seminars in Literature
Either semester. Three credits. May be repeated for credit with a change in 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.

270. American Literature to 1880
Either semester. Three credits. Open to sophomores.

American literature from the beginnings: Poe, Emerson, Thoreau, Hawthorne, Melville, Whitman, Douglass, Stowe, Dickinson, Twain, and others.

270W. American Literature to 1880

271. American Literature Since 1880
Either semester. Three credits. Open to sophomores.

Modern and contemporary American literature: James, Wharton, Dreiser, Cather, Frost, Hemingway, Fitzgerald, Faulkner, Morrison, and others.

271W. American Literature Since 1880

272. Native American Literature
Either semester. Three credits. Open to sophomores. *Tilton, Makowski*

Examination of the literatures of pre-contact, post-contact, and contemporary indigenous American cultures.

274. Asian American Literature
(Also offered as AASI 274.) Either semester. Three credits. Open to sophomores. *Chow*

Literature, theatre, film about Asian American communities and culture in the United States from the mid-nineteenth century to the present.

276W. Black American Writers I
First semester. Three credits.

Critical and historical examination of the literature of black American writers from Phyllis Wheatley to the present.

277W. Black American Writers II
Second semester. Three credits.

Extensive readings in the works of four or five contemporary black American writers.

English 112W, 113W, 127W, and 230W are offered at regional campuses only.

278W. Ethnic Literatures of the United States
Either semester. Three credits.

The literatures of ethnic American authors. Writers may include Natachee Scott Momaday, Maxine Hong Kingston, Zora Neale Hurston, Rolando Hinojosa, Bernard Malumud, Nicholasa Mohr, John Fante, among others.

285. Women in Literature Before 1900
First semester. Three credits.

Analysis of the representation of women in a variety of works from different countries.

286. Women in Twentieth-Century Literature
First semester. Three credits.

Analysis of the representation of women in a variety of works from different countries.

291. Literature and Other Disciplines
Either semester. Three credits. 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.

292. Studies in Britain
Second semester. Three credits. Hours by arrangement. Open only with consent of instructor.

Studies in the British Isles during the intersession, supplemented by weekly seminars in Storrs. Direct experience with aspects of English literature in its social and artistic milieu.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

294C. Publishing
Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111.

An introduction to publishing and to writing for publication in this, 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.

295. Variable Topics
Either semester. Three credits. With a change in topics, may be repeated for credit. Prerequisites and recommended preparation vary.

296. Writing Practicum
Either semester. Credits and hours by arrangement. May be repeated for credit with a change in topic.

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.

†297. Writing Internship
Either semester. Credit and hours by arrangement, not to exceed six credits per semester. With a change of placement, may be repeated once for credit. Open only with consent of instructor. No more than three credits may be counted towards completion of requirements for the English major.

Training in writing in a supervised field placement.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

299. Independent Study
Either semester. Credits and hours by arrangement. 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. (Recommended for distinction candidates in English.)

Environmental Engineering (ENVE)

Program Coordinator: Nikolaos P. Nikolaidis
Office: Room 315, F.L. Castleman Building

110. The Environmental Debate I
Second semester. One credit. May be repeated for credit (maximum of 3 credits). Open only with consent of instructor.

Structured review of environmental issues and active debate during class time. Presentation of current environmental issues by environmental professionals and experts.

210. The Environmental Debate II
Second semester. 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.

251. Civil Engineering Systems
(Also offered as CE 251.) First semester. Three credits. Open to sophomores. *Anagnostou, Garrick*

Application of statistical principles to the analysis of problems. Topics covered include normal, poisson, and binomial distributions, chi square, comparison of means and variances, least square and regression analysis.

260. Water Quality Engineering
(Also offered as CE 260.) Second semester. Three credits. Prerequisites: CE 263 and 297. *Abboud, Hoag, Smets*

Physical, chemical, and biological principles for the treatment of aqueous phase contaminants; reactor dynamics and kinetics. Design projects.

262. Environmental Engineering Laboratory
(Also offered as CE 262.) Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisites: CE 263 and 297 or CHEG 223 (which may be taken concurrently). *Abboud, Smets*

Aqueous analytical chemical techniques, absorption, coagulation/flocculation, fluidization, gas stripping, biokinetics, interpretation of analytical results, bench-scale design projects, written and oral reports.

262P. Environmental Engineering Laboratory
(Also offered as CE 262P.) Must be taken with another P course in Environmental Engineering to equal one W course.

263. Environmental Engineering Fundamentals
(Also offered as CE 263.) First semester. Three credits. Prerequisites: CHEM 128 or 130 and MATH 211 (which may be taken concurrently). Open to sophomores. *Hoag, MacKay, Nikolaidis, Smets*

Concepts from 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.

265. Hydraulic Engineering
(Also offered as CE 265.) Second semester. Three credits. Prerequisites: CE 297 or CHEG 223 and CHEG 224. *Anagnostou, Nikolaidis, Ogden*

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.

266. Hydraulic Engineering Laboratory
(Also offered as CE 266.) Second semester. Two credits. One class period. One 2-hour laboratory. Prerequisite: CE 297.

Tests of the flow of water in pipes and open channels. Theory and calibration of flow measurement devices. Generation of flow measurement devices. Study of velocity profiles. Generation of pump performance curves. Physical hydraulic modeling and similtude.

267. Engineering Hydrology
(Also offered as CE 267.) First semester. Three credits. Prerequisites: CE 297 or CHEG 223 and CHEG 224. *Anagnostou, Nikolaidis, Ogden*

Hydrologic cycle: precipitation, interception, depression storage, infiltration, evaportranspiration, overland flow, snow hydrology, groundwater and streamflow processes. Stream hydrographs and flood routing. Hydrologic modeling and design. Computer applications. Design project.

268. Limnology
(Also offered as CE 268 and as EEB 247.) First semester. Three credits. Prerequisites: MATH 109 or 112 or 115 and an introductory course in CHEM (CHEM 122, 127, or 129); an introductory course in Biology is recommended.

Physical, chemical, and biotic interrelationships of freshwater habitats.

270. Environmental Engineering Chemistry
First semester. Three credits. Prerequisite: CHEM 128 or 130, MATH 211 or consent of instructor. *MacKay, Nikolaidis*

Quantitative variables governing chemical behavior in environmental systems. Thermodynamics and kinetics of acid/base, coordination, precipitation/dissolution, and redox reactions. Organic chemistry nomenclature.

279. Environmental Modeling
(Also offered as CE 279.) Second semester. Three credits. Prerequisite: CE 263 and CHEG 223 or CE 297 or consent of instructor. *Nikolaidis*

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.

280. Introduction to Environmental Rate Processes
(Also offered as CHEG 280.) First semester. Three credits. Recommended preparation: CHEM 128.

Application of thermodynamics, chemical kinetics and transfer operations to environmental problems; water pollution control. Open only to students not majoring in chemical engineering.

281. Introduction to Water Pollution
(Also offered as CHEG 281.) Second semester. Three credits. Recommended preparation: CHEG 224.

Water purification and water quality control; aeration and mass transfer, biological mechanisms and kinetics; design of biological reactors and sludge treatment facilities; design and operation of physical purification methods; alternative processes for industrial wastewater treatment.

283. Introduction to Biochemical Engineering
(Also offered as BME 221 and as CHEG 273.) Second semester. Three credits. Recommended preparation: CHEG 224 and 251. *Wood*

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.

285. Introduction to Air Pollution
(Also offered as CHEG 285.) Second semester. Three credits. Recommended preparation: CHEG 211 or ME 233 or ME 238. *Heible*

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.

290. Environmental Engineering Design I
First semester. Three credits. To be taken during the senior year.

Basic aspects of environmental engineering design from data acquisition through preliminary design, cost estimating and final specifications. Report writing will be integral part of the course.

291. Environmental Engineering Design II
Second semester. Three credits. Prerequisite: ENVE 290. To be taken during the senior year.

Implementations of protocols and techniques covered in Course I to a specific environmental scenario. Instructors will supply initial conditions and performance expectations. Reporting writing will be an integral part of the course.

295. Special Topics in Environmental Engineering
Semester, credits, and hours by arrangement as announced. Prerequisite and or consent: Announced separately for each course. Course may be repeated for credit. Classroom or laboratory course on specific topics as announced.

296. Thesis
Either semester. Three credits. Prerequisite: Consent of instructor.

Designed to extend student knowledge in a specialized area of environmental engineering and introduction to research.

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor.

Individual study of special topics in law as mutually arranged between student and instructor.

European Studies (ES)

Program Advisor for Center for European Studies: Ludmilla Burns
Office: Room 5, Human Development Center

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Director required, normally to be granted prior to the student's departure. With a change in content, may be repeated for credit.

295. Special Topics in European Studies
Either or both semesters. 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.

298. Variable Topics
Either or both semesters. Credits to a maximum of three.

Intensive study of specialized topics relating to Europe not ordinarily covered in the curriculum. With change in topic, may be repeated for credit.

299. Independent Study
Either semester. Credits and hours by arrangement. Requires independent study Authorization Form from European Studies faculty.

For thesis preparation or other intensive research project relating to Europe. May be repeated for credit. Sponsored by the Center for European Studies.

Finance (FNCE)

Head of Department: Professor Thomas J. O'Brien
Department Office: Room 402, School of Business Administration

For major requirements, see the School of Business Administration section of this *Catalog*.

Courses in the department are open to juniors and seniors only with the exception of FNCE 198.

198. Contemporary Issues in Finance
Semester by arrangement. One credit. May be repeated for credit in different sections in combination with BADM 198 or MGMT 198 up to a maximum of three credits. Open to freshmen and sophomores, others with consent of instructor. May not be used to satisfy upper division/major requirements in the School of Business Administration.

The world of business has changed. No longer can we refer to the cliche "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.

201. Financial Management
Either semester. Three credits. Prerequisite: ACCT 200, (may be taken concurrently), ECON 111 and 112, ENGL 110 or 111, or ENGL 105 and 109, MATH 106 or 114 or 116, STAT 100 or 110.

An introductory examination of how a business plans its needs for funds, raises the necessary funds, and invests them to attain its goals.

202. Investment and Security Analysis
Either semester. Three credits. Prerequisite: FNCE 201.

A study of the nature of securities, the mechanics and costs of trading, and the way in which securities markets operate. Risk-return analysis will be applied in making decisions to buy or sell stocks, bonds and options. Written analysis is required.

202W. Investment and Security Analysis

203. Applications in Financial Management
First and/or second semester. Three credits. Prerequisite: FNCE 201. Recommended preparation: OPIM 203C.

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.

203P. Applications in Financial Management
Must be taken with FNCE 206P to equal one W requirement.

204. Financial Risk Management
First and/or second semester. Three credits. Prerequisite: FNCE 201.

Applications of financial structuring and engineering with particular attention to uses of derivatives.

205. Global Financial Management
Either semester. Three credits. Prerequisite: FNCE 201.

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.

206. Financial Services
First and/or second semester. Three credits. Prerequisite: FNCE 201.

Study of the role of financial services companies in the money and capital markets, funds acquisitions, investment and credit extension.

206P. Financial Services
Must be taken with FNCE 203P to equal one W requirement.

217. Economics for Global Business Decisions
First and/or second semester. Three credits. Prerequisite: FNCE 201 (may be taken concurrently).

Impact of globalization of the world economy on business and financial decisions. Trade, balance of payments, tariff policies, international economic institutions, exchange rates, capital flows.

221. Risk Management and Insurance
Either semester. Three credits.

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.

223. Health Insurance
Second semester. Three credits. Prerequisite: FNCE 221 or permission of instructor.

This course will provide a detailed overview of health insurance from the perspective of insurance company owners, employers, and individual consumers of health insurance services. Emphasis is given to individual and group health insurance product management and to the relationship between product characteristics and insurance company investments, financing, and marketing decisions. Managed care techniques, benefit package design and cost sharing mechanisms are assessed in the context of resolving insentive conflicts and meeting cost-containment objectives. Evaluation of insurance company financial strength and the impact of regulation on company management and behavior are considered in detail.

224. Social Insurance
Second semester. Three credits.

An examination of causes, effects and proposed remedies for financial insecurity resulting from occupational injuries, unemployment, old age and premature death, and general illness. Emphasis is placed on the role of the government in dealing with these economic problems.

225. Life Insurance and Retirement Security
First semester. Three credits. Prerequisite: FNCE 221 or permission of instructor.

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.

228. Risk Management: Property and Liability Exposures
First semester. Three credits. Prerequisite: FNCE 221.

This course critically examines the risk management process introduced in FNCE 221. 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 is stressed.

228W. Risk Management: Property and Liability Exposures

230. Real Estate Principles
Either semester. Three credits.

Overview of the personal, social and business aspects of real estate. Emphasis on home purchase decisions, location analysis, market characteristics and investment decision-making.

232. Real Estate Investments
First or second semester. Three credits. Prerequisite: FNCE 201 (may be taken concurrently).

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.

232W. Real Estate Investments

233. Real Estate Finance
First or second semester. Three credits. Prerequisite: FNCE 201 (may be taken concurrently).

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.

234. GIS Applications and Use of the Internet in Real Estate Markets
First or second semester. Three credits.

How does a business decide where to relocate? Specialized Geographic Information Systems (GIS) are now used to make retail, office, and industrial location decisions. The Internet opens new sources of timely information. This gives decision-makers unprecedented power to manage data and analyze risks. Students gain hands-on experience with GIS and Internet through projects organized around real estate problems.

†289. Field Study Internship
Summer session. One to three credits. Hours by arrangement. Prerequisite: Students enrolled in the Real Estate Intern program must have earned a "C" or better in Finance 230. For all others, completion of Finance 201 and at least one other finance course related to the internship area, with a grade of "C" or better in each course. Consent of instructor and Department Head prior to beginning the internship.

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of Department Head required, prior to the student's departure.

Special topics taken in a foreign study program.

296W. Senior Thesis in Finance
Either semester. Three credits. Hours by arrangement. Open only to Finance Department Honors Students with consent of instructor and Department Head.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. 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.

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed six in any semester. 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.

Fine Arts (FINA)

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.

181-182. African-American Experience in the Arts: Contemporary Problems and Expressions of African-American Creators; Historical and Cultural Perspectives
Both semesters. Two credits. One 2-hour evening meeting per week. *Molette*

Guest lecturers and University faculty discuss their points of view as black creators, with particular reference to social context and creative expression, and discuss historical and cultural perspectives of African and African-American arts with emphasis on the influences and developments affecting African-American creators of today.

200. The Arts and Their Interrelations
Either semester. Three credits. Hours by arrangement. Open only to juniors and seniors with consent of instructor.

Comparative study of the visual arts, music and theatre in selected periods.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

French (FREN)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical 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.

161-162. Elementary French I and II
Both semesters. 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, except with Departmental consent.

Elementary French grammar. Emphasis is on the skills of speaking, oral and written comprehension, reading of simple texts and writing.

163-164. Intermediate French I and II
Both semesters. 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 162 or 173 or two years of high school French.

Continuation of 161-162. Review and extension of French grammar. Graded composition. Intensive and extensive reading. Intensive oral practice.

165-166. French for Reading Knowledge
Either semester. Three credits per course. Open only to seniors and graduate students. Not open for credit to undergraduates who have had FREN 161-162 or 172-173. May not be used to meet the undergraduate foreign language requirement or as a prerequisite for other French courses.

Basic French 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.

169. Studies in the French-Speaking World
Either semester. Three credits. Conducted in English.

Recent trends in French life. Selected materials to acquaint students with the French contribution to the changing face of modernity. Weekly topics include: popular culture, women in France, cultural myths, the Francophone world, regionalism, decolonization and racism, etc.

171. French Cinema
Either semester. 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.

172 through 175. Intensive French I-IV
Both semesters. Eight credits each semester. Two hours a day, four days a week, plus a 2-hour laboratory practice. Open only with consent of instructor.

Intensive coverage of two years in two semesters. French 172-173 (fall) covers the same material as 161-162; French 174-175 (spring) covers the same material as 163-164.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the the student's departure.

Special topics taken in a foreign study program.

210. French Art and Civilization
First semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Development of French history through the innovations of art; modern perspectives on historical and cultural events. Some lectures by and discussions with experts from Anthropology, Music, Political Science, History, and Art History. Strong audio-visual support.

211. Contemporary France
Second semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

An interdisciplinary course analyzing the politics, economics, social structures and cultural life of France today. France in relation to Western Europe as well as to a broader international framework. Some lectures by and discussions with experts from Anthropology, Music, Political Science, History, and Art History.

215. Practical Translation
Either semester. Three credits. Recommended preparation: FREN 267 or 268 or consent of instructor.

The course is primarily designed to acquaint students with the practical aspect of translating by working on a variety of articles on politics, science, business, and the arts.

216. Advanced Translation
Either semester. Three credits. Prerequisite: FREN 215 or consent of instructor. *Gordon, Melehy*

Translation of literary texts, comparative stylistic analysis, and creation of film subtitles in French and English. Study of important works of literary translation coupled with practical exercises.

217. Business French
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Study of commercial French style and documents. Designed primarily for students aiming at careers in multinational business and foreign service. Prepares the student for the level I and level II examinations administered by the Paris Chamber of Commerce.

218. Francophone Studies
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.

The literature and cultural and social issues of French-speaking countries in North Africa, West Africa, the Caribbean, the Pacific and of Francophone communities in the U.S.

220. Theater Studies
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

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.

221. Forms and Topics in French Fiction
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The study of a specific topic emerging from the French literary tradition. Questions of form, narrative and discourse in the novel, nouvelle and short story. Aesthetic categories such as realism, avant-garde, modernism.

222. Poetry
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Examples of poetry of different epochs ranging from the epic to the lyric to the limerick.

223. French Film and Theory
Either semester. Three credits. One class period. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.

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.

224. Issues in Cultural Studies, the Media, and the Social Sciences
Either semester. Three credits. Recommended preparation: FREN 211 or consent of instructor.

A selection of some of the most important world issues debated in France today in the writing of political figures, historians, sociologists, journalists, promoters of cultural activity.

230. The Middle Ages: Myths and Legends
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Founding myths and legends of Occidental culture, including a socio-cultural approach. Strong audio-visual component.

231. The Renaissance
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Important changes in France during the 16th century; parallel evolution in visual and performing arts.

232. French Classical Culture and Society
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Exploration of cultural and social issues through literature, performing arts, and paintings. Women, the Salons and social changes, discourses on love, Versailles and the Sun King, myths and tragedy, the birth of the modern subject.

233. The 18th Century: Travelers, Philosophers, and Libertines
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The most important texts and figures of the Enlightenment: Montesquieu, Voltaire, Diderot, and Rousseau.

234. Romanticism, Realism, Fin de Siècle: 19th-Century Literature
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The literary and artistic innovations that made France the center of 19th-century culture. The Fantastic, Realism, Naturalism, and Decadence.

235. French Modernity: 20th-Century Literature
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The literary and artistic trends marking Modern period of the 20th century. Surrealism, the Absurd, Existentialism, OuLiPo, Francophone literature.

250. Global Culture in French I
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

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.

251. Global Culture in French II
Either semester. Three credits. Recommended preparation: Four years of high school French or French 250 or consent of instructor.

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.

257. French Phonetics
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

A systematic study of the sounds of French with exercises in pronunciation and phonetic transcription.

258. French Language: From Old French to Modern Slang
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

French language through the ages, from the very first literary texts written in "Old French" to the modern variations corresponding to different linguistic levels.

261. From the Holy Grail to the Revolution: Introduction to Literature
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Texts from the Middle Ages to the 18th-Century, including Arthurian legend, Renaissance poetry, Classical theater, and philosophy of the Enlightenment.

262. From the Romantics to the Moderns: Introduction to Literature
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

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.

267. Grammar and Culture
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

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.

268. Grammar and Composition
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Advanced study of French texts and extensive written practice in a variety of forms ranging from compositions, essays, summaries and film reviews.

269. Advanced French Grammar
First or second semester. Three credits. Three hours per week. Recommended preparation: French 268 or equivalent.

Intensive course in French grammar through a variety of fictional and non-fictional texts.

270W. French Literature and Civilization in English
Either semester. Three credits.

Representative works of French literature, on a particular theme. How literary forms articulate the ideas and values of different periods.

272. Introduction to Literary Theory and Critical Writing
Either semester. Three credits. Recommended preparation: FREN 268 or consent of instructor.

Oral and written approaches to the study of texts, from, for example, thematic, structural, semiotic, sociological and psychoanalytic perspectives. Emphasis is on analysis and synthesis as well as developing critical writing abilities.

280. Women's Studies in French
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.

Women in French and Francophone literature. Women's writings. The development of French and Francophone feminisms. Contemporary issues concerning women in the French-speaking world.

281. Quebec Studies
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.

Study of French-Canadian society and its literary and artistic production. Special attention will be given to current issues.

282. French Moral Thought
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Study of moral thought in French prose from Montaigne to Rousseau.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Study 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 Modern and Classical Languages Departmental listing, College of Liberal Arts and Sciences.

General Studies (GS)

Bachelor of General Studies and Non-Degree:
Room 114, Merlin Bishop Center

For major requirements, see the College of Continuing Studies section of this *Catalog*.

200. BGS Continuous Registration
Either semester. No credit.

A course without academic credit for which BGS students must register when not taking credit courses at any college or university for use in the BGS program during a particular semester.

201. BGS External Study
Either semester. No credit. Open only with consent of BGS advisor.

A course without academic credit for which a BGS student must register when taking approved credit courses at another college or university for transfer back into the BGS program at the University of Connecticut.

240. Marketing Concepts and Practices into the 21st Century
Either semester. Three credits. Not applicable to SBA degree requirements.

Discussion of marketing concepts, processes, strategies and management within context of product/service organizations both in the profit and the non-profit sector whether large or small.

241. Financial Statement Analysis for Non-Financial Managers
Either semester. Three credits. Not applicable to SBA requirements.

Concepts and principles to enable non-financial managers to intelligently read and analyze financial reports.

296. BGS Internship
Either semester. Credits and hours by arrangement. Open only with consent of instructor and BGS mentor/advisor. With a change in content, may be repeated for credit.

297. BGS Summary Project
Either semester. Three credits. Open only with consent of BGS mentor/advisor.

A project demonstrating the student's educational accomplishments and ability to synthesize the disciplines studied into a coherent whole.

298. Variable Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor and BGS mentor/advisor. With a change in content, may be repeated for credit.

Geography (GEOG)

Head of Department: Professor Dean Hanink
Department Office: Room 422, College of Liberal Arts and Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

104. Introduction to Geography
(Formerly offered as GEOG 150.) Either semester. Three credits. Two class periods and one 1-hour discussion/laboratory period.

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.

105. Climate, Weather, and the Environment
Either semester. 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.

130. The City in the Western Tradition
(Also offered as URBN 130.) Either semester. 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.

160. World Regional Geography
Either semester. 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.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head or advisor may be required prior to the student's departure.

Special topics taken in a foreign study program.

200. Economic Geography
Either semester. Three credits. Open to sophomores.

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.

204. Global Issues in Human Geography
First semester. Three credits.

Geographic perspectives on global issues focusing on the relationships between human behavior/activities, and the physical, economic, and cultural environments.

205. Introduction to Physical Geography
Either semester. Three credits. Open to sophomores.

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.

210. Social Uses of Space
(Formerly offered as GEOG 211.) Second semester. Three credits.

Identification of social space (regions) at varying scales from neighborhood to national, and movement within and among these social spaces. Attention also to geographical aspects of social identity, including territoriality and community, and problems of locating social facilities.

210W. Social Uses of Space

215. Climate and Weather
First semester. Three credits.

Analysis of atmospheric processes giving rise to weather systems and climatic patterns. The dynamic integration of atmospheric systems is emphasized.

231. Location Analysis
Either semester. Three credits. Recommended preparation: GEOG 200.

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.

232. Principles and Applications of Physical Geography
First semester. Four credits. Recommended preparation: GEOG 205 or 215. Not open for credit to students who have passed GEOG 214 or 232W.

Laboratory and field study of the physical

environment. Techniques, methodologies, and basic concepts of physical geography.

233. Urban Geography
(Also offered as URBN 233.) First semester. Three credits. Not open for credit to students who have passed GEOG 212 or URBN 212.

Analysis of the growth, distribution, and functional patterns within and among Western cities. Application of urban geographical concepts to city planning problems.

234. The Geography of Economic Development
Second semester. Three credits. Prerequisite: GEOG 200.

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.

236. Human Modifications of Natural Environments
Either semester. Three credits. Not open for credit to students who have passed GEOG 206.

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.

237. Environmental Planning and Management
Second semester. Three credits. Recommended preparation: GEOG 236.

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.

238. Applied Population Geography
Either semester. Three credits. Recommended preparation: GEOG 104 (Formerly GEOG 150) or 200.

The study of the composition and growth of small-area populations with respect to public and private sector decision making in more developed societies. Basic concepts and techniques for analyzing local populations are presented in the context of significant population issues in the United States.

239. Geography of Asian American Experience
(Also offered as AASI 239.) First semester. Three credits.

Geographical perspective on issues facing Asian American communities: immigration, community formation, economic structure, race relations, and political participation. The changing dynamics of American ethnicity and study of the enthoburb. Diversity among Asian Americans, and comparison with other ethnic groups.

240C. Cartographic Techniques
Second semester. Four credits. One 2-hour lecture and two 2-hour laboratory periods. Open to sophomores.

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.

242Q. Geographic Data Analysis
Second semester. Four credits. Three class periods and one 2-hour laboratory. Recommended preparation: 100-level STAT.

An introduction to the use of quantitative methods in conducting research, with particular emphasis on the processing and analysis of geographic data.

245V. Introduction to Computer Assisted Cartography (Q,C)
Second semester. Four credits. Three class periods and one 2-hour Laboratory. Recommended preparation: GEOG 242 or equivalent.

Introduction to numerical cartography and a review of standard computer-assisted mapping programs. Emphasis is given to data compilation for machine presentation of cartographic information. Exercises will introduce students to a variety of input and output display media.

246C. Introduction to Geographic Information Systems
First semester. Four credits. One 2-hour lecture and two 2-hour laboratory periods. Recommended preparation: GEOG 242.

The study of the 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.

248C. Applications of Geographic Information Systems
Second semester. Four credits. One 2-hour lecture and two 2-hour laboratory periods. Prerequisite: GEOG 246 or consent of the instructor. Not open for credit to students who have passed GEOG 247.

Applications of geographic information systems. Particular attention to land use planning and resource management.

249. Selected Topics in Geographic Information Systems
Either semester. Two credits. May be repeated once for credit with change in content. Recommended preparation: GEOG 242Q.

Selected problems in geospatial decisionmaking and the most commonly used GIS functions, databases, and analyses for decision support.

252. The American Landscape
Second semester, alternate years. Three credits.

The changing attitudes toward the American environment from pre-Columbian times to the twentieth century, and the consequences of those attitudes for the development of contemporary landscapes in the United States.

252W. The American Landscape

253. Geography of Russia and Eastern Europe
First semester, alternate years. Three credits.

Interactive study of geographic patterns in Russia, Eastern Europe and Central Asia including analyses of climate and resources; population, culture, and urbanization; economic development; and political organization in an historical and contemporary framework.

253W. Geography of Russia and Eastern Europe

254. Contemporary Europe: A Geography
Either semester. Three credits.

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.

255. Geography of Latin America
Second semester. Three credits.

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.

255W. Geography of Latin America

258. Geography of Africa
Second semester. Three credits.

Problems of economic, political, social and spatial integration in Africa. Focus on past and contemporary patterns of change (including associated conflicts) examined within the context of the broader global economy.

274. Urban and Regional Planning
Either semester. Three credits. Recommended preparation: GEOG 200 or consent of instructor. Open only with consent of instructor.

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.

280W. Geographical Analysis of Urban Social Issues
Second semester. Three credits. Recommended preparation: GEOG 210 or 233.

Analysis of socioeconomic patterns and issues within urban areas, with emphasis on applied geographical research. Policy implications are stressed.

282V. Computer Applications in Spatial Analysis (Q,C)
First semester, alternate years. Three credits. Recommended preparation: GEOG 242 or equivalent.

An advanced seminar in the design of computer programs for solving problems in spatial analysis. Students receive a thorough knowledge of Fortran and related graphic subroutine libraries necessary to implement individual projects.

284W. Advanced Economic Geography
Second semester. Three credits. Prerequisite: GEOG 200 or consent of instructor.

Problems involved in analyzing spatial variations of selected economic variables. Emphasis on location theory with view toward integrating geographic viewpoint and economic concepts.

285W. Advanced Physical Geography
Second semester, alternate years. Three credits. Prerequisite: GEOG 205 or consent of instructor.

Problems involving the application of physical processes in our changing environment.

286W. Environmental Evaluation and Assessment
First semester. Three credits. Recommended preparation: GEOG 205 or 236.

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.

288W. Regional Development and Policy
First semester. Three credits. Prerequisite: GEOG 200 or consent of instructor.

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of Department Head required prior to the student's departure.

Special topics taken in a foreign study program.

294. Internship in Geography: Seminar
Either semester. Credits, not to exceed three, by arrangement. Prerequisite: Consent of instructor. Corequisite: GEOG 295. *Hanink*

Description, analysis, and evaluation of the fieldwork portion (GEOG 295) of the internship. Written reports are required.

†295. Internship in Geography: Field Study
Either semester. Credits, not to exceed three, by arrangement. Hours by arrangement with hosting agency, not to exceed 16 hours per week. Prerequisite: Consent of instructor. Corequisite: GEOG 294. May not be repeated for credit.

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.

296. Senior Thesis
Either semester. Three credits. Hours by arrangement. Prerequisite: One advanced seminar in geography and/or 3 credits of independent study in geography. Open only with consent of instructor and department head. Not open for credit to students who have passed GEOG 297.

296W. Senior Thesis

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

299. Independent Study
Either or both semesters. Credits, not to exceed 6, and hours by arrangement. May be repeated for credit.

Geology and Geophysics (GEOL)

Head of Department: Associate Professor Timothy Byrne
Department Office: Beach Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

Geology

101. Introductory Environmental Geology
Either semester. Three credits. Not open for credit to students who have passed GEOL 102.

Designed for the nonscience major. Applied geologic principles and processes. Environmental hazards, mineral resources and water problems affecting land use.

102. Introductory Geology
Either semester. Four credits. Three class periods and one 3-hour laboratory period.

Description and analysis of the physical, chemical and biological processes that continually modify the shape of the earth's surface and the structure and composition of its interior. Methods of interpreting earth history from evidence now preserved in rocks. Field trips are held during several of the regular laboratory periods.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

111. Age of the Dinosaurs
Either semester. Three credits. *Thorson*

A reconstruction of the Mesozoic world of the dinosaurs as interpreted from geological and paleontological evidence. Course includes fundamental concepts of stratigraphy, historical geology, paleoclimatology, and paleontology.

205. Current Issues in Environmental Science
(Also offered as EEB 205.) Second semester, alternate years. Three credits. Open to honors students. Open to non-honors students only with consent of instructor. Recommended preparation: 8 credits of college level science. *Simon, Thorson*

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.

212. Field Geology
Second semester. Six credits. Four weeks intensive study following final examination period. Prerequisite: GEOL 102. *Gray, Philpotts, Steinen*

Field methods for geological and environmental geoscience studies, including electronic surveying techniques, aerial photograph interpretation, geological mapping, description and measurement of sedimentary sections, techniques of underground mapping, and geophysical surveying.

213. Spring Field Trip
Second semester. Variable credits. Prerequisite: GEOL 250, 251, 252, and 253, one of which may be taken concurrently.

Spring field trip during spring break, and supporting research. First 7 weeks: background readings from primary literature and secondary literature. Seven weeks following trip: supervised laboratory research using field samples. One or more short research papers and presentation to the department.

214Z. Igneous Petrology (Q,W,C)
Second semester, alternate years. Four credits. Three class periods and one 3-hour laboratory. Prerequisite: GEOL 253. Recommended preparation: MATH 114 or 116. *Philpotts*

Introduction to rocks and the physical and chemical principles governing their formation. Fluid mechanics of magmas, heat transfer, thermodynamics, phase equilibria, isotope geochemistry, and the relation of magmatism to plate tectonics. Optical microscopy, x-ray fluorescence, and electron microprobe analysis. Preparing a paper suitable for publication in a scientific journal.

215V. Metamorphic Petrology (Q,C)
Second semester, alternate years. Three credits. Two class periods and one 3-hour laboratory. Prerequisite: GEOL 253. Recommended preparation: MATH 114 or 116. *Joesten*

Mineralogical, chemical and textural features of metamorphic rocks in the physical conditions and dynamic processes operating in the Earth's crust. Thermodynamic description of phase equilibria in fluid-rock systems. Kinetics, mass- and energy-transport in metamorphic processes. Petrographic, and X-ray analytical techniques.

217. Advanced Structural Geology
Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GEOL 252. Recommended preparation: first year physics, MATH 227. *Crespi*

Mechanics of rock deformation. Material behavior of rocks and their geometry during orogenesis, with applications of finite strain analysis, and advanced geometric techniques. One or more weekend field trips may be required.

219. Invertebrate Paleontology
First semester, alternating years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: GEOL 250.

The systematics, anatomy, evolutionary patterns and ecology of the major groups of invertebrate fossils.

220. Principles of Geomorphology
First semester. Three credits. Two 1-hour class periods and one 3-hour laboratory (occasionally used for field trips). Prerequisite: GEOL 251. *Thorson*

Interpretation of landscape genesis with an emphasis on causal processes and paleoenvironmental implications.

223. Glacial Processes and Materials
Second semester. Three credits. One 2-hour class period and one 3-hour laboratory (for lab exercises and field trips). Recommended preparation: GEOL 251. *Thorson*

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.

227. Polarized Light Microscopy
First semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GEOL 253. *Gray*

Principles of optical crystallography. Optical properties of crystals in both transmitted and reflected light. Relationship between crystallographic and optical directions. Application of polarized light microscopy to petrofabric analysis.

229. Engineering and Environmental Geology
Second semester. Three credits. Recommended preparation: GEOL 101 or 102. *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 geology and engineering majors.

234C. Introduction to Ground-Water Hydrology
First semester. Four credits. Three class periods and one 2-hour laboratory for which occasional field trips will be substituted. Prerequisite: MATH 114 or 116 and GEOL 102, or consent of instructor. *Robbins*

Basic hydrologic principles with emphasis on hydrologic and geologic relationships, use of quantitative techniques.

235. Chemical Hydrogeology
Second semester. Four credits. Three hours lecture and three hours laboratory. Prerequisite: GEOL 234 and CHEM 127-128. *Gray, Robbins*

Chemical processes controlling the composition of unpolluted and polluted natural waters. Field and laboratory analytical techniques. Equilibria, reaction and transport models of the chemical interactions groundwater and the media through which it travels. Applications of geochemical processes and principles understanding to the mitigation of environmental problems.

240. Sedimentation and Stratigraphy
First semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GEOL 251.

Steinen

Composition, deposition and diagenesis of marine and non-marine sediments; stratigraphic methods; dynamics of sediment incorporation into the stratigraphic record. An examination of recent sedimentary sequences as a key to understanding ancient sedimentary environments. One or more weekend field trips may be required.

250. Earth History
Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GEOL 102. Required of all Geology majors.

Reconstruction of earth history from geological data. Processes and events responsible for the stratigraphic record, and techniques used to decipher it. Includes an integrated survey of earth history. One or more weekend field trips may be required.

251. Earth Surface Processes
Both semesters. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GEOL 102. Required of all Geology majors.

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.

252. Earth Structure
First semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: GEOL 102. Required of all Geology majors.

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.

253. Earth Materials
First semester. Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: GEOL 102. Recommended preparation: CHEM 127-128. Required of all Geology majors.

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.

261. Plate Tectonics
Second semester. Three credits. Prerequisite: GEOL 250 and 252. *Byrne*

Plate tectonics: geomagnetic reversals; sea-floor spreading; description of plates, their motions, generation, destruction, and collisions; possible driving forces; evidence for ancient plates.

†293. Internship in Geology and Geophysics - Field Study
Either semester. One to three credits. May not be repeated. Internship contract must be formulated before internship work begins. Students with summer internship must preregister for GEOL 293 for the fall semester. Prerequisite or corequisite: GEOL 250, 251, 252, and 253. Must be taken concurrently with GEOL 294; no credit will be given for one course without the other. Credits earned in GEOL 293 cannot be included in the 24 or 36 credits of 200-level Geology and Geophysics courses needed to meet the requirements of the B.A. or B.S. degree, respectively.

An internship program under the direction of Geology and Geophysics 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.

294. Internship in Geology and Geophysics - Research Paper
Either semester. One credit. May not be repeated. Students with summer internship must preregister for GEOL 294 for the fall semester. Prerequisite or corequisite: GEOL 250, 251, 252, and 253. Must be taken concurrently with GEOL 293; 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

296. Undergraduate Research in Geology and Geophysics
Either semester. Three credits. Hours by arrangement. 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 geology and geophysics. The student is required to give an oral presentation in a departmental seminar at the end of the semester.

297W. Undergraduate Research Thesis in Geology and Geophysics
Either semester. Three credits. Hours by arrangement. Prerequisite: GEOL 296. Open only with consent of instructor.

Writing of a formal thesis based on independent research conducted by the student.

298. Special Topics
Either semester. Credits and hours by arrangement. May be repeated for credit. Open only with consent of instructor.

Investigation of special topics related to, but not ordinarily covered in the undergraduate offerings; emphasis on laboratory projects.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Open only with consent of instructor.

Geophysics

264Q. Physics of the Earth's Interior
First semester. Three credits. Prerequisite: PHYS 132 or 142, CHEM 128, MATH 114 or 116. *Cormier*

The composition, structure, and dynamics of the earth's core, mantle, and crust; seismic waves, earthquakes, the earth's magnetic field, geochronology; radioactive heating, and the earth's internal heat.

266Q. The Earth, Moon, and Planets
Second semester. Three credits. Prerequisite: PHYS 132 or 142, CHEM 128, and MATH 210 (or 211 or 221), or consent of instructor. *Cormier*

The earth's gravity field and figure of the earth; wobbles of the earth's axis, the earth-moon system and tidal friction; orbital paths of planets, moons, and artificial satellites; compositions of planets and moons; development of the solar system.

267Z. Geophysical Methods I (Q, W, C)
First semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHYS 123 or 132 or 142 or 152 and MATH 114 or 116.

Principles and applications of seismic methods of exploring the interior of the earth; principles of heat flow in the earth.

268Z. Geophysical Methods II (Q, W, C)
Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHYS 123 or 132 or 142 or 152 and MATH 114 or 116.

Principles and applications of electric, gravimetric and magnetic methods of exploring the interior of the earth.

German (GERM)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical Languages Department listing in this *Catalog* for requirements for Majors in German.

111 through 114. Special Intensive Course
First and second semesters. Eight credits per semester. Two hours a day, four days a week, plus a 2-hour laboratory practice. Open only with consent of instructor. Not open for credit to students who have passed GERM 131 through 134.

Intensive coverage of two years in two semesters. German 111-112 (fall) covers same materials as 131-132, Elementary German; German 113-114 (spring) covers same material as German 133-134, Intermediate German.

131-132. Elementary German I and II
Both semesters. 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, except with Departmental consent. Not open for credit to students who have passed GERM 111-112.

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.

133-134. Intermediate German I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: GERM 132 or two years of high school German. Not open for credit to students who have passed GERM 113-114.

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.

145-146. German Readings in the Sciences and Humanities
Both semesters. Three credits each semester. Not open for credit to students who have passed GERM 131-132 or equivalent. May not be used to meet the undergraduate language requirement.

Basic grammar and intensive practice in reading expository prose in the natural sciences, social sciences, and humanities. Intended for students desiring to learn German as a tool for research. Will satisfy ACS and Ph.D. reading requirements.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

153. Active Language Skills I
First semester. Two credits. Two class periods. Corequisite or prerequisite: GERM 133. Practice in audio-lingual skills. Emphasis on everyday vocabulary. Recommended for students intending to travel or study abroad.

154. Active Language Skills II
Second semester. Two credits. Two class periods. Corequisite or prerequisite: GERM 134.

Additional practice in developing communicative abilities in a German-speaking country. Recommended for students intending to travel or study abroad.

171. The German Film
Either semester. 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 twenties to the present. Introduction to film history, analysis and interpretation of films, outside readings, term papers.

190. German Folk Songs
Either semester. One credit. One 2-hour class period. May not be used to meet the undergraduate language requirement. May be repeated once for credit.

German folk songs and Christmas carols from the 15th to the 20th Century. Emphasis on correct pronunciation. Occasional performances on and off campus.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student's departure.

Special topics taken in a foreign study program.

200. Intensive Language Practice
Second semester. Three credits. Hours by arrangement. Prerequisite: GERM 133 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.

201-202. Composition
Both semesters. Three credits each semester. Prerequisite: GERM 134 or three years of German in high school. May only be used for transfer credit or for study abroad. Not open for credit to students who have passed GERM 233-234.

Intensive grammar review and extensive practice in writing.

204-205. Conversation
Both semesters. Three credits each semester. Prerequisite: GERM 134 or three years of German in high school. May only be used for transfer credit or for study abroad. Not open for credit to students who have passed GERM 233-234.

Intensive oral practice based primarily on cultural readings.

220. German Recitation in Applied Mechanics
First semester. One credit. One class period. Prerequisite or corequisite: GERM 133 or equivalent.

Technical German in engineering through the basic concepts and problem solving techniques used in applied mechanics.

221. Introduction to the Sciences in German
Second semester. One credit. One class period. Prerequisite or corequisite: GERM 134, CHEM 128Q, and PHYS 152Q 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.

222. Fields of Technology
First semester. One credit. One class period. Prerequisite: GERM 220 and GERM 221.

A series of lectures and discussion periods on special topics in science and engineering. Open only with consent of instructor.

231-232. Commercial German
Both semesters. Three credits each semester. Prerequisite: GERM 134 or equivalent.

Practice in reading and writing using the specialized vocabulary and expressions of German business language. Preparation for the Goethe Institute's test of commercial German, the Wirtschaftsprüfung Deutsch International.

233-234. Advanced Language Skills I and II
Both semesters. Three credits each semester. Prerequisite: GERM 134 or equivalent. Not open for credit to students who have passed GERM 201-202 or GERM 204-205.

Extensive practice in oral and written German, based on cultural materials. Emphasis on vocabulary expansion, active use of language for self-expression and communication, grammatical accuracy and reading strategies. Designed in relation to and preparation for upper-level German courses.

240W. German Literature in Translation
Either semester. Three credits. May not be used to satisfy the undergraduate foreign language requirement or the major requirement in German.

Reading and analysis of significant works of German literature from one or more periods.

243-244. Advanced Conversation and Composition I and II
Both semesters. Three credits. Prerequisite: GERM 234 or the equivalent or consent of instructor.

Practice in perfecting both oral and written expression through discussions, presentations and compositions on assigned topics.

251. German Culture and Civilization
Either semester. Three credits. Conducted in English. Not open for credit to students who have passed GERM 250.

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.

252. Studies in Early German Literature
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.

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.

253. Studies in German Literature Around 1800
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.

Study of a cohesive group of texts that mark the periods of Enlightenment, Storm and Stress, Classicism and Early Romanticism. Emphasis may vary. Attention will be given to the relevant socio-historical context and to the visual and performing arts.

254. Studies in 19th Century German Literature
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.

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.

255. Studies in 20th Century German Literature
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.

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.

260. Women's Studies in German
Either semester. Three credits. Prerequisite or corequisite: GERM 234 or consent of instructor.

Women in the literature of the German-speaking countries. Women's writings. The development of German feminism. Contemporary gender issues in the German-speaking countries.

271. Principles of Translation I
First semester. Three credits. Prerequisite: GERM 234 or equivalent. Open only to juniors and seniors, with consent of instructor. *Wright*

Theory and practice of translating and interpreting written and oral materials from German into English.

280W. Introduction to Germanic Linguistics
First semester. Three credits. Prerequisite: GERM 132 or LING 202 or consent of instructor. *McCormick*

A study of the relationship among modern and historical Germanic languages. Lectures, readings, and class discussions in English.

281. German Film and Culture
Either semester. Three credits. Prerequisite or corequisite: GERM 233.

Critical analysis of artistic issues in writing screenplays and making movies. Dynamic interplay between German film, the other arts, and their socioeconomic context. Taught in German.

282. Connecticut and the Global Market: The German-Speaking Countries
First semester. Three credits. Taught in English.

Cultural aspects of international business. Lectures by speakers from the German-speaking countries and representatives of institutions and companies related to those countries. Discussion and analysis of the lectures.

285. Topics in German Culture
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor. 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.

290. German Language Practicum
Either semester or summer. 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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of advisor.

Special topics taken in a foreign study program.

295. German Play Production
Second semester. Three credits. Hours by arrangement. Prerequisite: GERM 111 or 131 and consent of instructor. May not be used to meet the undergraduate foreign language requirement. With a change in topic, this course may be repeated for credit.

Extensive and intensive study, discussion and interpretation of a German drama, followed by casting, rehearsals and eventual performance. Students are given both on-stage and off-stage assignments and responsibilities. Term paper.

296. German Seminar
Either semester. Credits and hours by arrangement. 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.

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

German Study 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.

Health Sciences (HESC)

Head of Department: Dean Joseph Smey
Department Office: Room 227A, Koons Hall

298. Special Topics
Either semester and summer session. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Investigation of special topics in health sciences that are related to basic core interdisciplinary areas.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement: not to exceed four credits. 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 subject in the field of health sciences.

Health Systems Management (HSMG)

Director: Jeffrey A. Kramer
Center Office: Room 315, School of Business Administration

For major requirements, see the School of Business Administration section of this *Catalog*.

Health Systems Management courses are open to juniors and seniors only.

280. Introduction to Health Care Management
First semester. Three credits.

This course introduces basic concepts, principles, and practices associated with the health care delivery system in the United States. The course will examine how this system is organized, and discuss the major issues related to the provision of health care, from both a business and social science perspective. Emphasis will be placed on understanding the components and features of the health care delivery system in the United States as it is developed and applied through a managed care organizational framework.

281. Health Care Analysis
Second semester. Three credits. Prerequisite: OPIM 210 and HSMG 280, or consent of instructor.

This course deals with the application of economic theory, health services research, policy development and analysis, operations research, and management science techniques for analyzing and evaluating the performance of health care services and organizations.

282. Health Care Information Technology
First semester. Three credits. Prerequisite: HSMG 281 and 290.

This course provides an introduction to information technology (IT) within the context of health care planning, managerial decision-making and strategic analysis. The course examines how health care organizations apply information technologies in decision-making and considers factors that influence investments in healthcare IT. Students will learn to define appropriate IT terms, fit IT into an appropriate marketing plan, describe the IT project lifecycle, and identify key IT issues within the major healthcare markets. Topics include business model development, branding of services, and decision support.

283. Advanced Topics in Health Care Management
Second semester. Three credits. Prerequisites: HSMG 280, 281, and 290.

This course provides health care management students with opportunities to apply tools and concepts learned throughout the program. Through real world consulting projects and hands-on projects, students develop and refine their skills in project organization and management, analysis, reporting, and presentation. Project areas include applications that integrate all business disciplines.

285. Clinical and Social Issues in Health Care
First semester. Three credits.

This course 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.

290W. Internship in Health Care Management
Either or both semesters. Six credits. Hours by arrangement. Prerequisite: OPIM 203 and 204, senior standing, and consent of instructor. It is recommended that students complete OPIM 210 prior to the internship.

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.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. With a change in content, may be repeated for credit.

Classroom course in special topics in health systems management as announced in advance for semester.

299. Independent Study for Undergraduates
Either or both semesters. Credits by arrangement; not to exceed six in any semester. Open only with consent of instructor.

Individual study of special topics in health systems management as mutually arranged between a student and an instructor.

Hebrew (HEB)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Departmental Handbook for courses being offered and further description of these courses.

149-150. Elementary Biblical Hebrew I and II
Both semesters. 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, except with Departmental consent.

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.

151-152. Elementary Modern Hebrew I and II
Both semesters. 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, except with Departmental consent.

Elementary Hebrew grammar. Drill in pronunciation. Reading of simple texts. Practice in easy conversation.

153-154. Intermediate Hebrew I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: HEB 152 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.

**** 193. Foreign Study**

251-252. Advanced Hebrew
Both semesters. Three credits each semester. Prerequisite: HEB 154 or consent of instructor.

Further grammar study. Practice in composition involving the use of everyday vocabulary and idiomatic expressions. Readings in Hebrew culture and history.

** See description at end of Hebrew section.

**** 293. Foreign Study**

**** 295. Variable Topics**

**** 298. Special Topics**

**** 299. Independent Study for Undergraduates**

Hebrew Civilization

(in English)

None of the following courses may be used to meet the foreign language requirement.

101. The Land of Israel from Biblical Times to the Present
(Also offered as JUDS 101.) Either semester. Three credits. Offered in alternate years. *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.

103. Literature and Civilization of the Jewish People
(Also offered as JUDS 103.) Either semester. Three credits. *Miller*

The major concepts, personalities and literary works of the Hebraic tradition from the Biblical and Talmudic periods to the present.

104. Modern Jewish Thought
(Also offered as JUDS Studies 104.) Second semester. Three credits.

Nationalism, culture, ethics and philosophy in the writings of the major Jewish thinkers from Spinoza to the present. Emphasis will be placed on the work of Moses Mendelssohn, Nachman Krochmal, Ahad Haam, Hermann Cohen, Franz Rosenzweig, Martin Buber and Mordecai Kaplan.

**** 193. Foreign Study**

201. Selected Books of the Hebrew Bible
(Also offered as JUDS 201.) Either semester. Three credits. Prerequisite: INTD 294 or HIST 213 or HEB 103, which may be taken concurrently, or consent of instructor. A knowledge of Hebrew is not required. May be repeated with change of content and consent of instructor. *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.

202. Sects and Movements in Judaism
(Also offered as JUDS 202). Either semester. Three credits. Offered in alternate years.

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.

203. The Holocaust
(Also offered as JUDS 203). Either semester. Three credits.

A discussion of the Holocaust to be preceded by an examination of the roots of anti-semitism and its effect upon the Jewish experience. Special emphasis will be given to the impact of the Holocaust on Jewish and Christian thought.

218. Palestine Under the Greeks and Romans
(Also offered as CAMS 256, HIST 218, and JUDS 218). Either semester. Three credits. Recommended preparation: HIST 213 or 214 or 216 or INTD 294 or HEB 202. 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.

277. The Culture of East European Jewry
First semester. Three credits. The life, folklore, literature and thought of the Jews of Poland and Russia from the sixteenth to the twentieth century. The distinctive contributions of both the Jewish little-town *(shtetl)* and the larger urban community will be explored.

279. Literature of Modern Israel
Second semester. Three credits.

The major themes and literary achievements of modern Hebrew writing. Authors to be emphasized include Feierberg, Bialik, Brenner, Berdichevsky, Tschernichowsky, Agnon, Greenberg, and Alterman.

**** 293. Foreign Study**

**** 295. Variable Topics**

**** 298. Special Topics**

**** 299. Independent Study for Undergraduates**

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193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the student's departure.

Special topics taken in a foreign study program.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Study 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 archaelogical excavation at Sepphoris during the month of June. This is a six-credit program.

*** See description at end of Hebrew section.

History (HIST)

Head of Department: Professor Altina L. Waller
Department Office: Room 121, Wood Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

100. The Roots of the Western Experience
Either semester. 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.

101. Modern Western Traditions
Either semester. Three credits.

History of political institutions, economic systems, social structures, and cultures in the modern Western world.

106. The Roots of Traditional Asia
Either semester. 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.

108. Modern World History
Either semester. Three credits. *Omara-Otunno*

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.

121. Women in History
Either semester. Three credits. *I. Brown*

The historical roots of challenges faced by contemporary women as revealed in the European and/or American experience: the political, economic, legal, religious, and family life of women.

198. Varieties of History
Either semester. Three credits. With a change in content may be repeated for credit.

A major topic in history through contemporary sources and historical interpretations.

200W. Senior Thesis in History
Either semester. Three credits. Hours by arrangement. Open only with consent of instructor and Department Head. Independent study authorization form required. Prerequisite: three credits of independent study and/or an advanced seminar.

201. Supervised Field Work
Either semester. Credits up to 12. No more than six credits will count toward the department's major requirements. Hours by arrangement. Open only with consent of Department Head.

Internship in applied history.

203W. History and the Historian
First semester. Three credits. *Cox, Langer*

Major historical theories and writings from the ancient world to the modern era. For History Honors and other qualified students.

204. Medieval Islamic Civilization to 1700
First semester. Three credits. Recommended preparation: HIST 100 or 101. Open to sophomores. *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.

205. The Modern Middle East from 1700 to the Present
Second semester. Three credits. Open to sophomores. *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.

206. Introduction to the History of Science
(Also offered as SCI 206.) First semester. Three credits. Open to sophomores. This course may be used only once to meet the distribution requirement. *Roe*

Rise and development of scientific inquiry; case studies designed to illustrate problems and methods in the study of the history of science.

207W. Science and Social Issues in the Modern World
Second semester. Three credits. *Roe*

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.

208W. Darwinism in the Modern World
First semester. Three credits. *Roe*

Interaction of science, ideology, and world view in the development of evolutionary biology from Darwin to the present, including interrelations of genetics, eugenics, ecology, and sociobiology.

209. History of the Family
(Also offered as HDFS 279.) Either semester. Three credits. Not open for credit to students who have passed HDFS 279. *Brown*

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.

210. History of Women and Gender in Early America
(Also offered as WS 210.) Either semester. Three credits. Not open to students who have taken HIST 202 or WS 202 before fall 1998. *Dayton*

Compares the evolving gender systems of native American groups, transplanted Africans, and immigrant Europeans up to the early Nineteenth Century. Topics include women's work, marriage and divorce, witch-hunting, masculinity, and women's Revolutionary War roles. For U.S. women's history, 1790 to present, see History 215.

211. The Historian's Craft
Either semester. Three credits. Open to sophomores. Learning critical reading, thinking and writing skills by interpreting a variety of primary sources.

212W. Near Eastern Pre-History
(Also offered as ANTH 257W.) Second semester. Three credits. Not open for credit to students who have passed ANTH 257.

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.

213. Ancient Near East
(Also offered as CAMS 253.) Either semester. 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.

214. Ancient Greece
(Also offered as CAMS 254.) Either semester. 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.

214W. Ancient Greece

215. History of Women and Gender in the United States, 1790-Present
(Also offered as WS 215.) Either semester. Three credits. Not open for credit to students who have taken HIST 202 or WS 202 before fall 1998. *Porter-Benson*

Women and gender in family, work, education, politics, and religion. Impact of age, race, ethnicity, region, class, and affectional preference on women's lives. Changing definitions of womanhood and manhood.

216. Ancient Rome
(Also offered as CAMS 255.) Either semester. 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.

216W. Ancient Rome

217. World of Late Antiquity
(Also offered as CAMS 243.) Either semester. 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.

218. Palestine Under the Greeks and Romans
(Also offered as CAMS 256, HEB 218, and JUDS 218.) Either semester. Three credits. Recommended preparation: HIST 213 or 214 or 216 or INTD 294 or HEB 202. *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.

219. Early Middle Ages
First semester. 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.

220. The High Middle Ages
Second semester. 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.

221. Modern China
Either semester. Three credits. *Wang*

Survey of patterns of modern China since 1800. Topics will include reforms and revolutions, industrialization and urbanization, and family and population growth.

222. History of Pre-Colonial Africa
First semester. Three credits. *Omara-Otunnu*

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.

223. History of Modern Africa
Second semester. Three credits. *Omara-Otunnu*

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.

224. History of Pan-Africanism
Second semester. Three credits. Recommended preparation: At least one of the following, HIST 222, 223, 238, or 246. *Omara-Otunnu*

The development of ideas of Pan-Africanism, beginning with the proto-Pan-Africanists in the nineteenth century; examination of the linkages between those ideas in Africa and the evolution of Pan-Africanism as a movement in the African Diaspora.

225. History of War in the Modern World
Either semester. Three credits. Recommended preparation: HIST 101. Open to sophomores.

Selected topics analyzing the interactions of warfare, military theories and practice with social, economic and technological developments since 1815.

226. Contemporary World Issues
Either semester. Three credits. Open to sophomores.

The historical background of, and approach to, a number of the most critical problems confronting the world since World War II.

227. Social and Cultural History of Connecticut and New England
Either semester. Three credits. *Dayton, Brown*

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.

228. Europe in the Nineteenth Century
First semester. Three credits. Open to sophomores. Recommended preparation: HIST 101. *Coons*

This course 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.

228W. Europe in the Nineteenth Century

229. Europe in the Twentieth Century
Either semester. Three credits. Open to sophomores. Recommended preparation: HIST 101.

Twentieth Century Europe and its world relationships in the era of two world wars, the great depression, and the cold war.

229W. Europe in the Twentieth Century

231. American History to 1877: A Survey
Either semester. Three credits. Open to sophomores.

Political, social, and economic development of the American people through post-Civil War Reconstruction.

231W. American History to 1877: A Survey

232. American History Since 1877: A Survey
Either semester. Three credits. Open to sophomores.

Political, social, and economic development of the American people from Reconstruction to the present.

232W. American History Since 1877: A Survey

233. Social and Intellectual History of the United States through the Civil War
First semester. Three credits. Prerequisite: HIST 231 or consent of instructor. *Brown*

This course stresses the impact of political, economic, and social changes on American thought.

234. American Thought and Society Since the Late Nineteenth Century
Second semester. Three credits. Recommended preparation: HIST 232.

The interaction of popular ideas and formal thought with society in the United States during a time of worldwide crises and unrest. Social Darwinism, Populism, reformism, racism, radicalism, liberalism, conservativism, and other idealogies and movements.

235. Constitutional History of the United States
Either semester. Three credits. Recommended preparation: HIST 231.

The Constitution and the Supreme Court in relation to the political, economic, and intellectual history of the United States.

236. Civil War America
Second semester. Three credits. Recommended preparation: HIST 231. *Waller*

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 1830s to the 1880s.

237. The Indian in American History
Either semester. Three credits. Recommended preparation: HIST 231. *Shoemaker*

Examination of the cultural and political/military interaction of Indians and Europeans in America from the early colonial period.

238. African American History to 1865
Either semester. 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.

238W. African American History to 1865

239. History of Connecticut
First semester in odd-numbered years. Three credits. Recommended preparation: HIST 231 or 232. Either 239 or 227, but not both, may be counted for credit toward the History major.

A survey of Connecticut's history from 1633 to the present from a constitutional and political perspective.

240W. History Workshop: Topics in American Society and Culture
Either semester. Three credits. Open to sophomores. Recommended preparation: HIST 231 or 232.

Techniques of primary historical research based on collaborative research and writing on a topic selected by the instructor. With a change in content, may be repeated for credit.

241. The History of Urban America
(Also offered as URBN 241.) Either semester. Three credits. Not open for credit to students who have passed URBN 241. *Stave*

The development of Urban America with emphasis on social, political, physical, and environmental change in the industrial city.

241W. The History of Urban America
(Also offered as URBN 241W.)

242. Work and Workers in American Society
Either semester. Three credits. *Porter-Benson*

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.

243. The Establishment of the American Colonies
First semester. Three credits. Recommended preparation: HIST 231. *Dayton, Shoemaker*

Examines the context in which Europeans undertook settlement of North America, and the nature of the Indian response. Emphasis on the development of social, political, and religious institutions in the seventeenth century and in the increasingly ethnically and racially mixed cultures of the eighteenth century.

243W. The Establishment of the American Colonies

244. The American Revolution
Second semester. Three credits. Recommended preparation: HIST 231 or 243. *Brown*

Creation of the United States of America from the beginnings of the independence movement through the adoption of the Constitution and Bill of Rights.

246. African American History Since 1865
Either semester. 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.

246W. African American History Since 1865

247. Immigrants and the Shaping of American History
Either semester. Three credits. Recommended preparation: One course in American History.

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."

248W. Main Currents in American Law
Second semester. Three credits. Consent of instructor required. *Dayton*

Seminar, limited to fifteen, emphasizing class participation. Themes from 18th to 20th century include: the Americanization of English common law; developments in legal education and law practice; legal ideology from sociological jurisprudence to legal realism to critical legal studies.

249. Rise of U.S. Global Power
Either semester. Three credits. Recommended preparation: HIST 231 or 232. *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.

250. Byzantium
Either semester. Three credits. *Langer*

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.

251. Medieval and Imperial Russia to 1855
First semester. Three credits. *Langer*

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.

252. History of Russia Since 1855
Second semester. Three credits. Recommended Preparation: HIST 251. *Langer*

Continuation of History 251. Late imperial Russia, the former Soviet Union, and contemporary Russia.

254W. The Habsburg Monarchy and Its Peoples, 1740-1918
Second semester. Three credits. Recommended preparation: HIST 101. *Coons*

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.

255. Germany from the Reformation to 1815
First semester. Three credits. *Bergmann*

A political and cultural survey of German history with topical emphasis on the Reformation, the religious wars, the Age of Enlightenment, the rise of Brandenburg-Prussia, Germany during the revolutionary era.

255W. Germany from the Reformation to 1815

256. Germany Since 1815
Second semester. Three credits. *Bergmann*

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.

258. Intellectual and Social History of Europe in the Nineteenth Century
First semester. Three credits. *Bergmann*

The thought and feeling of Europeans in their social context.

258W. Intellectual and Social History of Europe in the Nineteenth Century

259. Intellectual and Social History of Europe in the Twentieth Century
Second semester. Three credits. *Bergmann*

A continuation of HIST 258.

259W. Intellectual and Social History of Europe in the Twentieth Century

261. English History to 1603
First semester. Three credits. Open to sophomores. *Olson*

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.

262. History of Modern England
Second semester. Three credits. Open to sophomores. *Watson*

Cultural, political, economic, and intellectual development of modern Britain, with special emphasis on changing ideas of national identity.

264. Social and Economic History of Modern Britain
First semester. Three credits. *Watson*

The change from an agrarian to an industrial society.

265. History of Ireland
Either semester. Three credits. *Canning*

History of Ireland, with emphasis on the modern period. The rise of Irish nationalism, the Irish Literary Revival, and the problems of Northern Ireland.

267. Italy 1250-1600
Either semester. Three credits.

Italy from the triumph of the city-state and the popolo grosso to the end of the Renaissance. The complex interrelationship between society and culture will be the focus of study. Not open to those who have taken HIST 268.

269. The Modernization of Italy from 1815 to Present
Second semester. Three credits. Open to sophomores. *Davis*

The modernization of Italy's traditional sociopolitical and economic structure; Industrialization, unification, the liberal regime, fascism, and the republic.

270. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

271. The Renaissance
First semester. Three credits. *Gouwens*

Europe in the fourteenth and fifteenth centuries.

272. The Reformation
Second semester. Three credits.

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.

273. Europe in the Seventeenth Century
First semester. Three credits.

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.

274. Europe in the Eighteenth Century
Second semester. Three credits.

Intellectual, political, and socioeconomic developments in Europe from 1713 to 1789.

275. Latin America and the Great Powers
First semester. Three credits. *Goodwin*

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.

276. Andean Societies
Second semester. Three credits. Recommended preparation: HIST 281 or 282. *Spalding*

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).

277. Modern India
(Also offered as AASI 277.) Either semester. 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.

279. France Since 1715
Second semester. Three credits. *Cox*

The disintegration of the monarchical synthesis prior to and during the French Revolution; the attempts to harmonize French society under subsequent regimes.

280W. Mexico in the Nineteenth and Twentieth Centuries
Second semester. Three credits. Recommended preparation: HIST 281.

The emergence of modern Mexico from independence to the present with emphasis on the Revolution of 1910.

281. Latin America in the Colonial Period
First semester. Three credits. Open to sophomores.

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.

282. Latin America in the National Period
Second semester. Three credits. Open to sophomores. *Goodwin, 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.

283W. The Hispanic World in the Ages of Reason and Revolution
First semester. Three credits. Recommended preparation: HIST 281. *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.

285. Cuba, Puerto Rico, and the Spanish Caribbean
First semester. Three credits. *Silvestrini*

Discovery and settlement, slavery and plantation economy, recent political and economic developments, and United States relations with the Spanish Caribbean.

286. Argentina and LaPlata Region
First semester. Three credits. Recommended preparation: HIST 281 or 282. *Goodwin*

Colonial heritage, social and economic transformation of Argentina, Uruguay and Paraguay, foreign relations and contemporary turmoil.

287. East Asia to the Mid-Nineteenth Century
(Also offered as AASI 287.) First semester. Three credits. *Wang*

The major problems and issues of traditional Chinese and Japanese history and historiography. Special emphasis on the "Great Tradition" in ideas of both civilizations.

287W. East Asia to the Mid-Nineteenth Century
(Also offered as AASI 287W.)

288. East Asia Since the Mid-Nineteenth Century
(Also offered as AASI 288.) Second semester. Three credits. *Wang*

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.

288W. East Asia Since the Mid-Nineteenth Century
(Also offered as AASI 288W.)

289. War and Diplomacy in East Asia
First semester. Three credits.

European struggle for power in Asia since 1842, in the context of the rise of Japan and the reassertion of Chinese power.

290. The Middle East Crucible
First semester. 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.

291. Personality and Power in the Twentieth Century
Second semester. Three credits.

Dynamic leadership in historical crises, including, for example, Churchill, Roosevelt, Stalin, Hitler, DeGaulle, Kennedy, and Mao.

292W. Biography as History
Second semester. Three credits. Two class periods of 75 minutes. Open to sophomores.

What the lives of significant individuals reveal about major historical periods and themes. Variable topics.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of department head required, normally to be granted before the student's departure. May count toward the major with consent of the advisor.

294. Asian-American Experience Since 1850
(Also offered as AASI 294.) Either semester. Three credits. *Wang*

Survey of Asian-American experiences in the United States since 1850. Responses by Asian-Americans to both opportunities and discrimination.

295W. History through Fiction
Either semester. Three credits. Open to sophomores. Recommended preparation: History 231 or 232 (if American perspective) or History 228 or 229 (if European perspective). *Phillips*

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.

296. Directed Research
Either or both semesters. Three credits. Open only to senior history majors.

An introduction to research methods and resources in history.

297W. Senior Seminar
Either semester. Three credits. Prerequisite: HIST 211. 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.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change of content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Human Development and Family Studies (HDFS)

Dean: Charles M. Super
Program Office: Room 106, Family Studies Building (Design and Resource Management Center)

For major requirements, see the School of Family Studies section of this *Catalog*.

183. Courtship, Marriage, and Sexuality
(Formerly offered as HDFR 183.) Either semester. Three credits.

Development of patterns of interaction in premarital and marital relationships.

190. Individual and Family Development
(Formerly offered as HDFR 190.) Either semester. Three credits.

Human development throughout the life span, with emphasis upon the family as a primary context.

201. Diversity Issues in Human Development and Family Studies
(Formerly offered as HDFR 201.) Either semester. Three credits. Recommended preparation: HDFS 190. Open to sophomores.

Critical issues in diversity and multiculturalism in human development, family relations, and professional practice.

202. Human Development: Infancy Through Adolescence
(Formerly offered as HDFR 202.) Either semester. Three credits. Open to sophomores.

Individual development and behavior from prenatal period through adolescence; impact of peers, school, other social agencies, and especially the family.

204. Human Development: Adulthood and Aging
(Formerly offered as HDFR 204.) Either semester. Three credits. Open to sophomores.

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.

218. Observational Child Study
(Formerly offered as HDFR 218.) Either semester. Three credits. Two class periods and laboratory by arrangement.

Assessment of developmental skills of young children using a variety of observational methods and procedures. Laboratory experience includes participation in the University of Connecticut's Child Development Laboratories.

220. Introduction to Programs for Young Children
(Formerly offered as HDFR 220.) Either semester. Three credits. Open only with consent of instructor. Must be taken concurrently with HDFS 221 or 224.

Components of programs designed for infants and young children. Guided observations are integrated with lecture material. Designed for students who intend to work with infants and young children.

220W. Introduction to Programs for Young Children
(Formerly offered as HDFR 220W.)

221. Programs for Young Children: Introductory Laboratory
(Formerly offered as HDFR 221.) Either semester. One credit. One 2-hour laboratory by arrangement. Open only to students concurrently enrolled in HDFS 220 or 220W, and open only with consent of instructor.

Guided observation and participation in a program for young children.

222. Integrated Curriculum in Early Childhood Education I
(Formerly offered as HDFR 222.) First semester. Three credits. Two class periods and one 2-hour laboratory period.

Integration of child development theory with best teaching practices for specific age appropriate learning domains from infancy through kindergarten in language, communication, literacy, arts, sensory motor and physical development.

223. Integrated Curriculum in Early Childhood Education II
(Formerly offered as HDFR 223.) Second semester. Three credits. Two class periods and one 2-hour laboratory period.

Integration of child development theory with best teaching practices for specific age appropriate learning domains from infancy through kindergarten in cognitive development, mathematical and scientific thinking, social studies, and personal/social development.

224. Child Development Laboratory: Practicum I
(Formerly offered as HDFR 224.) Either semester. Three credits. Open only with the consent of instructor. Concurrent enrollment in HDFS 220 highly recommended. Recommended preparation in HDFS 202. Weekly seminar. Practicum by arrangement.

Supervised participation in an early childhood education center which has programs for infants, toddlers, preschoolers, and kindergarten children.

225. Analysis of Programs for Young Children
(Formerly offered as HDFR 225.) Either semester. Three credits.

Analytic study of programs designed for young children, history of such programs, underlying theories, specific models; cultural and subcultural issues, parental involvement, and evaluation procedures.

227. Child Development Laboratory: Supervised Teaching Practicum
(Formerly offered as HDFR 227.) Either semester. Nine credits. Two class periods and laboratory by arrangement. Prerequisites: HDFS 202, 220, 222, 223, 224, GPA of 2.5 in HDFS courses, and consent of instructor.

Supervised teaching experience in an early childhood education center which has programs for infants, toddlers, preschoolers, and kindergarten children.

228. Child Development Laboratory: Advanced Teaching Practicum
(Formerly offered as HDFR 228.) Either semester. Six credits. Two class periods and laboratory by arrangement. Prerequisite: HDFS 227, GPA of 2.5 in HDFS courses, and consent of instructor.

Continuation of HDFS 227. Experience in early childhood program implementation, administration, staff supervising, policy making, and curriculum planning.

230. Current Topics in Early Childhood Education
(Formerly offered as HDFR 230.) Semester and hours by arrangement. Variable credits. Open only with consent of instructor. With a change in content this course may be repeated for credit.

In-depth investigation of a current issue in early childhood education (e.g. emergent literacy, diversity), with focus on recent research and application to classroom practice. Includes classroom instruction and laboratory observation.

231. Infancy
(Formerly offered as HDFR 231.) Either semester. Three credits. Prerequisite: HDFS 202 or PSYC 236.

Human development from birth through the second year of life within the family setting.

234. Social and Personality Development During Childhood
(Formerly offered as HDFR 234.) Either semester. Three credits. Prerequisite: HDFS 202 or PSYC 236.

Social and personality development during infancy and childhood; influence of family members, peers, and social institutions on development; aggression, prosocial behaviors, autonomy, self-concept, sex-role development, and moral development.

234W. Social and Personality Development During Childhood
(Formerly offered as HDFR 234W.)

240. The Family-School Partnership
(Formerly offered as HDFR 240.) First semester. Three credits.

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.

245. Parent-Child Relations in Cross-Cultural Perspective
(Also offered as ANTH 245.) (Formerly offered as HDFR 245.) Offered every third semester. Three credits.

Theory and research on major dimensions of parenting in the U.S.A. and cross-culturally: parental warmth, control and punishment.

248. Aging in American Society
(Also offered as SOCI 248.) (Formerly offered as HDFR 248.) Either semester. Three credits.

Social gerontology: the role and status of older people in a changing society.

248W. Aging in American Society
(Also offered as SOCI 248W.) (Formerly offered as HDFR 248W.)

250. Gender and Aging
(Formerly offered as HDFR 250.) Either semester. Three credits.

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.

250W. Gender and Aging
(Formerly offered as HDFR 250W.)

252. Death, Dying, and Bereavement
(Formerly offered as HDFR 252.) Either semester. Three credits.

Cultural context of death, personal meaning of death at different stages in life cycle, and the effect of death upon survivors.

252W. Death, Dying, and Bereavement
(Formerly offered as HDFR 252W.)

259. Men and Masculinity: A Social Psychological Perspective
(Formerly offered as HDFR 259.) Either semester. Three credits.

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.

260. Woman: A Developmental Perspective
(Formerly offered as HDFR 260.) Either semester. Three credits.

Development of women and women's roles from birth to maturity; physiological, psychological, sociological, and interpersonal systems which contribute to development of women across the life span; cross-cultural and alternative models for role development.

264. Legal Aspects of Family Life
(Formerly offered as HDFR 264.) First semester. Three credits.

Law in family life.

266. Introduction to Counseling
(Formerly offered as HDFR 266.) Either semester. Three credits.

Principles of professional counseling including therapeutic processes, roles, and skills. How counselors help people solve problems is explored. Student's psychological growth and development is facilitated through psychological education.

267. Latino Health
First semester. Three credits.

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 (eg. migration, acculturation, SES).

268. Latinos: Sexuality and Gender
Either semester. Three credits.

Critical discussion of issues involving gender and sexuality among Latinos, with particular attention to race, class, ethnicity, and acculturation.

269. Family Violence
(Formerly offered as HDFR 269.) Either semester. Three credits.

Theory, research, prevention, and treatment concerning the multiple forms of violence within contemporary families. The impact of violence on families and family members over the entire life span is considered. Includes child abuse and neglect, courtship violence, spouse abuse, elder abuse, and rape.

270. Low Income Families
(Formerly offered as HDFR 270.) Either semester. Three credits.

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.

271. Black American Family Patterns
(Formerly offered as HDFR 271.) Either semester. Three credits.

Continuities and discontinuities between black American subcultural patterns and dominant cultural norms as reflected by black American families.

272. Family and Work
(Formerly offered as HDFR 272.) Either semester. Three credits.

Interaction of the world of work with family structure; social psychological dynamics that enhance or impede working families' lives.

273. Family Interaction Processes
(Formerly offered as HDFR 273.) Either semester. Three credits.

Family interaction: communication processes, bonding behaviors, management of conflict and aggression, negotiation of family crisis.

274. Public Policy and the Family
(Formerly offered as HDFR 274.) Either semester. Three credits.

Analysis of government programs and policies impacting the family: child care, aging, family law, mental health, family violence, income maintenance, and family impact analysis.

275. Family Pathology
(Formerly offered as HDFR 275.) Either semester. Three credits.

Theory, research and intervention in families under stress.

276. Planning and Managing Human Service Programs
(Formerly offered as HDFR 276.) Either semester. Three credits.

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.

276W. Planning and Managing Human Service Programs
(Formerly offered as HDFR 276W.)

277. Issues in Human Sexuality
(Formerly offered as HDFR 277.) Either semester. Three credits.

Contemporary issues concerning human sexuality; impact upon individuals and family units.

278. Family in Society
(Formerly offered as HDFR 278.) Either semester. Three credits.

Sociocultural and historic variability of family and kinship systems. Race, class, gender and ethnicity as those advantage or disadvantage the opportunity structure for families and individuals. Effect of public policy on the quality of family life.

278W. Family in Society
(Formerly offered as HDFR 278W.)

279. History of the Family
(Also offered as HIST 209.) (Formerly offered as HDFR 279.) Second semester. Three credits. Not open for credit to students who have passed HIST 209.

Preindustrial and industrial family life in Western society since the Middle Ages; changes in demography, family size and structure, family economy, social expectations, sex roles, sexuality, and affective bonds.

280. Material Culture in American Family Life
(Formerly offered as HDFR 280.) Either semester. Three credits.

Material culture of the American family; interaction between family members and the artifacts in their near environment; role of personal possessions, household objects, housing and diet in daily family life and rituals over time.

281. Comparative Family Policy
(Formerly offered as HDFR 281.) Second semester. Three credits.

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.

284. Adolescence: Youth and Society
(Formerly offered as HDFR 284.) Either semester. Three credits. Prerequisite: HDFS 202 or PSYC 236.

Contemporary adolescence, the multiple forces and behavioral characteristics of this period of development.

285. Child Welfare, Law and Social Policy
Either semester. Three credits. Prerequisite: HDFS 190. Recommended preparation: HDFS 202, 290.

Examines the methods through which empirical social science research can affect law and public policy affecting children and families.

287. Parenthood
(Formerly offered as HDFR 287.) Either semester. Three credits.

Parent behavior and the dynamics of parenthood; interpersonal, familial, and societal roles of parents and variables influencing these roles.

287W. Parenthood.
(Formerly offered as HDFR 287W.)

288. Supervised Field Experience
(Formerly offered as HDFR 288.) Either semester. 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 200 level 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.

289. Fieldwork in Community Settings
(Formerly offered as HDFR 289.) Either semester. Three credits. Prerequisites: HDFS 288; GPA of 2.5 in HDFS courses: 15 credits of 200 level HDFS courses and consent of the Director of Undergraduate Studies. Cannot be repeated for credit. Cannot be used towards 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.

290. Research Methods in Human Development and Family Studies
(Formerly offered as HDFR 290.) Either semester. Three credits. Prerequisite: HDFS 190 and PSYC 132 and 133 or 135. Open only to Human Development and Family Studies majors.

Research methods used in human development and family studies.

290W. Research Methods in Human Development and Family Studies
(Formerly offered as HDFR 290W.)

292. Research Practicum in Human Development and Family Studies
(Formerly offered as HDFR 292.) Either semester. Credits and hours by arrangement. Prerequisite: GPA of 2.5 in HDFS courses and consent of instructor.

Supervised experience conducting research in human development and family studies.

294. Foreign Study
(Formerly offered as HDFR 294.) Either or both semesters. Credits and hours by arrangement. 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.

Special topics taken in a foreign study program.

298. Selected Topics in Human Development and Family Studies
(Formerly offered as HDFR 298.) Either semester. Three credits. With a change in content this course may be repeated for credit.

299. Independent Study for Undergraduates
(Formerly offered as HDFR 299.) Either or both semesters. Credits and hours by arrangement. 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.

Interdepartmental (INTD)

100. The Social Consequences of Engineering in the Modern World
Either semester. Three credits. Not open to students in the School of Engineering.

This course offers non-engineering students desiring an understanding of the role of engineering in the world today opportunities to get acquainted with various engineering disciplines and significant issues. These include mechanical and solar energy, nuclear power, computers, genetics and urbanization taught by a team of interdisciplinary specialists relating engineering to problems of the real world in an understandable, non-technical manner.

130. Africa and Latin America: The Challenge of Poverty, Violence, and Development
Either semester. Three credits.

A study of poverty, violence, and development in two major Third World regions, and the causes and consequence of these interrelated factors. Strategies for change and their effects on jobs, income distribution, modernization, indigenous and external relations, food, agriculture, industrialization, urbanization, inflation, political and military structures, and human rights will be examined.

132. World Studies and Human Resource Development
Either semester. Three credits.

A comparative exploration of three major world cultures (Chinese, Latin American, and Middle Eastern) which relates to the themes of authority, legitimacy, and loyalty in each. Third World perspectives and development issues will be emphasized.

180. FYE University Learning Skills
Either semester. One credit. One class period. Open to freshman and sophomore students only.

A component of the First Year Experience (FYE) program, this course is intended to acquaint students with the university and expand their learning experiences in order for them to adjust to the new expectations they will face. The course involves assignments that will provide opportunities for students to enhance their academic and interpersonal skills.

181. FYE Learning Community Seminar
Either semester. One credit. One class period. Open to freshman and sophomore students only. This course must be taken in combination with a cluster of three courses; with the permission of the instructor, one of the cluster courses may have been completed previously. With a change in content, this course may be repeated for credit.

A component of the First Year Experience (FYE) program, this seminar course is intended to provide an opportunity to integrate the consideration of material from three courses through discussion, assignments, and projects. Students will have opportunities to enhance their academic and interpersonal skills.

182. FYE Faculty/Student Seminar
Either semester. One credit. One class period. Open to freshman and sophomore students only. With a change in content, this course may be repeated for credit.

A component of the First Year Experience (FYE) program, this seminar course is intended to provide an opportunity for students to investigate topics of professional interest to the faculty instructor through guided research or reading, discussion, and some writing. The course will help students learn independently and engage actively in the academic life of the university.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 15). Consent of appropriate area studies director required before departure.

Course work undertaken within approved Study Abroad programs, usually focussing on the history, culture, and society of a particular country.

195. Interdisciplinary Special Topics Lecture Course
Either semester. Credits and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

196. Interdisciplinary Special Topics Seminar
Either semester. Credits and hours as determined by the Senate Curricula and Courses Committee. 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.

197. Interdisciplinary Special Topics Independent Study
Either semester. Credits and hours as determined by the Senate Curricula and Courses Committee. Open only to freshmen and sophomores with consent of instructor. May be repeated for credit with a change in topic.

198. Freshman Honors Seminar
First semester. One credit. One class period. Open only with consent of Honors Director.

A overview of some aspects of university education. Designed to help students set learning goals to be achieved during the baccalaureate experience.

200. An Interdisciplinary Approach to Health Care
First semester. Three credits. Open only with consent of instructors. This course is also listed under Nursing and Pharmacy. *Gillespie, Infante, and Staff*

An interdisciplinary approach to health care which focuses on the role of the health team in the health care delivery system. Emphasis is placed on the preparation and roles of the health team members, both independent and interdependent, the system of health care delivery in the nation, modes of communication and collaboration, and the role of the consumer of health care.

210. Urban Field Studies
Either semester. Nine credits. Hours by arrangement. Open only with consent of the director of the Urban Semester Program. Must be taken concurrently with INTD 211 and 212. This course is also listed under Sociology. Sponsored by the Urban Semester Program. *Director of the Urban Semester Program*

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.

211. Seminar in Urban Problems
Either semester. Three credits. Hours by arrangement. Open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 210 and 212. Sponsored by the Urban Semester Program. *Director of the Urban Semester Program*

Discussions based upon assigned readings and led by invited speakers from within the University.

212. Urban Semester Field Work Seminar
Either semester. Three credits. Hours by arrangement. Open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 210 and 211. Sponsored by the Urban Semester Program. *Director of the Urban Semester Program*

Students make analytic presentations of their field experiences, relating these to the pertinent available literature. Particular urban problems are discussed with invited experts from outside the University.

212W. Urban Semester Field Work Seminar

220. Studies in the Culture of the Middle Ages
Second semester. Three credits. Open only with consent of the instructor of record. With a change in content this course may be repeated for credit. Sponsored by the Committee for Medieval Studies.

An interdisciplinary examination of various aspects of the culture of Medieval Europe. Instructors and content will vary. Particulars will be announced prior to registration for the semester in which the course is offered.

222. Linkage through Language
Either semester. One credit. Prerequisite: Language skills equivalent 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 Modern & Classical Languages Department in collaboration with the department offering the companion course.

This 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.

224. Spanish Language and Culture for the Health Professions ("Spanning")
Either semester. One credit. Open with the consent of instructor to students in health care professions and social services. With a change in content, may be repeated for credit. Sponsored by Spanish/Modern & Classical Languages department in collaboration with schools of Nursing and Allied Health Professions.

Supplements professional training with focused instruction in Spanish language, culture, and health issues of relevance to professionals working with Spanish-speaking populations.

230. Special Topics in Slavic and East European Studies
Either semester. Three credits. Open only with consent of instructor to junior and senior undergraduates and graduate students. With a change in content this course may be repeated for credit. Sponsored by the Center for Slavic and East European Studies.

Discussion and analysis of selected problems from an interdisciplinary perspective.

240. Social Science Data Utilization
Either semester. Three credits. Three class periods and one 1-hour laboratory. This course is also listed under Political Science and Sociology. This course may not be counted toward the major in Political Science or in Sociology. Sponsored by the Social Science Data Center and the Political Science Department. *Davis*

Introduction to social science data analysis and utilization. Laboratory assignments will use the University Computer Center facility for the execution of statistical package setups, and data bases by the Social Science Data Center/Roper Center.

#240C. Social Science Data Utilization

249. Violence: Sources and Alternatives
First semester. Three credits. *Blank, Prewitt, Reed*

Sources of violence in the individual, the home,

Offered only at the Avery Point campus.

the nation, and among nations are examined. Alternatives to the use of violence at each of these levels are explored.

250. Global Militarism and Human Survival
Second semester. Three credits. Two class periods (one 2-hour and one 1-hour). *Luyster*

A consideration of the threat posed to humanity's survival by a growing global militarism and the unprecedented destructiveness of nuclear weapons.

257. The Poor Countries of the World
Either semester. Three credits. This course is also listed under Economics and Sociology. This course may not be counted toward the major in Economics. Sponsored by the Economics and Sociology Departments. *Gugler*

Multidisciplinary approach to key issues in development in the "Third World" today. Special emphasis on either a topic, e.g., urbanization in developing countries, or a region, e.g., Subsaharan Africa.

276. Introduction to American Studies
Either semester. Three credits. Open to sophomores. *Tilton*

A multi-disciplinary survey of American societies and cultures.

280. Library Research Methods
Either semester. Two credits. Two class periods. Open only with consent of instructor. Offered at the Waterbury Campus.

Specific instruction in the use of a university library and in the use of the bibliographic tools and methods that are an essential part of library research.

291. Interdisciplinary Honors Seminar
Either semester. Three credits. Open only with consent of instructor.

An interdisciplinary seminar designed for honors students and open to other qualified students. Topics vary from semester to semester. May be repeated once for credit with change of topic. Sponsored by the Office of Honors Programs.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Consent of appropriate area studies director or major advisor required before departure. May count toward the major with consent of advisor.

Course work undertaken within approved Study Abroad programs, usually focusing on the history, culture, and society of a particular country.

294. The Bible
First semester. Three credits, which may be counted toward the related field requirement in History, Philosophy, or English. Sponsored by and listed under the English, History, and Philosophy Departments.

The literary, historical, and philosophical content, circumstances and problems of the Old and New Testaments.

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Italian Literary and Cultural Studies (ILCS)

Consult the Modern and Classical 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.

145-146. Elementary Italian I and II
(Formerly offered as ITAL 145-146.) Both semesters. 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, except with Departmental consent.

Elementary Italian grammar. Drill in pronunciation. Reading of simple texts. Practice in easy conversation.

147-148. Intermediate Italian I and II
(Formerly offered as ITAL 147-148.) Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: ILCS 146 or equivalent.

Review of elementary Italian grammar. Graded composition and translation. Intensive and extensive reading. Oral practice in the language.

175-178. Intensive Italian I - IV
First and second semesters. Eight credits per semester. Two hours a day, four days a week, plus a two-hour laboratory practice. Open only with consent of the instructor. Not open for credit to students who have passed ILCS 145 through ILCS 148.

Intensive coverage of two years of Italian in two semesters. Intensive Italian 175-176 (Fall) covers the same material as ILCS 145-146; Intensive Italian 177-178 (Spring) covers the same material as ILCS 147-148.

***** 193. Foreign Study**

213. Year Abroad in Italy: Preparation
(Formerly offered as ITAL 213.) Second semester. Three credits. Open only to students selected for the Year Abroad in Florence Program.

A comprehensive review of Italian language and civilization.

237. Italy Today
(Formerly offered as ITAL 237.) First semester. Three credits. Prerequisite: ILCS 148.

A survey of contemporary Italian political, social, economic and cultural life.

238. Italian Civilization in the Renaissance
(Formerly offered as ITAL 238.) Either semester. Three credits. Prerequisite: ILCS 148 or equivalent.

A survey of social, cultural and artistic trends in Italy during the Renaissance.

239. Italian Composition and Conversation I
(Formerly offered as ITAL 239.) First semester. Three credits. Prerequisite: ILCS 148 or equivalent.

Practice in written and oral composition. Syntax study.

240. Italian Composition and Conversation II
(Formerly offered as ITAL 240.) Second semester. Three credits. Prerequisite: ILCS 239 or equivalent.

Further practice in written and oral composition. Treatment of the finer points in syntax.

*** See description at end of Italian Literary and Cultural Studies section.

243. Main Currents of Italian Literature Through the Renaissance
(Formerly offered as ITAL 243.) First semester. Three credits. Prerequisite: ILCS 148 or equivalent.

The history of Italian literature through 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.

244. Main Currents of Italian Literature After the Renaissance
(Formerly offered as ITAL 244.) Second semester. Three credits. Prerequisite: ILCS 148 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.

250. Italian Theatre of the Eighteenth Century
(Formerly offered as ITAL 250.) Second semester. Three credits. Prerequisite: ILCS 237 or 239 or 243 or equivalent.

Readings from Metastasio, Goldoni, and Alfieri.

251-252. Machiavelli, Michelangelo and Renaissance Literature
(Formerly offered as ITAL 251-52.) Both semesters. Three credits each semester. Prerequisite: ILCS 237 or 239 or 243 or equivalent.

Selected readings from the works of Poliziano, Leonardo da Vinci, Lorenzo de'Medici, Michelangelo, Ariosto, Machiavelli, Castiglione, Tasso, and others.

253. Dante and His Time
(Formerly offered as ITAL 253.) Either semester. Three credits. Prerequisite: ILCS 237 or 239 or 243 or equivalent.

Selected readings from Dante, Petrarch, Compagni, Villani.

254. Boccaccio and His Time
(Formerly offered as ITAL 254.) Either semester. Three credits. Prerequisite: ILCS 237 or 239 or 243 or equivalent.

Readings from Boccaccio and others with special attention to the problems of social and sexual ethics.

261. Twentieth-Century Italian Literature
(Formerly offered as ITAL 261.) Either semester. Three credits. Recommended preparation: ILCS 237 or 239 or 240 or consent of the instructor. *Bouchard*

Major trends in twentieth-century Italian Literature from the early modern period to contemporary times.

262. Nineteenth-Century Italian Literature
(Formerly offered as ITAL 262.) Either semester. Three credits. Recommended preparation: ILCS 237 or 239 or 240 or 243 or consent of the instructor. *Bouchard*

Nineteenth-century Italian drama, poetry, and narrative from the Napoleonic period to the years immediately following the conquest of Rome in 1870.

***** 293. Foreign Study**

***** 295. Variable Topics**

***** 298. Special Topics**

299. Independent Study
(Formerly offered as ITAL 299.) Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Florence Program

The Florence Program is open to sophomores, juniors, and seniors. Courses include intensive Italian, Italian literature, and, with the consent of the director of the

Program, any course offered by the University of Florence. Offered at the Florence campus.

Italian Studies
(in English)

101. The Italian Renaissance
(Formerly offered as ITAL 101.) First semester. Three credits. A knowledge of Italian is not required. Taught in English.

A survey of Italian Renaissance civilization, with emphasis on literature and intellectual life.

149. Cinema and Society in Contemporary Italy
(Formerly offered as ITAL 149.) Second semester. Three credits. Three class periods and one 2-hour laboratory period. Lectures in English. Films in Italian with English subtitles.

A critical analysis of contemporary Italian society seen through the media of film and literature.

***** 193. Foreign Study**

255W. Dante's Divine Comedy in English Translation
Either semester. Three credits. This course may not be counted toward the Italian Literary and Cultural Studies major or minor group. *Masciandaro*

Dante's poem as a unique synthesis of Medieval culture. Emphasizes its integration of ethics, political thought, and theology with poetic imagination.

256W. The Literature of the Italian Renaissance
(Formerly offered as ITAL 256W.) Second semester. Three credits. Not open to students who have passed ILCS 251-252. This course may not be counted in the Italian Literary and Cultural Studies major group.

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.

260W. Italian Cinema
(Formerly offered as ITAL 260W.) Either semester. Three credits. Two class periods and one 2-hour laboratory period. Lectures in English. 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 prefascist Italy to modernization and beyond.

***** 295. Variable Topics**

***** 298. Special Topics**

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193. Foreign Study
(Formerly offered as ITAL 193.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the student's departure.

Special topics taken in a foreign study program.

293. Foreign Study
(Formerly offered as ITAL 293.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally 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.

*** See description at end of Italian Literary and Cultural Studies section.

295. Variable Topics
(Formerly offered as ITAL 295.) Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
(Formerly offered as ITAL 298.) Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

Journalism (JOUR)

Head of Department: Professor Maureen Croteau
Department Office: Room 422, Arjona Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

101. Introduction to Journalism
Either semester. Three credits.

A survey of the principles, trends, attitudes and philosophies of journalism with emphasis on newspapers and magazines.

102. The Press in America
Either semester. 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.

200W. Newswriting I
(Formerly offered as JOUR 211.) Either semester. Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Open to sophomores. *Worcester*

Definition of news, newswriting style, community reporting, covering governmental meetings and writing statistical matter. Laboratory offers intensive practical writing exercises. Field trips required.

201W. Newswriting II
(Formerly offered as JOUR 221.) Either semester. Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Prerequisite: JOUR 200 or 211. Open to sophomores. *Dufresne*

Provides in-depth explanations and demonstrations of what reporters can expect to find, and report, in the courts, schools, town halls, land use agencies and other civic offices, boards and commissions.

202. Journalism Ethics
Either semester. Three credits. Prerequisite: JOUR 102. *Breen*

Discussion of such contemporary problems as privacy, good taste, community standards, effectiveness of the press and responsibility of the press.

212W. Feature Writing
Either semester. Three credits. Prerequisite: JOUR 201 or 211. Open to sophomores.

Emphasis on finding, developing and writing feature stories. Outside stories will be assigned weekly.

213W. Magazine Journalism
Either semester. Three credits. Prerequisite: JOUR 201. Recommended preparation: JOUR 212.

Students research, report and write, for publication, a magazine-length non-fiction article.

216. Publication Practice
Either semester. One to 3 credits. May be repeated for credit. Hours by arrangement. Open only with consent of instructor. *Worcester*

Students and faculty work together to research, write, edit and produce a publication.

219. Daily Campus Critique
First semester. One credit. One class period. 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.

220. Law of Libel and Communications
Either semester. Three credits.

Typical subjects: libel, slander, invasion of privacy, obscenity, legal problems of newsgathering, protecting the political process, protecting state secrets, protecting the public welfare.

230W. Copy Editing I
(Formerly offered as Journalism 214.) Either semester. Three credits. Prerequisite: JOUR 211 or 201.

Editing for grammar, style and content, headline writing, introduction to basic newspaper design concepts.

231C. Copy Editing II
Second semester. Three credits. Prerequisite: JOUR 230. *Croteau*

Emphasis on copy and picture selection, copy fitting, photo editing and computer-assisted editing, page layout and production.

233. Opinion Writing
First semester. One credit. Prerequisite: JOUR 201. One two-hour lab-lecture period. *Breen*

Writing for the editorial and op-ed pages.

235C. Advanced Reporting Techniques
First semester. Three credits. Prerequisite: JOUR 201. *Dufresne*

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.

240W. Newswriting for Radio and Television
Either semester. Three credits. Prerequisite: JOUR 200 or 211. Two 75-minute lab-lecture sessions plus a field trip.

Application of newswriting techniques to the broadcast media.

241. Reporting and Editing TV News
Either semester. Three credits. Prerequisite: JOUR 240.

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.

245. Specialized Journalism
Either semester. Three credits. Prerequisite: JOUR 200 or 211.

An 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.

250. Professional Seminar
Three credits. Three hours. Prerequisite: JOUR 211 or 200, which may be taken concurrently (Also available for one credit. Two hours. No prerequisite.) May be repeated once for a maximum total of four credits.

Journalists discuss the economic, technological, sociological and ethical issues that challenge their profession.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with permission of Department Head. Consent of Department Head required before the student's departure. May count toward the major with consent of the advisor. *Croteau*

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

297. Supervised Field Internship
Either semester. One to three credits. Hours by arrangement. Prerequisite: JOUR 200, 201 and 220. Open only with consent of Department Head. *Croteau*

Students research, report and write for newspapers, news departments of radio and television stations, and public relations offices under supervision of professionals.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Open to qualified students who present suitable projects for independent work in journalism.

Judaic Studies (JUDS)

Associate Director, Center for Judaic and Studies and Contemporary Life:
Professor Stuart S. Miller
Offices: Room 154, Thomas J. Dodd Research Center and Room 220, Arjona Building

For minor and individualized major requirements, see *Center for Judaic Studies and Contemporary Jewish Life* in the Special Facilities and Programs section of this *Catalog*.

101. The Land of Israel from Biblical Times to the Present
(Also offered as HEB 101.) Either semester. Three credits. Offered in alternate years. *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.

103. Literature and Civilization of the Jewish People
(Also offered as HEB 103.) Either semester. Three credits. *Miller*

The major concepts, personalities and literary works of the Hebraic tradition from the Biblical and Talmudic periods to the present.

104. Modern Jewish Thought
(Also offered as HEB 104.) Second semester. Three credits.

Nationalism, culture, ethics and philosophy in the writings of the major Jewish thinkers from Spinoza to the present. Emphasis will be placed on the work of Moses Mendelssohn, Nachman Krochmal, Ahad Haam, Hermann Cohen, Franz Rosenzweig, Martin Buber and Mordecai Kaplan.

201. Selected Books of the Hebrew Bible
(Also offered as HEB 201.) Either semester. Three credits. Prerequisite: INTD 294 or HIST 213 or HEB 103, which may be taken concurrently, or consent of instructor. A knowledge of Hebrew is not required. May be repeated with change of content and consent of instructor. *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.

202. Sects and Movements in Judaism
(Also offered as HEB 202). Either semester. Three credits. Offered in alternate years.

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.

203. The Holocaust
(Also offered as HEB 203). Either semester. Three credits.

A discussion of the Holocaust to be preceded by an examination of the roots of anti-semitism and its effect upon the Jewish experience. Special emphasis will be given to the impact of the Holocaust on Jewish and Christian thought.

218. Palestine Under the Greeks and Romans
(Also offered as CAMS 256, HEB 218, and HIST 218.) Either semester. Three credits. Recommended preparation: HIST 213 or 214 or 216 or INTD 294 or HEB 202. *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.

242. American Jewry
(Also offered as SOCI 242.) Three credits. Either semester. *Dashefsky*

Historical, demographic, organizational, and sociopsychological perspectives.

Latin American Studies (LAMS)

Director, Center for Latin American and Caribbean Studies: Professor Elizabeth Mahan
Office: Room 4, Human Development Center

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*. For information about courses on Latin America in other departments consult the list published by the Center before preregistration each semester.

190. Perspectives on Latin America
Either semester. Three credits.

A multidisciplinary course including geography, indigenous peoples, colonization and nation formation; society, politics, economy, and culture of contemporary Latin America and its place in today's world.

190W. Perspectives on Latin America

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 15). Consent of Director of Latin American and Caribbean Studies required before departure.

Course work undertaken within approved Study Abroad programs, usually focussing on the history, culture, and society of a particular Latin American or Carribean country or countries.

270. Latin American Popular Culture
Second semester, alternate years. Three credits. *Mahan*

Culture, subcultures, and culture industries in Latin America. Conditions that affect the mass production, dissemination and reception of entertainment products.

275. Cinema and Society in Latin America
Either or both semester. 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.

284. Latin America
Either semester. Credits and hours by arrangement. 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.

290. Latin American Studies Research Seminar
Either semester. Three credits. Prerequisite: Consent of instructor.

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.

293. Foreign Study
Either or both semesters. Credits (to a maximum of 17) and hours by arrangement. 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either or both semesters. With a change in topic, may be repeated for credit.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit. Sponsored by the Center for Latin American and Caribbean Studies.

Study Abroad

The University sponsors academic programs in Mexico at the Universidad de las Américas, Puebla; in the Dominican Republic, at the Pontificia Universidad Católica Madre y Maestra, Santiago de los Caballeros; at the University of Costa Rica, in San José, Costa Rica; at the Pontificia Universidad Católica de Chile and the Universidad de Chile, in Santiago, Chile; and at the Universidad de Buenos Aires, Argentina. Students may go for either a semester or a full academic year. The University also sponsors an academic year and a one-semester program in Brazil at the Universidade de São Paulo. For further information, contact the Center for Latin American and Caribbean Studies or the Study Abroad Office.

Linguistics (LING)

Head of Department: Professor Diane Lillo-Martin
Department Office: Room 230, Monteith Bldg.

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

101. Language and Mind
Either semester. Three credits.

The special properties of human language and of the human mind that make verbal communication possible. Basic topics in the psychology of language.

102. Language and Environment
Second semester. Three credits. *Anderson*

The birth, spread, and death of languages. A basic survey of the effects of geography, society, and politics on language families.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head or advisor may be required prior to the student's departure.

Special topics taken in a foreign study program.

202. Principles of Linguistics
Either semester. Three credits. Open to sophomores.

A survey of theory, methods and findings of linguistic research: the relation between sound and meaning in human languages; social variation in language; language change over time; universals of language; the mental representation of linguistic knowledge.

205Q. Phonology
First semester. Three credits. Prerequisite: LING 202. *Calabrese, van der Hulst*

The analysis of sound patterns in language within a generative framework: distinctive features, segmental and prosodic analysis, word formation, the theory of markedness.

206Q. Syntax and Semantics
Second semester. Three credits. Prerequisite: LING 101 or 202. *Beck, Boskovic, Lasnik, Sharvit*

The analysis of form and meaning in natural languages in a Chomskyan framework: surface structures, deep structures, transformational rules, and principles of semantic interpretation.

208W. The Linguistic Basis of Reading and Writing
Semester by arrangement. Three credits. Prerequisite: LING 202. Open to sophomores.

The relationship between writing systems and linguistic structures; the psycholinguistic basis of reading.

215C. Experimental Linguistics
Semester by arrangement. Three credits. Prerequisite: PSYC 132 and LING 101 or 202. *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.

225. Second Language Acquisition.
Either semester. Three credits. Prerequisite: Ling 101, or 202, or consent of instructor. *Bar-Shalom*

The relationship between linguistic theory and second language acquisition. Effects of mother tongue and linguistic input. Pedagogical implications of second language acquisition research.

244W. Language and Culture
First semester. Three credits. Not open for credit to students who have passed ANTH 244 prior to Fall 1998. *Anderson, Bar-Shalom*

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

Special topics taken in a foreign study program.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit.

Management (MGMT)

Head of Department: Professor John F. Veiga
Department Office: Room 212, School of Business Administration

For major requirements, see the School of Business Administration section of this *Catalog*.

Courses in this department are open to juniors and seniors only with the exception of MGMT 198.

198. Contemporary Issues in the World of Management
Semester by arrangement. One credit. May be repeated in different sections, in combination with MGMT 198, up to a maximum of three credits. May not be used to satisfy Upper Division/major requirements of the School of Business Administration.

201. Managerial and Interpersonal Behavior
Either semester. Three credits. Prerequisites: ACCT 131, ECON 111 and 112, ENGL 110 or 111, or ENGL 105 and 109, MATH 106 or 114 or 116, STAT 100 or 110.

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.

203. Development of American Business
Semester by arrangement. Three credits.

Historical development of business and business leadership, concentrating on changes in formulating and implementing top management policies. The total environment is considered as it affects business behavior. Case studies based on a variety of historical situations are used.

225. International Business
Semester by arrangement. Three credits. Prerequisite: FNCE 201, OPIM 204, MGMT 201, MKTG 201.

An introduction to the basic problems of the manager making decisions involving international trade, payments, and investment. Through extensive use of actual case studies, the special features of decision-making within the multinational enterprise integrating business operations among national economics are given particular attention. Lecturer, discussion, and case analyses.

234. Management of Small Businesses and Venture Enterprises
Semester by arrangement. Three credits. Prerequisite: ACCT 200, FNCE 201, BLAW 271 or 275, OPIM 203 , MGMT 201, MKTG 201, and senior standing.

Emphasis on managerial aspects of organizing and operating small firms by means of case discussions and assigned readings. Students can obtain insights regarding opportunities of self-employment in traditional small businesses as well as entrepreneurial careers in more sophisticated business ventures.

235. Entrepreneurship and Venture Management
Semester by arrangement. Three credits. Prerequisite: ACCT 200, FNCE 201, MGMT 201, MKTG 201. Senior standing preferred.

In this field course, students investigate the special problems of newly formed firms. Course emphasis is on the planning skills necessary for start-up operations. The course is designed to acquaint students with the unique strategic problems faced by such firms and to teach them how to evaluate new venture plans.

239. Managing a Diverse Workforce
Semester by arrangement. Three credits.

This course 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.

245. Managerial Behavior in Cross-Cultural Settings
Semester by arrangement. Three credits.

The objective of this course is to introduce the student to the work values and behaviors of individuals in countries around the world. Some of the topics presented in the cross-cultural comparisons discussed in this course will include: approaches to motivation, communication, decision making, and negotiation. Particular emphasis will be placed on the developed and developing parts of the world that are major players in today's global economy.

250W. Management Communications
Semester by arrangement. Three credits. Open to Management majors only.

This course has two objectives; to acquaint the student with the functional importance of communication in business management, and to teach the techniques of oral and written communication.

265. The Dynamics of Organization
Semester by arrangement. Three credits.

Dynamics of organization; relationship between people and organization. The organization viewed as a system interacting with a changing environment, as a structure of organized human cooperation, as an instrument of management strategy. Experiential

exercises and case studies used to gain a better understanding of organization strategy, design and structure.

265W. The Dynamics of Organization

271. Human Resources Management
Semester by arrangement. Three credits. Prerequisite: MGMT 201.

Study of the personnel function from the managerial perspective. Emphasizes human resources planning, recruitment, selection, employee and management development, and performance evaluation.

272. Career Development in Business
Either semester. One credit. Meeting once per week for one hour and fifty minutes for 6 weeks (first or second half of semester), plus 2 or 3 evenings or Saturday morning panel discussions. Prerequisite: Sixth or seventh semester standing. Open only to students in the School of Business Administration.

Topics covered include: self-assessment, exploration of career information resources, informational interviewing, development of an individual career plan, development of job search strategies and skills, discussion of career transition issues, overview of the career life cycle, and introduction to career development in organizations.

273. Labor Relations
Semester by arrangement. Three credits. Prerequisite: MGMT 201.

Study of employer-employee relations in unionized settings, both public and private sectors. Covers such areas as the National Labor Relations Act, labor contract negotiation, and administration.

276. Compensation Analysis and Administration
Semester by arrangement. Three credits. Prerequisite: MGMT 271.

Provides a systematic study of compensation theory and practice including wage theory, job analysis, job design, job evaluation, wage survey, pricing of the job structure, wage incentives, profit sharing and fringe benefits.

276W. Compensation Analysis and Administration

278. Purchasing and Materials Management
Semester by arrangement. Three credits. Prerequisite: MGMT 201, MKTG 201, ACCT 131, FNCE 201, OPIM 203C and BLAW 271 or 275.

Purchasing and Materials (Strategic Supply) Management is concerned with the management of materials and control of material costs in business and institutional enterprises. It emphasizes purchasing as the primary materials activity. At the same time, it integrates the purchasing activity in the context of a total business operation, including marketing, engineering, production control, inventory management finance, information management, strategic management and operations management.

281. Corporate Social Responsibility
Semester by arrangement. Three credits.

This course is designed to help the student relate business and its external culture, the social system, and the total environment. Develops an understanding of the role of the manager as the linking element between the business organization and the social environment.

281W. Corporate Social Responsibility

†289. Field Study Internship
Either or both semesters. One to six credits. Hours by arrangement. Prerequisite: Consent of instructor and Department Head.

This course is 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.

290. Strategy, Policy and Planning
Either semester. Three credits. Prerequisite: ACCT 200, FNCE 201, OPIM 203 and 204, MGMT 201, MKTG 201, and either BLAW 271 or 275, or consent of instructor. Open only to School of Business Administration students with senior class standing.

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.

291. Small Business Consulting
Semester by arrangement. Three credits. Hours by arrangement. Prerequisite: 7th semester or higher standing in the School of Business Administration plus a minimum of one course from each of the following areas: ACCT, BLAW, FNCE, MGMT, MKTG and OPIM.

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of Department Head required, prior to the student's departure.

Special topics taken in a foreign study program.

296W. Senior Thesis in Management
Either semester. Three credits. Hours by arrangement. Open only to Management Department Honors Students with consent of instructor and Department Head.

298. Special Topics
Semester by arrangement. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. With a change in content, may be repeated for credit.

Classroom course in special topics in management as announced in advance for each semester.

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor.

Individual study of special topics in management as mutually arranged between a student and an instructor.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Management and Engineering for Manufacturing (MEM)

Co-Directors: School of Business Administration: Jeffrey Rummel, AssociateProfessor
School of Engineering: Robert G. Jeffers, Associate Professor

151. Introduction to Management and Engineering for Manufacturing Program
Second semester. Three credits. Prerequisite: ENGR 150C.

Introduction to the goals of engineering and management for manufacturing enterprises. Review of the history of technological development, including its effects on new products and processes. Written and oral communication skills will be developed.

210. Manufacturing Equipment Lab
Either semester. One credit. One and one-half hours of laboratory per week. Open to sophomores.

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.

211. Introduction to Manufacturing Systems
Second semester. Three credits. Prerequisite: STAT 110V. Open to sophomores.

Overview of manufacturing operations management and the systems used in controlling manufacturing enterprises including the concepts of global competition and manufacturing as a competitive weapon.

215W. Advanced Manufacturing Systems
Second semester. Four credits. Two three-hour laboratory periods. Prerequisite: ME 221 and MEM 211.

Capstone design course for the MEM Program. Design applications involving construction and analysis of manufacturing system models. Students submit write-ups for several small projects. One large project is completed by all students in the course, with a written report and oral presentation. Projects incorporate major concepts studied in prior courses.

221. Introduction to Products and Processes
First semester. Three credits. Prerequisite: MEM 211.

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.

225. Advanced Products and Processes
First semester. Three credits. Prerequisite: MEM 221.

Introduction to advanced topics relevant to the design and manufacture of products. Special emphasis on the relationship between manufacturing products and processes. Student projects.

231. Computers in Manufacturing
Second semester. Three credits. Prerequisite: EE 220, MEM 211, and OPIM 203C, 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.

†296. Manufacturing Internship
One or more summer semesters. No credits. Hours by arrangement. Prerequisite: Consent of instructor and MEM program director. May be repeated.

This course is 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.

Marine Sciences (MARN)

Head of Department: Professor R.B. Whitlatch
Department Office: Marine Sciences, Avery Point

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

135. The Sea Around Us
Second semester. Three credits.

History of ocean exploration, interaction between the oceans and the atmosphere, impact of technology on the marine environment, climate modification and exploitation of ocean resources.

170. Introduction to Oceanography
Either semester. Three credits. Three class periods per week and two afternoon cruises per semester. A background in secondary school physics, chemistry or biology is recommended.

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.

196. Oceanography Laboratory
Fall semester (Avery Point). One credit. Concurrent or past enrollment in MARN 170 (or equivalent) required. May be repeated for credit.

This course is complementary to but independent from Marine Sciences 170. This course will emphasize experiential learning of fundamental oceanographic concepts using hands-on exercises. Laboratory sessions will include a variety of observations, measurements and experiments that teach principles of oceanography.

210. Coastal Systems Science I
Second semester (Avery Point). Three credits. Prerequisite: MARN 170 and any two of the following: BIOL 107, 108, CHEM 127Q, 128Q, PHYS 121Q, 122Q, 131Q, 132Q. Open to sophomores. *J. Kremer and Staff*

Biological, chemical, physical, and geological structure and function of coastal systems; a worldwide survey with emphasis on important coastal habitats and processes.

211. Coastal Systems Science II
Either semester (Avery Point). Four credits. Three hours lecture and three hours laboratory. Prerequisites: MARN 170 and any two (2) of the following: BIOL 107, 108; CHEM 127Q, 128Q; PHYS 121Q, 122Q, 131Q, 132Q. *J. Kremer and Staff*

Biological, chemical, physical and geological structure and function of coastal systems; a worldwide survey with emphasis on important coastal habitats and processes.

212C. Measurement and Analysis in Coastal Ecosystems
First semester (Avery Point). Four credits. Two 1-hour lectures and two 3-hour laboratories. Required field trips. Prerequisites: MARN 170 and any two (2) of the following: BIOL 107, 108; CHEM 127Q, 128Q; PHYS 121Q, 122Q, 131Q, 132Q. *J. Kremer*

Examination of oceanographic processes in local coastal systems; collection and analyses of samples from field trips and lab experiments; data analysis using computers.

220Q. Environmental Reaction and Transport
Second semester. Three credits. Prerequisite: CHEM 127 and one additional semester of CHEM, BIOL or PHYS; one semester of calculus (MATH 112, 115, 118 or 120) or concurrent enrollment in Calculus (115, 118, 120). *Torgersen*

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.

230. Coastal Circulation and Sediment Transport
First semester (Avery Point). Three credits. Prerequisite: MARN 210 and 211; MATH 112 or 115 or 118 or 120.

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.

235. Environmental Fluid Dynamics
First semester. Three credits. Recommended preparation: PHYS 122 or 132 or 142 or 152; and MATH 220 (may be taken concurrently). *Bogden*

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.

236. Marine Microbiology
(Also offered as Biology: MCB 236.) 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: Biology: MCB 229, or the consent of instructor. *Buck, Visscher*

A general survey of the taxonomy, physiology and ecology of marine microorganisms.

240. Seminar on Marine Mammals
Joint program with Mystic Marinelife Aquarium. First semester. Three credits. One 3-hour class period; one field trip. Offered at Mystic Marinelife 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 Marinelife Aquarium, Mystic, CT 06355. 860-572-5955.)

241. Marine Invertebrate Biology: Adaptations and Community Structure
First semester (alternate years). Three credits. Prerequisites: BIOL 107 and 108. Recommended preparation: MARN 170 or consent of instructor. *Ward*

Comparative examination of major adaptations and functional responses of marine invertebrates to biotic and abiotic factors in the marine environment. Field trips required.

242. Environmental Physiology of Marine Animals
First semester (alternate years). Three credits. Prerequisites: BIOL 107 and 108. Recommended preparation: MARN 170 or consent of instructor. *Ward*

Introduction to the study of marine environmental physiology; behavioral and physiological adaptations of marine animals to different environments (intertidal, estuarine, coastal, oceanic); compensatory responses to changing ambient conditions; and basic animal energetics. Laboratory exercises focus on food consumption, energy transformations, and principles of physiological measurement.

244. Coastal Ecology
Joint program with Mystic Marinelife Aquarium. Summer. Three credits. Offered at Mystic Marinelife Aquarium. Prerequisite: One year college laboratory biology and permission of instructor.

A special introductory course providing students with theoretical as well as practical knowledge of ecological sampling techniques, estuarine productivity, and selected continental shelf communities. Laboratory portion of this course consists of a 5-day study cruise in coastal New England waters. (Special registration and fee: contact Mystic Marinelife Aquarium, Mystic, CT 06355. 860-536-4208.)

255W. Coastal Studies Seminar
Second semester (Avery Point). Two credits. Required preparation: MARN 210, 211, and 212, or consent of instructor.

Scientific analysis of coastal zone issues and their interdisciplinary implications. Written analysis and discussion of readings from the primary literature.

256. Science and the Coastal Environment
Second semester (Avery Point). Three credits. Required preparation: MARN 210, 211, and 212; or at least two (2) of the following: MARN 270, 275, and 280. *J. Kremer*

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).

260. Biological Oceanography
Second semester. Three credits. Prerequisite: MARN 270 and MARN 280W (both may be taken concurrently) or consent of instructor. Open only with permission of department head. *Dam, Visscher, Whitlatch*

An advanced course in biological processes in oceanic and coastal waters. Emphasis is on empirical and theoretical concepts of marine ecosystem dynamics, primary and secondary production and detrital cycling.

270. Descriptive Physical Oceanography
First semester. Three credits. Prerequisite: PHYS 122, 142 or 152; MATH 114 or 116. *Bohlen*

Ocean basin characteristics, properties of sea water, distribution of water masses, oceanic and atmospheric circulation, waves, tides, near-shore circulation, methods and instrumentation.

275W. Geological Oceanography
First semester. Three credits. Prerequisite: One year of laboratory science in CHEM, GEOL, MARN and/or PHYS or consent of instructor. *Torgersen*

Basic concepts in geological oceanography, plate tectonics and the role of ocean floor dynamics in the control of the Earth and ocean system.

280W. Marine Biogeochemistry
First semester. Three credits. Two 1-hour lectures. Prerequisite: CHEM 128, MATH 114 or 116, PHYS 122 or equivalents. *Fitzgerald*

Composition, origin and solution chemistry of sea water. Marine biogeochemical cycles of water, salt, carbon, nutrients, gases and trace elements. Effects of ocean circulation, biological cycles and crustal exchanges on the distribution and transfer of substances in the marine environment.

282. Coastal Pollution and Bioremediation
First semester (alternate years). Three credits. Two class periods, 1 two-hour lab period. Required preparation: BIOL 107, 108 and CHEM 127-128 or consent of instructor. *Visscher*

Overview of processes and compounds leading to pollution in the nearshore marine environment. The impact of pollution on the marine foodweb and its response is emphasized. Alleviation of pollution through metabolism of organisms, including bacteria, seagrasses, and salt marshes.

294. Marine Biology
(Also offered as EEB 294.) First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of laboratory biology. *Whitlatch*

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.

296. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

†297. Internship in Marine Sciences
Either semester. Variable credits. With a change in topic, may be repeated for credit, not to exceed 3 credits. Recommended preparation: Nine credits of MARN courses at the upper division level. Consent of Instructor.

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 40 hours of pre-approved activities in a semester to a maximum of three credits.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Marketing (MKTG)

Head of Department: Professor Susan Spiggle
Department Office: Room 417, School of Business Administration

For major requirements, see the School of Business Administration section of this *Catalog*.

201. Introduction to Marketing Management
Either semester. Three credits. Prerequisite: ACCT 131, ECON 111 and 112, ENGL 110 or 111, or ENGL 105 and 109, MATH 106, or 114 or 116, STAT 100 or 110.

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.

208. Consumer Behavior
Either semester. Three credits. Prerequisite: MKTG 201 and either PSYC 133 or PSYC 135, or SOCI 107. Not open for credit to students who have passed, or are currently enrolled in, Marketing 209.

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.

208W. Consumer Behavior
Open to Marketing majors only.

209. Industrial Buyer Behavior
Either semester. Three credits. Prerequisite: MKTG 201 and either PSYC 133 or PSYC 135, or SOCI 107. Not open for credit to students who have passed, or are currently enrolled in, Marketing 208.

This course provides an analysis of industrial markets and develops the tools required to thoroughly analyze these markets for marketing strategies. Differences between consumer and industrial products and services will be emphasized. Emphasis will be on high technology products and services.

225. Integrated Marketing Communications
Either semester. Three credits. Recommended preparation: MKTG 201.

The design, coordination, integration, and management of marketing communications. The course focuses on advertising and sales promotion with an emphasis on the competitive and strategic value of communications in the marketplace.

225W. Integrated Marketing Communications
Open to Marketing majors only.

227. Product and Price Policies
First or second semester. Three credits. Prerequisite: MATH 106 or 111, or 114, or 116; STAT 100V or 110V; MKTG 201.

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.

241. Retail Management
First or second semester. Three credits. Prerequisite: MKTG 201.

A study of the management of retail operations, including buying, pricing, inventory control and selling.

252. Professional Selling and Sales Management
Either semester. Three credits. Prerequisite: MKTG 201.

This course focuses on the selling process as well as the activities and problems of sales force management. In the selling component, emphasis is placed on the tactical and strategic aspects of the professional selling process. It includes such topics as: account strategy, prospecting, objection handling, buyer behavior, and negotiation skills. In the sales management component, particular emphasis is placed on organizing the sales force, recruiting, training, compensation, motivation, forecasting, territory design, evaluation, and control. Learning tools include: interaction, role playing, workgroups, case studies, and outside business interactions.

265. Marketing on the Internet
First and/or second semester. Three credits. Prerequisite: MKTG 201.

Topics include comparisons of business models in physical space and cyberspace and integration of marketing efforts among the world-wide-web, and other means of communications, distribution, and selling. This course relies on the Internet as a teaching tool. Students need access to a computer with an Internet Browser.

270. Global Marketing Strategy
First or second semester. Three credits. Prerequisite: MKTG 201; MKTG 208 or 209; MKTG 280 and senior class standing.

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.

280. Marketing Research
Either semester. Three credits. Prerequisite: MKTG 201 and OPIM 203.

This course 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.

282. Marketing Planning and Strategy
First or second semester. Three credits. Prerequisite: MKTG 201, 208 or 209, 280, and senior class standing.

The application of a systems approach to the evaluation of opportunity and to the solution of major problems from the perspective of the top marketing executive. Emphasis is placed on the analysis and synthesis of marketing programs to determine the appropriate marketing mix for various business enterprises.

282W. Marketing Planning and Strategy

†289. Professional Practice in Marketing
Either or both semesters. One to three credits. Hours by arrangement. Prerequisite: completion of Lower Division School of Business Administration requirements and consent of instructor and Department Head.

This course is 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 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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of Department Head required, prior to student's departure.

Special topics taken in a foreign study program.

296W. Senior Thesis in Marketing
Either semester. Three credits. Hours by arrangement. Open only to Marketing Department Honor Students with consent of instructor and Department Head.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. With a change in content, may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor and Department Head.

Individual study of special topics as mutually arranged between student and instructor.

Mathematics (MATH)

Head of Department: Professor Charles Vinsonhaler
Department Office: Room 102, Mathematical Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

Students must pass the Q-course Readiness Test or Mathematics 101 before taking any "Q" courses.

101. Basic Algebra with Applications
Either semester. Three credits. This course does not meet distribution requirements or count toward the minimum credit requirement for graduation. Not open to students who have passed any Q-course.

Polynomials, exponents, Cartesian coordinate system, linear and quadratic equations, inequalities.

This course is required of all students who fail the Q-course readiness exam.

102Q. Problem Solving
Either semester. Three credits. Not eligible for course credit by examination. Not open for credit to students who have passed any mathematics course other than MATH 101, 103, 105, 107, 108, or 109. *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.

103Q. Elementary Discrete Mathematics
Either semester. Three credits. Not open for credit to students who have passed any MATH course other than MATH 101, 102, 105, 107, 108, or 109.

Problem solving strategies, solutions of simultaneous linear equations, sequences, counting and probability, graph theory, deductive reasoning, the axiomatic method and finite geometries, number systems.

105Q. Mathematics for Business and Economics
Either semester. Three credits.

Linear equations and inequalities, exponents and logarithms, matrices and determinants, linear programming. Applications.

106Q. Calculus for Business and Economics
Either semester. Three credits. (One credit for students who have passed MATH 113, 115, or 120.) Recommended preparation: MATH 105. Not open for credit to students who have passed MATH 118.

Derivatives and integrals of algebraic, exponential and logarithmic functions. Functions of several variables. Applications.

108V. Mathematical Modeling in the Environment
Either semester. Three credits. 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.

109Q. Algebra and Trigonometry
Either semester. Three credits. Not open for credit to students who have passed MATH 107, 112, 115, or 120.

A review of algebra, simultaneous and quadratic equations, logarithms, the trigonometric functions, solution of triangles, trigonometric equations.

112Q. Introductory Calculus 1
Either semester. Four credits. Four class periods. Students cannot receive credit for MATH 112 and either MATH 115 or MATH 120. Students who have not passed the Calculus Readiness Test take this course rather then MATH 115 or MATH 120.

Limits, derivatives, and extreme values of algebraic functions, with supporting algebraic topics.

113Q. Introductory Calculus 2
Either semester. Four credits. Four class periods. Prerequisite: MATH 112. Students cannot receive credit for MATH 113 and either MATH 115 or MATH 120. May be used in place of MATH 107, 115, or 120 to fulfill any requirement satisfied by MATH 107, 115 or 120.

Limits, derivatives, and extreme values of trigonometric functions, with supporting trigonometric topics; anti-derivatives of algebraic and trigonometric functions; the definite integral and applications.

114Q. Introductory Calculus 3
Either semester. Four credits. Four class periods. Prerequisite: MATH 113. Note: MATH 115 is not adequate preparation for MATH 114. Not open for credit to students who have passed MATH 116 or 121. May be used in place of MATH 116 or 121 to fulfill any requirement satisfied by MATH 116 or 121.

The transcendental functions, formal integration, polar coordinates, infinite sequences and series, lines and planes in three dimensions, vector algebra.

115Q or V. Calculus I
Either semester. Four credits. Four class periods. Prerequisite: Passing score on the Calculus Readiness Test, or the former MATH 107. Students cannot receive credit for MATH 115 and either MATH 112, MATH 113, or MATH 120. Suitable for students with some prior calculus experience. May be used in place of MATH 112 or 120 to fulfill any requirement satisfied by MATH 112 or 120.

Limits, continuity, differentiation, antidifferentiation, definite integrals, with applications to the physical and engineering sciences. Sections with V credit integrate computer-laboratory activity.

116Q or V. Calculus II
Either semester. Four credits. Four class periods. Prerequisite: MATH 115 or 120, or advanced placement credit for calculus (a score of 4 or 5 on the Calculus AB exam or a score of 3 on the Calculus BC exam). Not open to students who have passed MATH 121. Substitutes for MATH 114 or 121 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. Sections with V credit integrate computer-laboratory activity.

118Q. A Survey of Calculus with Applications I
Either semester. Three credits. Not open for credit to students who have passed MATH 106, 113, 115, or 120.

Derivatives and integrals of elementary functions including the exponential and logarithm functions; applications include optimization, marginal functions, exponential growth and decay, compound interest.

120Q. Enhanced Calculus I
Either semester. Four credits. Four class periods. Prerequisite: Passing score on the Calculus Readiness Test, or the former MATH 107. Students cannot receive credit for MATH 120 and either MATH 113 or 115. May be used in place of MATH 113 or 115 to fulfill any requirement satisfied by MATH 113 or 115. Intended to provide superior preparation for prospective mathematics, science and engineering majors. Recommended for those who have taken a semester of calculus in high school.

The subject matter of MATH 115 in greater depth, with emphasis on the underlying mathematical concepts.

121Q. Enhanced Calculus II
Either semester. Four credits. Four class periods. Prerequisite: MATH 120 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. Not open for credit to students who have passed MATH 114 or 116. May be used in place of MATH 114 or 116 to fulfill any requirement satisfied by MATH 114 or 116. Intended to provide superior preparation for prospective mathematics, science and engineering majors. Recommended for those who have taken a semester of calculus in high school.

The subject matter of MATH 116 in greater depth, with emphasis on the underlying mathematical concepts.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 15 for MATH 193 and 293 together). Consent of the Department Head or Undergraduate Coordinator required, normally before the student's departure.

204Q. Introduction to Mathematical Modeling
Either semester. Three credits. Prerequisite: MATH 221; or MATH 211 and 227. Knowledge of a programming language is strongly recommended. Not open for credit to students who have passed MATH 304 or 305, CHEM 305, or PHYS 305.

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.

210Q. Multivariable Calculus
Either semester. Four credits. Four class periods. Prerequisite: MATH 114, 116, or 121 or a score of 4 or 5 on the Advanced Placement Calculus BC exam. Not open for credit to students who have passed MATH 220. Open to sophomores.

Two- and three-dimensional vector algebra, calculus of functions of several variables, vector differential calculus, line and surface integrals.

211Q. Elementary Differential Equations
Either semester. Three credits. Prerequisite: MATH 114, 116, or 121. Not open for credit to students who have passed MATH 221. Open to sophomores.

Introduction to ordinary differential equations and their applications, linear differential equations, systems of first order linear equations, numerical methods.

213Q. Transition to Advanced Mathematics
Either semester. Three credits. Prerequisite: MATH 210 or 220 or consent of instructor. Open to sophomores.

Not open for credit to students who have passed MATH 214 or CS 254. Students intending to major in mathematics should ordinarily take this course or MATH 214 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.

214Q. Introduction to Discrete Systems
Either semester. Three credits. Prerequisite: CS 111 or 130 or consent of the instructor. Open to sophomores. Not open for credit to students who have passed MATH 213 or CS 254. Students who intend to major in mathematics should ordinarily take this course or MATH 213 during the third or fourth semester.

Mathematical methods for characterizing and analyzing discrete systems. Modern algebraic concepts, logic, set theory, grammars and formal languages, and graph theory. Applications to the analysis of computer systems and computational structures.

215Q. Linear Algebra
Either semester. Three credits. (Two credits for students who have passed MATH 227.) Required preparation: MATH 213 or 214.

Linear algebra and its applications; systems of equations, matrices, linear transformations, vector spaces, determinants, canonical forms, applications.

216Q. Abstract Algebra I
Either semester. Three credits. Prerequisite: MATH 213 or 214. Recommended preparation: MATH 215 or 227.

The fundamental topics of modern algebra including elementary number theory, groups, rings, polynomials and fields.

217Q. Abstract Algebra II
Either semester. Three credits. Prerequisite: MATH 216.

Topic chosen from modules, linear algebra, geometric algebra, extension fields, algebraic coding, algebraic combinatorics.

220Q. Enhanced Multivariable Calculus
Either semester. Four credits. Prerequisite: MATH 114 or 116 or 121. Open to sophomores. Not open to students who have passed MATH 210. MATH 220 satisfies any requirement met by MATH 210, and provides superior preparation for prospective mathematics, science, and engineering majors.

The subject matter of MATH 210 in greater depth, with emphasis on the underlying mathematical concepts.

221Q. Enhanced Differential Equations
Either semester. Three credits. Prerequisite: MATH 114 or 116 or 121. Open to sophomores. Not open to students who have passed MATH 211. MATH 221 satisfies any requirement met by MATH 211, and provides superior preparation for prospective mathematics, science, and engineering majors.

The subject matter of MATH 211 in greater depth, with emphasis on the underlying mathematical concepts.

223Q. Geometry
Either semester. Three credits. Prerequisite: MATH 113 or 115 or 120. MATH 113 may be taken concurrently. Open to sophomores.

Deductive reasoning and the axiomatic method, Euclidean geometry, parallelism, hyperbolic and other non-Euclidean geometries, geometric transformations.

224Q. Projective Geometry
Either semester. Three credits. Prerequisite: MATH 213Q.

Finite and infinite geometries as logical systems based on axioms. Synthetic and analytic projective geometry.

227Q. Applied Linear Algebra
Either semester. Three credits. Prerequisite: MATH 114, 116, or 121. Not open for credit to students who have passed MATH 215. Open to sophomores.

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.

231Q. Probability
Either semester. Three credits. Prerequisite: MATH 210 or 220, which may be taken concurrently with the consent of the instructor.

Introduction to the theory of probability. Discussion of some of the probability problems encountered in scientific and business fields.

232Q. Elementary Stochastic Processes
(Also offered as STAT 235Q.) Either semester. Three credits. Prerequisite: STAT 220 or 224 or 230 or MATH 231. Not open for credit to students who have passed STAT 235Q.

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.

235Q. Introduction to Mathematical Logic
Either semester, alternate years. Three credits. Prerequisite: MATH 213 or 214 or CS 207. PHIL 211 is recommended.

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.

237Q. Theory of Computability
Either semester, alternate years. Three credits. Prerequisite: MATH 213 or 214 or CS 254.

Finite automata and regular languages, pushdown automata and context-free languages and grammars. Turing machines, recursively enumerable sets and grammars, Church's thesis, the halting problem, and other undecidable problems. Computational complexity and NP-completeness.

242W. History of Mathematics
Either semester, alternate years. Three credits. Prerequisite: MATH 210 and 211, or 221. 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.

247Q-248Q. Fundamentals of Algebra and Geometry
Either semester. Three credits each semester. Prerequisite: PSYC 132 and three credits of Mathematics other than MATH 101. Not open for credit to students who have passed MATH 210 or 211 or 220. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

The development of the number system with applications to elementary number theory and analytic geometry. This course is recommended for students in elementary education.

250Q. Elements of Topology
Either semester, alternate years. Three credits. Prerequisite: MATH 213 or 214.

Metric spaces, topological spaces and functions, topological properties, surfaces, elementary topics in geometric topology.

252Q. Introduction to Complex Variables
(Also offered as Mathematics 352.) Either semester. Three credits. Prerequisite: MATH 210 and 211, or 221. MATH 252Q not open for credit to students who have passed MATH 352.

Functions of a complex variable, integration in the complex plane, conformal mappings.

255Q. Principles of Computer Graphics
Either semester. Three credits. Prerequisite: CS 111 or 130, MATH 227 or 215, MATH 210, and consent of instructor. Not open for credit to students who have passed CS 275.

Representation of two- and three-dimensional data, internal representation of data structures, transformations, mapping of functions to graphics screen, graphics hardware. Programming projects assigned.

258Q. Introduction to Number Theory
Either semester, alternate years. Three credits. Prerequisite: MATH 213 or 214.

Congruences, unique factorization, primitive roots, numerical functions, quadratic reciprocity and other selected topics, with emphasis on problem solving.

272Q. Differential Equations for Applications
Either semester. Three credits. Prerequisite: MATH 210 and 211, or 221. Not open for credit to students who have passed MATH 279.

Series solutions of differential equations, Bessel functions, Fourier series, partial differential equations and boundary value problems, nonlinear differential equations.

273Q-274Q. Analysis
Either semester. Three credits each semester. Prerequisite: MATH 213 or 214, and 211 or 221.

Introduction to the theory of functions of one and several real variables.

277Q. Applied Analysis
(Also offered as Mathematics 377.) Either semester. Three credits. Prerequisite: MATH 272. Offered in alternate years. MATH 277Q not open for credit to students who have passed MATH 377.

Convergence of Fourier Series, Legendre and Hermite polynomials, existence and uniqueness theorems, two point boundary value problems, and Green's functions.

278Q. Partial Differential Equations
(Also offered as Mathematics 378.) Either semester, alternate years. Three credits. Prerequisite: MATH 272 or its equivalent. MATH 278Q not open for credit to students who have passed MATH 378.

Solution of first and second order partial differential equations with applications to engineering and the sciences.

279Q. Introduction to Field Theory
Either semester. Three credits. Prerequisite: MATH 210 and 211. Not open for credit to students who have passed MATH 272.

Vector analysis in rectangular, circular-cylindrical and spherical coordinates, postulational derivation of the partial differential equations of classical physics, Fourier series, Bessel and Legendre functions, solutions of Laplace, Poisson, diffusion and scalar and vector wave equations.

281Q. Numerical Analysis I
Either semester. Three credits. Prerequisite: MATH 210Q, 211Q, and either 215Q or 227Q; 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.

282Q. Numerical Analysis II
Either semester. Three credits. Prerequisite: MATH 281.

Approximate integration, difference equations, solution of ordinary and partial differential equations.

283Q. Calculus and Probability Problems
Either semester. One or two credits. Hours by arrangement. Prerequisite: MATH 210 and 231.

Problems in calculus and probability designed to help students prepare for the first actuarial examination.

285Q. Financial Mathematics I
(Also offered as MATH 365.) Either semester. Three credits. Prerequisite: MATH 111, 114, 116, or 121.

The mathematics of measurement of interest, accumulation and discount, present value, annuities, loans, bonds, and other securities.

286Q. Introduction to Operations Research
(Also offered as STAT 286Q and STAT 356.) Either semester. Three credits. Prerequisite: MATH 231 or STAT 220 or 230. Not open for credit to students who have passed STAT 286 or 356.

Introduction to the use of mathematical and statistical techniques to solve a wide variety of organizational problems. Topics include linear programming, network analysis, queueing theory, decision analysis.

287Q-288Q. Actuarial Mathematics
(Also offered as MATH 387-388.) Either semester. Three credits each semester. Prerequisite: MATH 231 or STAT 230; and MATH 285, which may be taken concurrently.

Survival distributions, claim frequency and severity distributions, life tables, life insurance, life annuities, net premiums, net premium reserves, multiple life functions, and multiple decrement models.

289. Financial Mathematics II
Either semester. Three credits. Prerequisite: MATH 285. Also ACCT 131, which may be taken concurrently.

The continuation of MATH 285Q. Measurement of financial risk, the mathematics of capital budgeting, mathematical analysis of financial decisions and capital structure, and option pricing theory.

†290. Field Study Internship
Either or both semesters. One to three credits. May be repeated for credit (to a maximum of 6 credits). Consent of the Department Head, Director of the Actuarial Program, or the Undergraduate Coordinator required. Prerequisite: Completion of lower division requisite courses in the major.

292W. Senior Thesis in Mathematics
Either semester. Three credits. 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.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

293. Foreign Study
Either or both semesters. Credit and hours by arrangement. May be repeated for credit (to a maximum of 15 for MATH 193 and 293 together). 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

296. Problem Seminar
Either semester. One credit. One class period. Prerequisite: MATH 114, 116, or 121. Open to sophomores. 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.

297. Undergraduate Seminar
Either semester. Three credits. Open only with consent of instructor. This course, with a change of topic, may be repeated for credit.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. This course, with a change of topic, may be repeated for credit.

Mechanical Engineering (ME)

Head of Department: Professor Theodore L. Bergman
Department Office: Room 480, United Technologies Engineering Building

For major requirements, see the School of Engineering section of this *Catalog*.

205. Introduction to Mechanical Engineering
Three credits. Prerequisite: CE 211 and PHYS 151Q, both of which may be taken concurrently. Open to sophomores. Introduction to Mechanical Engineering through application of engineering principles and computers in practical problem solving, design and manufacturing. Topics include elementary numerical analysis, overview of manufacturing processes, simplified engineering modeling and analysis of systems, and computer analysis and simulation. A design project throughout the course incorporates these topics; a presentation of project results is required.

214. Dynamics of Particles and Rigid Bodies
Second semester. Three credits. Prerequisite: CE 212.

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.

217. Metal Cutting Principles
First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: CE 287 and MTGY 202 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.

218. Manufacturing Systems
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ME 217, which may be taken concurrently.

A study of process aspects of manufacturing with particular references to metal joining and casting. Relationship between manufacturing process and product design. Basic elements of numerically controlled metal processing systems. Organization required to manufacture.

220. Dynamics of Mechanical Systems
Second semester. Three credits. Prerequisite: MATH 210 and 211, ME 205, and CE 215 or 212.

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.

221. Manufacturing Automation
First semester. Three credits. Prerequisite: Consent of instructor. Not open to students who have passed ME 386.

Introduction to Computer Integrated Manufacturing (CIM). Fundamentals of automated manufacturing; Computer Numerical Control (CNC); production economics and optimization of production systems.

222. Production Engineering
Second semester. Three credits. Prerequisite: Consent of instructor. Not open to students who have passed ME 387.

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.

224. Analysis and Design of Mechanisms
First semester. Three credits. Prerequisite: MATH 210 and 211 and CE 211.

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.

225. Computer-Aided Design, Modeling, and Graphics
Both semesters. Three credits. Prerequisite: CSE 123, CE 287, MATH 210 and consent of instructor.

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.

227. Design of Machine Elements
First semester. Three credits. Prerequisite: ME 205 and CE 287.

Application of the fundamentals of engineering mechanics, materials and manufacturing to the design and analysis of machine elements.

228. Introduction to Fatigue in Mechanical Design
Second semester. Three credits. Prerequisite: CE 287 or consent of instructor. Not open to students who have passed ME 365.

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.

229. Machine Design
Second semester. Three credits. Prerequisite: CE 287. This course and CE 289 may not both be taken for credit.

Torsion of machine members with noncircular cross sections. Elastic stability and buckling. General methodology of stress analysis. Introduction to the theory of elasticity. Beams on elastic foundation. The energy method.

230. Linear Automatic Control Systems
Semester by arrangement. Three credits. Prerequisite: MATH 210 and 211.

Consolidated treatment of system analysis including modelling of electromechanical, pneumatic, hydraulic, thermal, and mechanical systems and their components. Closed loop control concepts related to these systems. Stability, instability issues. Basic treatment of Routh analysis, root locus, Bode, and Nyquist criterion. A hands-on open-ended control design project.

233. Thermodynamic Principles
Second semester. Three credits. Prerequisite: CHEM 127Q, PHYS 151Q and MATH 210Q and 211Q which may be taken concurrently. Open to sophomores.

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.

234. Applied Thermodynamics
First semester. Three credits. Prerequisite: ME 233 or CHEG 211.

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.

239. Pollution from Combustion
Either semester. Three credits. Prerequisite: ME 234.

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.

240. Principles of Combustion
First semester. Three credits. Prerequisite: ME 234, and 250, or equivalent.

A first course in combustion introducing some basic chemical thermodynamics and chemical kinetics principles as a background for an elementary treatment of flame propagation in pre-mixed mixtures, diffusion flames, explosions and detonations. Some aspects of coal combustion will also be discussed.

242. Heat Transfer
First semester. Three credits. Prerequisite: ME 233, and 250.

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.

245. Aerodynamics
Semester by arrangement. Three credits. Prerequisite: MATH 210 and 211 and either ME 250 or CE 297.

Application of fluid mechanics to the aerodynamics of flight. Classical inviscid theory for two-dimensional shapes and finite-span wings.

250. Fluid Dynamics I
Second semester. Three credits. Prerequisite: ME 205 and 233, and MATH 210 and 211. This course and CE 297 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.

251. Fluid Dynamics II
Either semester. Three credits. Prerequisite: ME 250 or CE 297.

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.

253. Linear Systems Theory
First semester. Three credits. Prerequisite: ME 205, which may be taken concurrently, CE 212 and MATH 211Q.

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.

255. Computational Mechanics
First semester. Three credits. Prerequisite: MATH 211Q and CE 287.

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.

257. Mechanical Engineering Analysis
Either semester. Three credits. Three class periods. Prerequisite: MATH 211Q.

Introduction to the applied mathematical techniques in mechanical systems, heat transfer, fluid mechanics, and thermodynamics. Methods involving the application of partial differential equations, linear algebra, Fourier series, Bessel functions and LaPlace transform will be treated within the context of mechanical engineering. Case studies will be employed where appropriate.

260W. Measurement Techniques
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ECE 220.

Theory and practice of measurement including analysis and application of electromechanical transducers. Methods of measuring length, area, time, pressure, temperature, force and strain. The determination of the phase relation between a driving potential and the response of a system. The application of statistical methods to analysis of experimental data.

262. Introductory Thermo-Fluids Laboratory
First semester. Three credits. One class period and one 3-hour laboratory period. Prerequisite and co-requisite: ECE 220 and ME 233.

Introduction to experimental methods in Mechanical Engineering. Review and use of pressure, temperature, and flow measuring devices. Data acquisition and analysis including use of computers. Principles of good experimental design. Experiments selected mainly from within the thermo-fluids area.

263W. Experimental Mechanical Engineering I
(Formerly offered as ME 264W.) First semester. Four credits. Two class periods and one 3-hour laboratory period. Prerequisite: ME 242 and ME 250, both of which may be taken concurrently.

Analyses of basic engineering problems with subsequent verification of the analyses.

270. Engineering Design Project
Second semester. Four credits. Two 3-hour laboratory periods. Prerequisite: ME 227.

Design of a device, machine, process, or system. Students working singly and in small groups produce a solution to an engineering design problem, from first concepts through preliminary sketches, analysis, construction, evaluation and report. A written report and oral presentation of the design project are required. Shop safety qualification is required.

272P. Senior Design Project I
First semester. Three credits. Prerequisite: ME 250. Prerequisite or co-requisite: ME 227

This course is 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.

273P. Senior Design Project II
Second semester. Three credits. Prerequisites: ME 272P, 260, and 262.

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.

295. Special Topics in Mechanical Engineering
Semester, 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.

298. Mechanical Engineering Undergraduate Seminar
Second semester. One credit. One class period. Open only to seniors in mechanical engineering.

Presentation and discussion of advanced topics in mechanical engineering.

299. Problems in Mechanical Engineering
Semester and hours by arrangement. Credits by arrangement, not to exceed four. Open only to seniors in mechanical engineering. This course, with a change in topic, may be repeated for credit.

This course is 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.

Medical Laboratory Sciences Programs (MLS)

Cytotechnology Program Academic Coordinator: Associate Professor Denis A. Coble
Cytotechnology Program Office: Room 306, Koons Hall
Diagnostic Genetic Sciences Program Director: Martha B. Keagle
Diagnostic Genetic Sciences Program Office: Room 222, Koons Hall
Medical Technology Program Director: Elizabeth Epp
Medical Technology Program Office: Room 318, Koons Hall

For major requirements, see the School of Allied Health section of this *Catalog*.

200. Basic Laboratory Techniques in Medical Laboratory Sciences
First semester. Three credits. One 2-hour lecture and one 2-hour laboratory period. Open only to students in the Medical Laboratory Science Programs.

Introduction to diagnostic genetic sciences, diagnostic molecular technologies, cytotechnology and medical technology, microscopy, laboratory safety, medical terminology, staining theory and technique, hematopoiesis, phlebotomy, laboratory equipment and volumetrics, quality assurance, interdisciplinary case studies.

206. Anatomy and Physiology for the Medical Laboratory Sciences
First semester. Two 1-1/2-hour lectures and one two-hour laboratory period. Prerequisite: CHEM 128Q; and two of the following four courses: BIOL 103, BIOL 107, BIOL 108, PNB 264; one of which may be taken concurrently. Open only to students in the Medical Laboratory Science Programs; others with consent of instructor. Not open for credit for students who have passed PNB 265.

A systemic approach to the study of anatomy and physiology specific to the Medical Laboratory Sciences. The structure and function of each organ system will be discussed.

208. Immunology for the Medical Laboratory Sciences
Second semester. Three credits. Three hours of lecture. Recommended preparation MT 210 or MCB 229 which may be taken concurrently. Open only to students in the Medical Laboratory Sciences Programs; others with consent of the instructor.

Mechanisms of innate and acquired immunity, antigen-antibody interactions, function of the human immune system in normal and diseased states.

208W. Immunology for the Medical Laboratory Sciences

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: The completion of all Lower Division requirements in Medical Laboratory Sciences. Open only with consent of instructor. May be repeated for credit.

Application of the scientific method of inquiry to planning, implementing, evaluating and reporting a study of a problem related to the medical laboratory.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement. Open only with consent of the 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 cytology, diagnostic genetic sciences, clinical laboratory medicine or medical technology.

Medical Technology (MT)

Medical Technology Program Director: Elizabeth Epp
Program Office: Room 318, Koons Hall

For major requirements, see the School of Allied Health section of this *Catalog*.

The following courses are open only to the students enrolled in the Medical Technology Program unless otherwise noted. Others must obtain the permission of the Director of the Medical Technology Program.

210. Infectious Disease Process I
(Formerly MLS 204.) First semester. Four credits. One 2-hour lecture, 4 hours of laboratory. Prerequisite: MCB 203 or MCB 204 which may be taken concurrently. Not open for credit for students who have passed MCB 229.

Fundamentals of microbial classification, structure, growth and metabolism. Principles of disease and epidemiology, mechanisms of pathogenicity and identification of bacteria causing human disease.

213. Clinical Immunology and Virology
Either semester. Three credits. Prerequisite: MLS 208(W) which may be taken concurrently.

Immune responses in normal and diseased states; methods for the detection of antigens and antibodies in blood and body fluids; introduction to virology and immunology methods for the diagnosis of viral diseases.

250. Clinical Chemistry and Instrumentation
Either semester. Five credits. Prerequisite: MCB 203.

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.

251. Clinical Chemistry Laboratory
Second semester. Three credits. Prerequisite: MT 250.

Application of the theory and techniques learned in MT 250 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results; instrumentation and quality assurance or the general laboratory environment.

252. Infectious Disease Process II
Either semester. Two credits. Prerequisite: MT 210.

Isolation and identification of pathogenetic and opportunistic fungi that infect humans, pathogenesis and identification of human parasites and correlation of organisms to disease states.

†260. Theory of Phlebotomy
(Formerly MLS 291.) Either semester. One credit. Prerequisite: MLS 200.

Venipuncture and special phlebotomy techniques, safety, ethics, and management of phlebotomy services.

†261. Phlebotomy Laboratory
(Formerly MLS 292.) Either semester. One credit. Prerequisite: MT 260 (Formerly MLS 291).

Application of the theory and techniques learned in MT 260 (Formerly MLS 291) to the clinical laboratory setting. Understanding work flow, scheduling, teamwork, and quality assurance in the general laboratory environment.

264. Hematology
(Formerly MLS 280.) Either semester. Three credits. Prerequisite: MLS 200.

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.

266. Clinical Microbiology
(Formerly MLS 284.) First semester. Four credits. Prerequisite: MT 210 (Formerly MLS 204).

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.

267. Clinical Microbiology Laboratory
(Formerly MLS 285.) Second semester. Four credits. Prerequisite: MT 266 (Formerly MLS 284).

Application of the theory and techniques learned in MT 252 and MT 266 (Formerly MLS 284) to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation, and quality assurance in the general laboratory environment.

269. Clinical Immunology Laboratory
(Formerly MLS 289.) Second semester. One credit. Prerequisite: MT 213.

Application of the theory and techniques learned in MT 213 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation, and quality assurance in the general laboratory environment.

270. Transfusion Services
(Formerly MLS 286.) First semester. Two credits. Prerequisite: MLS 208(W).

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.

272. Urinalysis
(Formerly MLS 293.) First semester. One credit. Prerequisite: MLS 200.

Renal physiology, chemical and microscopic examination of urine, correlation of results with disease states, chemical analysis of feces.

273. Urinalysis Laboratory
(Formerly MLS 294.) Either semester. One credit. Prerequisite: MT 272 (Formerly MLS 293).

Application of the theory and techniques learned in MT 272 (Formerly MLS 293) 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.

274. Hematology Laboratory
Second semester. Three credits. Prerequisite: MT 264.

Application of the theory and techniques learned in MT 264 (formerly MLS 280) to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation and quality assurance in the general laboratory environment. Correlation of blood cell morphology and laboratory data in normal and disease states.

275. Transfusion Services Laboratory
Second semester. Two credits. Prerequisite: MT 270.

Application of the theory and techniques learned in MT 270 (formerly MLS 286) to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results,

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

instrumentation and quality assurance and preparation of blood components in the general laboratory environment.

280. Seminar in Medical Technology
(Formerly MLS 253.) Second semester. Two credits. Prerequisite: AH 241W. *Hospital Staff*
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 technology. Oral and written presentation of research project or topic.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: The completion of Lower Division requirements in the Medical Technology 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.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement. 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 areas in the field of Medical Technology.

Metallurgy & Materials Engineering (MMAT)

Head of Department: Professor John Morral
Department Office: Room 111, Institute of Materials Science Building

For major requirements, see the School of Engineering section of this *Catalog*.

(Metallurgy & Materials Engineering courses were formerly offered under the MTGY department abbreviation using the same course numbers.)

201. Materials Science & Engineering I
Both semesters. Three credits. Prerequisite: CHEM 128 or 130 and PHYS 122, 132, or 152.

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.

202. Materials Science & Engineering Lab
Both semesters. One credit. One 3-hour laboratory period. Prerequisite: MMAT 201, which may be taken concurrently.

Illustrative experiments on microstructure, phase equilibria, heat treatment and mechanical properties.

203. Materials Science & Engineering II
Semester by arrangement. Three credits. Prerequisite: MMAT 201.

Structures, properties and processing of ceramics, polymers, and composites. Further development of the properties of these materials and of metals, including electrical, thermal, magnetic and optical behaviors. Case studies in materials selection.

204. Chemical Metallurgy
Semester by arrangement. Three credits. Prerequisite: CHEM 128, PHYS 151. *Devereux*

Principles of chemical thermodynamics, reaction kinetics, and electrochemistry. Applications to interfacial phenomena, extraction and refining, and corrosion and electro-deposition.

205. Introduction to Mechanical Metallurgy
Semester and hours by arrangement. Three credits. Prerequisite: MMAT 201 or 203.

Elements of plastic deformation of metals and the role of crystal structure. Strengthening mechanisms. Fracture; including fatigue, stress corrosion and creep rupture. Test methods. Forming of metals.

206. Defects in Metals and Semiconductors
Semester by arrangement. Three credits. Prerequisite: MMAT 201 or 203. *Galligan*

Equilibrium and non-equilibrium defects in crystals, their influence on various metallurgical and semiconducting properties of materials. Interrelationship of equilibrium defects to non-equilibrium defects and the influence on various properties of materials.

207. Failure Analysis
Second semester. Three credits. Prerequisite: MMAT 201.

Methods for determining the nature and cause of materials failure in structures and other mechanical devices. Analysis of case histories.

211. Structure and Properties of Alloys
Semester by arrangement. Three credits. Prerequisite: MMAT 201 or 203. *Clapp*

Microstructures of alloys and relationships between microstructure and properties.

217. Extractive Metallurgy
Semester by arrangement. Three credits. Prerequisite: CHEM 128 or 130. *Devereux*

Pertinent engineering principles. General introduction to important extractive processes. Overall concepts of separation.

219. The Metallurgy of Welding
Either semester. Three credits. Prerequisite: MMAT 201 or 203. *Kattamis*

Basic metallurgical principles applied to welding and brazing processes. Effects of welding on material. Treatment and properties of welded joints. Welding defects and quality control.

222. Materials Processing – Metals
First semester. Three credits. Prerequisite: MMAT 201 or 203.

Achievement of desired dimensional, physical and chemical properties with manufacturing economy. Solidification, powder methods, joining, deformation, and surface treatments. Field trips.

229. Physical Ceramics
Semester and hours by arrangement. Three credits. Prerequisite: CHEM 128 or 130 and PHYS 152. *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.

230. Introduction to Composite Materials
Either semester by arrangement. Three credits. Prerequisites: MMAT 205 or MMAT 266.

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.

232. Introduction to High Temperature Materials
Semester by arrangement. Three credits. Prerequisite: MMAT 201 or 203, or consent of the instructor.

Plastic deformation of metals and other solid materials at elevated temperatures. Dislocation mechanisms; creep processes; oxidation. Strengthening mechanism, including ordering and precipitation hardening.

234. Materials Protection
Semester by arrangement. Three credits. Not open for credit to students who have passed MTGY 343. *Greene*

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.

236. Materials Characterization
Semester by arrangement. Three credits. Two class periods and, every other week, a 3-hour laboratory period. Laboratory sections in addition to that listed in *Directory of Classes* will be arranged.

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.

238. Alloy Casting Processes
Second semester by arrangement. Three credits. Prerequisites: MMAT 203 or MMAT 265 and MMAT 255 or equivalent.

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.

243. Introduction to Structure, Properties, and Processing of Materials I
First semester. Two credits. Co-requisites: CHEM 128 and MATH 116. Not open for credit to students who have passed MMAT 201. Open to sophomores.

Principles underlying the selection of materials and the characterization of micro- and atomic structure will be introduced, with emphasis on atomic and molecular structure, crystallography, solid solutions, binary phase diagrams, mass mass transport, cross linking, entanglement, and the relation of microstructure to properties.

244. Introduction to Structure, Properties, and Processing of Materials II
Second semester. Three credits. Prerequisites: MMAT 243 or MMAT 201. Open to sophomores.

Principles underlying the selection of materials and the control of microstructure through processing will be introduced, with emphasis on injection molding, extrusion, casting, particulate processing, electrochemistry, corrosion, refining, vapor processing, processing-property relations.

255. Transport Phenomena in Materials Processing
First semester. Four credits. Three hours lecture and two hours laboratory. Co-requisites: MMAT 265 and MATH 210Q.

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.

256. Applied Thermodynamics of Materials
Second semester. Three credits. Prerequisites: ME 233 or CHEG 263 and MMAT 265.

Thermodynamic principles will be applied to the behavior and processing of materials. Topics covered will include solution thermodynamics: activity and activity coefficients; phase equilibrium; electrochemistry; slag metal and gas metal reactions.

265. Structure-Property Relations I: Phase Transformation Kinetics and Applications
First semester. Three credits. Prerequisite: PHYS 152Q. Corequisite: MMAT 243 or MMAT 210.

Principles and applications of phase transformations to control microstructure and materials properties. In depth, quantitative coverage will include atomic and molecular arrangements; lattices; point, line, and surface defects; cross links, entanglements, glasses, diffusion; kinetics of nucleation and growth; and thermal treatments to control microstructure.

266. Structure-Property Relations II: Strengthening and Toughening Mechanisms
Second semester. Three credits. Prerequisite: MMAT 265.

Principles and applications of strengthening and toughening mechanisms will be treated quantitatively with emphasis on line defects, microplasticity, displacive and diffusional transformations, fillers, sintering, creep, and creep rupture.

267. Structure-Property Relations III: Electromagnetic and Environmental
First semester. Three credits. Prerequisite: MMAT 266.

Principles underlying electrical, magnetic, and chemical behavior will be applied to the selection and design of materials. Topics covered will include: thermoelectricity, photoelectricity, conductors, semiconductors, dielectrics, superconductors, magnetism, corrosion, and oxidation.

276. Materials Processing I: Thermal Mechanical
Second semester. Three credits. Prerequisite: MMAT 255 and MMAT 265. Co-requisite: MMAT 256.

Fundamental principles of materials processing and their quantitative application to process design will be illusttrated for deformation processes: forging, rolling, drawing, extrusion, injection molding, powder compaction and sintering.

277. Materials Processing II: Thermal Fluid
First semester. Three credits. Prerequisites: MMAT 255 and MMAT 265. Co-requisite: MMAT 256.

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.

283. Materials Characterization Laboratory I
First semester. Three credits. Co-requisite: MMAT 243. Not open for credit to students who have passed MMAT 202. One 3-hour laboratory period. Open to sophomores.

Principles of materials characterization and materials selection illustrated by hands-on experience with microscopy, testing, and analysis of design criteria for selection of materials for engineering systems (reverse engineering).

284. Materials Processing Laboratory
Second semester. Three credits. Co-requisite: MMAT 244. One 3-hour laboratory period. Open to sophomores.

Principles of materials processing will be illustrated by hands-on experience with qualitative and quantitative microscopy, testing, and reverse engineering, with experiments on polymer extrusion and injection molding, alloy casting, elutriation, particle compaction, sintering, forging, welding, and electrodeposition.

285. Mechanical Behavior Laboratory
First semester. One credit. Co-requisite: MMAT 265. Three hours laboratory.

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.

286. Materials Characterization Laboratory II
Second semester. One credit. Prerequisite: MMAT 265. One 3-hour laboratory period.

Hands-on experience with materials characterization will be gained through work shops on X-ray fluorescence and diffraction, scanning electron microscopy, electronic and magnetic property measurement, and failure analysis.

287. Capstone Design Project I
First semester. Two credits. Four hours practicum. Prerequisites: MMAT 266 and MMAT 276.

Seniors working in teams with faculty and industry mentors wolve 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.

288. Capstone Design Project II
Second semester. Two credits. Four hours practicum. Prerequisites: MMAT 266 and MMAT 276.

Seniors working in teams with faculty and industry mentors wolve 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.

298. Special Topics in Metallurgy
Both semesters. Three credits. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit.

299. Introduction to Research
Both semesters. Credits and hours by arrangement. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit. Some sections of this course are graded Satisfactory/Unsatisfactory.

Methods of research and development. Laboratory investigation. Correlation and interpretation of experimental results. Writing of technical reports.

Military Science (MISI)

Head of Department: Lieutenant Colonel Charles P. Lynch
Department Office: ROTC Office, Army, 28 North Eagleville Road

131. General Military Science I
Either semester. 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.

132. General Military Science I
Either semester. 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.

133. General Military Science: Air Rifle Marksmanship
Both semesters. 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.

145. General Military Science II
Either semester. One credit. One class period and leadership laboratory.

Map reading, mountaineering, principles of war.

146. General Military Science II
Either semester. One credit. One class period and leadership laboratory.

Emergency First Aid, leadership, military instruction techniques.

252. General Military Science III
First semester. 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.

253. General Military Science III
Second semester. Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 252.

Dynamics of small unit tactics, and branches of the Army.

297. General Military Science IV
First semester. Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 253.

Army staff organization, unit administration and management, logistics, military intelligence, leadership seminar, the international system, and strategic doctrine.

298. General Military Science IV
Second semester. 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.

Modern and Classical Languages

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

For major requirements for Classics and Ancient Mediterranean Languages, French, German, Italian Literary and Cultural Studies, Portuguese, and Spanish, see the College of Liberal Arts and Sciences section of this *Catalog*.

For course descriptions of Modern and Classical Languages, see these topics listed alphabetically throughout this *Directory of Courses*:

Classics and Ancient Mediterranean Languages (CAMS)
Critical Languages (CRLP)
French (FREN)
German (GERM)
Hebrew (HEB)
Italian Literary and Cultural Studies (ILCS)
Portuguese (PORT)
Russian (RUSS)
Spanish (SPAN)

Molecular and Cell Biology (MCB)

Head of Department: Professor Philip L. Yeagle
Department Office: Room 205, Life Sciences Annex

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

200. Human Genetics
First semester. Three credits. Two lectures and one problem session. Prerequisite: BIOL 107. Open to sophomores. *Strausbaugh*
Principles of genetics as applied to humans. Focus on modern methods of molecular genetics.

201. Gene Expression
Second semester. Three credits. Recommended preparation: MCB 200 or 210 or 229. Open to sophomores. *Hightower*

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.

203. Introduction to Biochemistry
Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CHEM 141 or 244. (CHEM 244 may also be corequisite.) Open to sophomores. Not open for credit to students who have passed MCB 204. May substitute for MCB 204 only if taken with MCB 226 and with permission of the Department Head to satisfy the biochemistry requirement of the molecular and cell biology major.

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 204.

204. Biochemistry
First semester. Five credits. Four class periods and one 3-hour laboratory. Prerequisite or corequisite: CHEM 244. Recommended preparation: MCB 210 or MCB 229. Not open for credit to students who have passed MCB 203. *Teschke*

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.

205. Human Metabolism and Disease
Second semester, alternate years. Two credits. Prerequisite: MCB 203 or 204, or consent of instructor. *Albert*

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.

206. Fundamentals of Structural Biology
First semester. Three credits. Prerequisite: BIOL 107 or CHEM 128, or consent of instructor. *Yeagle*

An introduction to principles underlying the structure and function of the molecules guiding life processes. These principles will be applied to proteins, DNA/RNA and membranes as well as to the energetics of life processes.

207Q. Introduction to Biophysical Chemistry
Second semester. Three credits. Prerequisite: CHEM 243; MATH 114 or 116; PHYS 122, 132 or 142; or consent of instructor.

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.

208Q. Techniques of Biophysical Chemistry
Second semester. Three credits. Prerequisite: MCB 207, or CHEM 263, or consent of instructor. *Braswell*

The characterization of biological macromolecules (i.e. proteins and nucleic acids) in solution is important to the biotechnology and pharmaceutical industries. This course deals with hydrodynamic techniques (i.e. diffusion, electrophoresis, sedimentation, light scattering, and viscosity) for molecular size and shape, and spectroscopic methods (such as circular dichroism) for more detailed structure.

209. Structure and Function of Biological Macromolecules
Second semester. Three credits. Prerequisite or corequisite: MCB 204 or 203 or consent of instructor. *Knox*

Correlation of three-dimensional molecular architecture with biochemical function in proteins, nucleic acids, and large assemblies such as viruses and ribosomes. Folding motifs and domains; molecular ancestry/homology; molecular recognition at the atomic level, as in DNA/protein complexes; structural basis of enzyme specificity and catalysis. Structure prediction from sequence; principles of structure determination by x-ray diffraction, NMR and CD spectroscopies, and electron microscopy. X-ray laboratory and graphics demonstrations.

210. Cell Biology
First semester. Three credits. Prerequisite: BIOL 107. This course is intended to be taken before MCB 203 or 204 (Biochemistry). Open to sophomores. *Knecht/Lee*

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.

211. Basic Immunology
First semester. Three credits. Prerequisite: BIOL 107. Recommended preparation: MCB 210. *Lynes*

An introduction to the genetic, biochemical, and cellular mechanisms of the immune system. This course will address basic aspects of immune function, and will examine abnormal immune function associated with cancer, autoimmune disease, AIDS, and other immunological abnormalities.

212. Genetic Engineering and Functional Genomics
Second semester. Three credits. Prerequisite: MCB 200 or 213. Recommended preparation: MCB 204 or 203. *R. O'Neill*

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.

213. Concepts of Genetic Analysis
Second semester. Four credits. Three class periods and 2-hour laboratory. Prerequisite: BIOL 108 or 110, or MCB 200 or equivalent, and CHEM 128. Open to sophomores. *Zhang*

Survey of genetic theory and applications of genetic analysis. Model genetic systems in animals, plants, and microbes.

214. Experiments in DNA Identification
Second semester. Two credits. One fifty minute lecture period and one three hour laboratory session. Prerequisite: MCB 200. *O'Neill*

An introductory laboratory course in principles and techniques of DNA manipulation and identification. Course simulates independent research, using modern molecular genetics techniques.

215. Experiments in Molecular Genetics
First semester. Three credits. One 1-hour lecture and two 3-hour laboratory periods. Open only with consent of instructor. Recommended preparation: MCB 204; 212 or 217. Not open for credit to students who have passed MCB 230. *Reiter*

Modern methods in molecular genetics arranged to meet a research goal. Use of polymerase chain reaction, bacteriophage library screening, molecular cloning, nucleic acid hybridizations, and DNA sequence determinations to isolate and characterize a eukaryotic gene.

217. Molecular Biology and Genetics of Prokaryotes
First semester. Four credits. Three lecture periods and one 2-hour discussion. Prerequisite: MCB 229. *Noll*

Molecular genetics of bacteria, archaebacteria, and their viruses. Transcription and replication of DNA, transformation, transduction, conjugation, genetic mapping, mutagenesis, regulation of gene expression, genome organization.

218. Heredity and Society
First semester. Three credits. Open to sophomores. May not be counted toward the biology major.

The principles of heredity and their implications for society.

218W. Heredity and Society
(Formerly offered as MCB 222.) First semester. Four credits. Three class periods and library research. Open to sophomores. May not be counted toward the biology major.

219. Developmental Biology
Second semester. Three credits. Prerequisite: BIOL 107. Recommended preparation: MCB 210 and 213 or 200, which may be taken concurrently. *Krider*

Principles of embryogenesis, pattern formation, and cell differentiation. The focus will be on molecular and cellular aspects of development in several experimental systems, including the mouse, nematode, fruit fly, and frog.

220. Laboratory in Developmental Biology
Second semester. Three credits. Two 3-hour laboratory periods and a discussion/recitation period. Prerequisite or corequisite: MCB 219, or six credits of college biology and consent of instructor. Not open for credit to students who have passed MCB 223.

Analysis of principles of morphogenesis and differentiation.

220W. Laboratory in Developmental Biology
(Formerly offered as MCB 223.) Second semester. Four credits. Two 3-hour laboratory periods and two discussion/recitation periods. Prerequisite or corequisite: MCB 219, or two semesters of college biology and consent of instructor.

221. Introduction to Molecular Evolution and Bioinformatics
First semester. Three credits. Recommended preparation: At least one 200 level course in MCB. Open to sophomores. *Gogarten*

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.

222W. Human Disease and the Development of Therapeutic Agents
First semester. Three credits. Recommended preparation: one 200 level course in MCB. *Kendall*

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.

224. Experiments in Bacterial Genetics
Second semester. Three credits. Two 3 1/2 hour laboratory/lecture periods. Prerequisite: MCB 213. Prerequisite or corequisite: MCB 217 or 229. Open only with consent of instructor.

Experiments in bacterial genetics, emphasizing genetic manipulations using modern techniques for mutant isolation, DNA characterization and cloning. These include the use of transposons, DNA isolation, restriction analysis, gel electrophoresis, PCR and DNA sequencing.

226W. Advanced Biochemistry Laboratory
Second semester. Four credits. One 1-hour lecture and two 4-hour laboratories. Prerequisite: Either MCB 204, or MCB 203 with consent of instructor. *Teschke*

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.

229. Fundamentals of Microbiology
Either semester. Four credits. Three lecture periods and one 2-1/2-hour laboratory period. Prerequisite or corequisite: CHEM 141 or 243. Recommended preparation: BIOL 107 or equivalent. Open to sophomores. *Gage, Terry, Vinopal*

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.

230. Laboratory in Biotechnology and Molecular Genetics
Summer session. Two credits. One 4-hour laboratory. Prerequisite: MCB 200 or 213. Prerequisite or corequisite: MCB 229. Not open for credit to students who have passed MCB 215.

Theory and application of techniques used in biotechnology and molecular genetics, including recombinant DNA procedures, gel electrophoresis and blot analysis.

232C. Microcomputer Applications in Molecular and Cell Biology
First semester. Three credits. One 1-hour lecture and two 3-hour laboratories. Recommended preparation: MCB 200 or 204 or 210 or 213 or 229. *Braswell*

Introduction to the use of microcomputers in molecular biology, emphasizing commercially available applications software, both general (spreadsheet, word processing, database, graphics) and specialized (DNA and protein sequence database manipulation, molecular modeling, data acquisition, others).

233. Pathogenic Microbiology
Second semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: MCB 229. Recommended preparation: MCB 204 (or 203).

A detailed study of microbial genera, emphasizing species which are important in diseases of man and animals and which have special public health significance. Diagnostic methods include some standard serological procedures.

235. Applied Microbiology
First semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: MCB 229. Recommended preparation: MCB 204 (or 203). *Benson*

A study of the biology, physiology, and genetics of microorganisms useful in industry, agriculture, and selected environmental processes.

236. Marine Microbiology
(Also offered as MARN 236.) Second semester. Three credits. Two lecture-discussion class periods and one 2-hour laboratory period for which field trips may be substituted. Offered at the Avery Point Campus. Prerequisite: MCB 229, or consent of instructor.

A general survey of the taxonomy, physiology, and ecology of marine microorganisms.

240W. Bacterial Diversity and Ecology
Second semester. Four credits. Two lecture periods and two 3-hour laboratory/discussion periods. Prerequisite: MCB 229 or consent of instructor. Recommended preparation: MCB 204 (or 203). *Leadbetter*

A study of the ecophysiology of diverse bacterial types with particular emphasis on the activities of bacteria *in situ*. Investigative laboratory includes individual projects.

241W. Research Literature in Molecular and Cell Biology
First semester. Three credits. Open only with consent of instructor. Recommended preparation: one 200's course in MCB. With a change in content, may be repeated for credit. *Leadbetter*

Discussion of current research in molecular and cell biology. Focus on microbes as agents of environmental change.

246. Virology
Second semester. Three credits. Three lecture periods. Prerequisite: MCB 229. Recommended preparation: MCB 204 or 210. *Marcus*

Biological, biochemical, physical, and genetic characteristics of viruses, with an emphasis on molecular and quantitative aspects of virus-cell interactions.

258. Biotechnical Plant Culture
Summer session. Two credits. Prerequisite: MCB 259.

Recent advances in in vitro, hydroponic and controlled environment culture of plants.

259. Plant Physiology
First session. Three credits. Three 1-hour class periods. Recommended preparation: BIOL 108 (or 110) and CHEM 128.

Functioning of plants in relation to external and internal factors. The course integrates pertinent findings from cell biology, genetics and molecular biology. Topics include photosynthesis, long distance and trans-membrane transport, selected biochemical pathways, phytohormones, photomorphogenisis and movements in plants.

261. Laboratory Techniques of Plant Physiology
Summer. Two credits. Consent of instructor. Recommended preparation: MCB 259.

289. Variable Topics
Either semester. Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

290. Forensic Application of DNA Science
Second semester. Three credits. Recommended preparation: a course in genetics. *Strausbaugh*

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.

292W. Senior Research Thesis in Molecular and Cell Biology
Either semester. Three credits. Hours by arrangement. Prerequisite or corequisite: Three credits of MCB 299. Open only with consent of instructor and department honors commitee. Not limited to honors students.

Designed for the advanced undergraduate who is pursuing a special problem as an introduction to independent investigation. Research and writing of a thesis.

297. Undergraduate Seminar
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

Music (MUSI)

Head of Department: Professor Robert F. Miller
Department Office: Room 230, Music Building

For major requirements, see the School of Fine Arts section of this *Catalog*.

†101. Convocation, Concert and Recital Repertoire
Required of all music majors every semester of residence. No credit. *Maker, Larrabee*

108. Varsity Band
Either semester. One credit. Two laboratory periods. Open only with consent of instructor. May be repeated for credit. *Mills*

Repertory, rehearsal techniques, preparation and presentation of performances in support of the University community.

109. Marching Band
First semester. One credit. Three laboratory periods. Open only with consent of instructor. May be repeated for credit. *Mills*

Repertoire, rehearsal techniques, preparation and presentation of marching band shows.

110. Band
Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit. Wind Ensemble, Symphony Band, Concert Band. *Mills, Renshaw*

Repertoire, rehearsal technique, preparation and presentation of concerts.

111. Chorus
Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit. Concert Choir, Chamber Singers, University Chorale. *Bagley*

Choral repertoire from all periods, concentration on vocal and choral techniques as related to musical styles, preparation and presentation of concerts.

112. Orchestra
Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit. *Sacco*

Standard symphonic repertoire, technique of orchestral routine, preparation and presentation of concerts.

113. Chamber Ensemble
Semester by arrangement. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit. As a requirement for credit, the student must participate in MUSI 110, 111, or 112.

Chamber music for various combinations of voices, string, woodwind, brass, percussion and keyboard instruments. Preparation and presentation of concerts.

114. Voices of Freedom Gospel Choir
Either semester. One credit. One 2-hour laboratory period. Open only with consent of instructor. May be repeated for credit.

Preparation and presentation of concerts. Gospel and spiritual music of the Black experience.

115. Jazz Ensemble
Either semester. One credit. Two laboratory periods. Open only with consent of instructor. May be repeated for credit.

Jazz repertoire, rehearsal techniques, preparation and presentation of concerts.

116. Small Ensemble
Either semester. One credit. Two laboratory periods. Open only with consent of instructor. May be repeated for credit. As a requirement for credit, the student must participate in MUSI 110, 111, or 112.

Small ensemble music under the direction of a conductor. Preparation and presentation of concerts.

117. Women's Choir
Either semester. One credit. Two 1 1/2 hour laboratory periods. 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.

118. Collegium Musicum
(Formerly offered as MUSI 220.) Either semester. One credit per semester. One lecture period, two laboratory periods. Open only with consent of instructor. May be repeated for credit. *Bellingham*

Performance practices, iconography, notation, instrumentation in vocal and instrumental music before 1700. Preparation and participation in historically authentic performance.

119. Opera Workshop
(Formerly offered as MUSI 221.) Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit. *McClain*

Performance practices. Preparation and participation in scenes from operatic repertoire.

121. Secondary Applied Music
Either semester. One credit each semester. May be repeated for credit. Ensemble required with conditions stated under MUSI 122. Open only with consent of instructor and department head.

Fees for this course are at the same rate as described for MUSI 122.

Basic performance techniques. Elementary and intermediate repertoire. Primarily for students majoring in another applied area.

122. 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).

Either or both semesters. One to 3 credits each semester. May be repeated for credit. Participation in an appropriate ensemble, MUSI 110, 111, or 112, is required each semester for students registered in MUSI 122 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.

A fee of $70 for one half-hour lesson per week or $135 for a one-hour lesson per week per semester is charged all students receiving private instrumental or vocal instruction.

123. Class Instruction in Piano
Either or both semesters. One credit each semester. Two class periods and required practice. May be repeated for credit. Open only with consent of instructor. *Clark*

124. Applied Accompanying
One credit per semester. One class period per week by arrangement. Open only with consent of instructor. This course is intended for students whose area of emphasis is keyboard. An audition is required for all other students.

Performance class in accompanying skills.

125. Applied Music Techniques
Bs (Brass), Pn (Percussion), Sg (String), Ve (Voice), Wd (Woodwind).
Either semester. One credit. Two laboratory periods. May be repeated for credit. Open only with consent of instructor.

Performance and teaching techniques.

126. Introduction to Diction for Singers
First semester. One credit. Two one-hour laboratory periods. Prerequisite: concurrent registration in applied voice study under MUSI 122, 222, or 323. *McClain*

An introduction to the International Phonetic Association (IPA) symbols with special application to the study of English diction for singers.

127. Italian Diction for Singers
Second semester. One credit. Two one-hour laboratory periods. Prerequisite: MUSI 126 and concurrent registration in applied voice study under MUSI 122, 222, or 323.

A continuing study of the IPA symbols with their special application to the study of Italian diction for singers.

128. German Diction for Singers
First semester. One credit. Two one-hour laboratory periods. Prerequisite: MUSI 126 and concurrent registration in applied voice study under MUSI 122, 222, or 323. *McClain*

A continuing study of the IPA symbols with their special application to the study of German diction for singers.

129. French Diction for Singers
Second semester. One credit. Two one-hour laboratory periods. Prerequisite: MUSI 126 and concurrent registration in applied voice study under MUSI 122, 222, or 323.

A continuing study of the IPA symbols with their special application to the study of French diction for singers.

135. Honors Harmony I
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: Open only with consent of instructor. *Kaminsky*

Writing and analysis of tonal harmony; study of harmony in relation to melody and counterpoint. Elementary score reading; sight-singing; melodic and harmonic dictation; introduction to counterpoint; model composition and elements of form.

136. Honors Harmony II
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 135. *Kaminsky*

Continuation of Honors Harmony I.

138. Introduction to Improvisation
Either semester. One credit. One laboratory period. Open only with consent of instructor. May be repeated once for credit.

Basic jazz theory and the elements of improvisation.

145. Harmony I
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Open only with consent of instructor. Not open for credit to students who have passed MUSI 135. *Kaminsky*

Writing and analysis of tonal harmony; relation to melody and counterpoint. Elementary scorereading;

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

sight-singing; melodic harmonic dictation, and keyboard application.

146. Harmony II
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 145. Not open for credit to students who have passed MUSI 136. *Kaminsky*

Continuation of MUSI 145.

153. Fundamentals of Music I
Either semester. Three credits. *Maker*

Basic skills in note reading, rhythm, meter, pitch symbols, scales, key-signatures, intervals, and triads. No previous training is required.

154. Fundamentals of Music II
Second semester. Three credits. Prerequisite: MUSI 153 or consent of instructor. *Laszloffy*

Traditional harmonic principles, four-part writing, sight singing and melodic dictation.

155. Introduction to Ear Training
Second semester. Three credits.

Music reading, sight-singing, and dictation.

190. Non-Western Music
Either semester. Three credits. Intended primarily for students who are not music majors. Not open for credit to students who have passed MUSI 292W.

Folk, popular, and classical musics of selected non-Western cultures, with an emphasis on the distinctive characteristics of each culture.

191. Music Appreciation
Either semester. Three credits. No previous training is required. Not appropriate for students who have previously passed MUSI 193 or 194. Not intended for students with previous musical experience.

An approach toward intelligent listening, illustrated by recordings.

193. Introduction to Music History I
First semester. 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.

194. Introduction to Music History II
Second semester. 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.

†201. Practicum in Music
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

210W. Music, History, and Ideas
Either semester. Three credits. Open only with consent of instructor.

Relationships of musical styles to cultural and intellectual backgrounds.

211. The Composer and the Composer's World
Either semester. Three credits. Prerequisite: MUSI 286 or consent of instructor. May be repeated for credit with a change in content.

Selected works in relation to the musical institutions, musical style, social, intellectual and political milieu, and biography of composer(s).

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

211W. The Composer and the Composer's World

212. Music of the Church
First semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

Plainsong, mass, motet, cantata, oratorio, and other forms of church music.

212W. Music of the Church

213. Music of the Theater
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

Opera, ballet, and other types of music for the theater.

213W. Music of the Theater

214. Orchestral Music
First semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

Concerto, symphony, symphonic poem, and other forms of music for orchestral ensembles.

214W. Orchestral Music

215. Chamber Music
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

String quartet, trio sonata, and other forms of music for various small ensembles.

215W. Chamber Music

216. Solo Literature
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

Keyboard music, the art song, and other types of music for instrumental or vocal soloists.

217. A History of Jazz
Either semester. Three credits. Prerequisite: MUSI 146.

222. Applied Music, Advanced Course
Either or both semesters. Credits and hours by arrangement. Ensemble required with conditions stated under MUSI 122. Prerequisite: Advanced standing in performance as recommended by a faculty jury, recommendation by an instructor in this department, and consent of the Department Head. May be repeated for credit.

A continuation of MUSI 122 for students with proven ability. Fees for this course are at the same rate as described for MUSI 122.

225. Vocal Literature I
First semester. Two credits. Two class periods. Corequisite: MUSI 222 and consent of instructor.

Songs and arias of the Renaissance and Baroque Periods: Oratorio Literature.

226. Vocal Literature II
Second semester. Two credits. Two class periods. Corequisite: MUSI 222 and consent of instructor.

Classical Period Songs; German Lied.

227. Vocal Literature III
First semester. Two credits. Two class periods. Corequisite: MUSI 222 and consent of instructor.

French melodie; Songs of Nationalistic origin.

228. Vocal Literature IV
Second semester. Two credits. Two class periods. Corequisite: MUSI 222 and consent of instructor.

British and American Songs; The Modern Period.

229. Instrumental Pedagogy and Literature
Either semester. One or two credits. One or two instrumental hours per week. Corequisite: MUSI 222 (upperclass level). May be repeated for credit to a maximum of four semesters. Open only with consent of instructor.

232. Conducting I
Either semester. Two credits. Prerequisite: MUSI 146. *Renshaw*

Physical aspects of conducting, reading of full and condensed scores.

233. Conducting II: Choral
Either semester. Two credits. Prerequisite: MUSI 232. *Bagley*

234. Conducting II: Instrumental
Either semester. Two credits. Prerequisite: MUSI 232. *Renshaw*

235. Honors Harmony III
First semester. Four credits.Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 136. Open to sophomores.

Continuation of Honors Harmony II, including writing and analysis of chromatic harmony; formal analysis.

236. Honors Harmony IV
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 235. Open to sophomores. *Bass*

Continuation of Honors Harmony II, including writing and analysis of chromatic harmony; formal analysis.

238. Jazz Improvisation and Performance
Either semester. One credit. One laboratory period. Prerequisite: MUSI 138 or consent of instructor. May be repeated for credit.

Advanced jazz theory, styles, and ensemble techniques.

239. Jazz Arranging I
First semester. Two credits. Two class periods. Prerequisite: MUSI 146 or equivalent and consent of instructor.

Arranging and composition of chamber jazz ensembles and big band.

240. Jazz Arranging II
Second semester. Two credits. Two class periods. Prerequisite: MUSI 239 and consent of instructor.

Continuation of MUSI 239.

241. Jazz: Theory and Performance
Either semester. Two credits. Two class periods. Prerequisite: MUSI 146 and consent of instructor. Open to sophomores.

Performance, improvisation, arranging, and ensemble techniques.

245. Harmony III
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 146. Open to sophomores. Not open for students who have passed MUSI 235. *Bass*

246. Harmony IV
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 245. Open to sophomores. Not open for credit to students who have passed MUSI 236. *Bass*

250. Introduction to Electronic Composition
Either semester. Three credits. Prerequisite: MUSI 264 or consent of instructor.

Composition by synthesizer and computer.

251. Composition I
First semester. Three credits. Prerequisite: MUSI 246 or consent of instructor.

Creative writing in the smaller forms. Extensive analysis and discussion.

252. Composition II
Second semester. Two credits. Prerequisite: MUSI 251 and consent of instructor.

253. Composition III
Either or both semesters. Two credits. Hours by arrangement. May be repeated for credit. Prerequisite: MUSI 252 and consent of instructor.

Individual instruction in musical composition.

257. Form and Analysis I
Either semester. Three credits. Prerequisite: MUSI 246. Not open for credit to students who have passed MUSI 236 with a grade of "B" or better.

Musical structure and expression; melodic, harmonic, rhythmic and contrapuntal relationships; style analysis.

257W. Form and Analysis I

258. Form and Analysis II
Either semester. Three credits. Prerequisite: MUSI 257.

Continuation of MUSI 257. Emphasis on the larger works of the 19th-century and 20th-century styles.

258W. Form and Analysis II

259. Music for the Classroom Teacher
Either semester. Three credits. *Junda*

Primarily for the non-music major preparing to teach in the elementary school. Elementary music materials, organization of learning experiences, and teaching methods.

261Q. Acoustics and the Perception of Music
Either semester. Three credits. Prerequisite: Pass Q-Course Readiness Test or MATH 101.

Science of Music, using basic quantitative techniques.

262. Elementary Descriptive Acoustics
Either semester. Three credits.

Nature of sound as it applies to music.

263. Psychology of Music
Second semester. Three credits. Prerequisite: PSYC 132.

Traditional approaches to music perception, learning and development.

264. Electronic Music Techniques
Either semester. Three credits. Open only with consent of instructor.

Theory and application of standard electronic music systems and techniques of sound synthesis.

265. Music Communications
First semester. Three credits. Prerequisite: MUSI 262 and 263.

Communication between performer and listener in music.

266. Musical Tests and Measurements
Either semester. Three credits. Prerequisite: MUSI 246 (Harmony IV) or equivalent and consent of instructor.

Significant aspects of musical evaluation, with emphasis on the uses and limitations of standardized music tests of achievement and aptitude and problems of musical performance evaluation.

267C. Microcomputers in Music Education
Either semester. Two credits. Two laboratory/discussion periods. Open only with consent of instructor.

Uses of micro-computers in the school music program.

273. Seminar in Music Education
Either semester. One or two credits. One or two class periods. Open only with consent of instructor. With a change of content, may be repeated for credit. *Junda*

Theories and procedures for the organization of musical instruction.

275. Orchestration I
Second semester. Three credits. Prerequisite: MUSI 245 and consent of instructor. *Maker*

Range, tone quality, and characteristics of the various orchestral and band instruments. Elementary scoring problems.

276. Orchestration II
First semester. Three credits. Prerequisite: MUSI 275. *Maker*

Scoring problems, score reading, and study of scores in the standard literature.

277. Counterpoint I
Either semester. Three credits. Prerequisite: MUSI 246.

Two- and three-voiced textures in the principal 16th-century styles: Josquin, Lassus, Palestrina.

278. Counterpoint II
Either semester. Three credits. Prerequisite: MUSI 277.

279Q. Twentieth Century Theory and Analysis
Either semester. Three credits. Prerequisite: MUSI 246 and MUSI 257. With consent of instructor, MUSI 257 may be taken concurrently. *Bass*

Analytical techniques appropriate to selected styles of twentieth century music. Problems in twentieth century counterpoint and composition.

281. Vocal Pedagogy
Either semester. Two credits. Two class periods. Prerequisite: MUSI 222 and consent of instructor. *Vasil*

Vocabulary, methodology and practical application of pedagogical techniques.

283. Marching Band Techniques
First semester. Two credits. Two class periods. Open only with consent of instructor. *Mills*

Scoring for the outdoor band, administration, marching and maneuvering.

284. Music History and Literature Before 1700
(Formerly offered as MUSI 287.) First semester. Three credits. Prerequisite: MUSI 146 or consent of instructor. Open to sophomores. *Bellingham*

Medieval, Renaissance, to High Baroque periods. Score study, development of notation, and relation to other artistic traditions.

285. Music History and Literature 1700-1830
First semester. Three credits. Prerequisite: MUSI 287. Open to sophomores.

Leading composers, genres, elements of style, form and harmony, musical institutions and aesthetics in the High Baroque, Pre-classic, and Classic periods.

286. Music History and Literature 1830 to Present
Second semester. Three credits. Prerequisite: MUSI 285. Open to sophomores.

The romantic period and the Twentieth Century.

290. Theory Review
First semester. Three credits.

An overview of traditional undergraduate theory. Intended for graduate students in Music.

292W. Music in World Cultures
Either semester. Three credits. Not open for credit to students who have passed MUSI 190. Prerequisite: MUSI 286 and consent of instructor.

Comparison of musical concepts, styles, and performance practice in the social context of various cultures.

295. Music of the Twentieth Century
Either semester. Three credits. Prerequisite: MUSI 286.

†297. Senior Recital
Required of all Bachelor of Music performance majors. No credit.

298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Classroom course in a special topic as announced in advance for each semester.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of head of department. May be repeated for credit.

Natural Resources Management and Engineering (NRME)

Department Head: Professor David B. Schroeder
Department Office: Room 308, W.B. Young Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

100. Environmental Science
First semester. Three credits. Two class periods and one 3-hour laboratory period. *Neumann*

An introduction to basic concepts and understanding of Natural Resources Systems and the effects of society on the environment.

110. Introduction to Natural Resources
First semester. One credit. Open only to lower division students or by consent.

An introduction to the field of renewable resources. Field trips required.

130. Environmental Conservation
Second semester. Three credits. *Barclay*

Overview of conservation policy development from colonial period to present and development of the environmental movement in the U.S. Discussion of the context and complexity of some contemporary environmental policy issues.

204. Wetlands Biology and Conservation
Second semester, alternate years (even). Three credits. Three class periods and one weekend field trip. Recommended preparation: BIOL 107 and 108 or consent of instructor. *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.

205. Stream Ecology
Second semester. Three credits. Prerequisite: Biology: EEB 244.

A broad overview of stream ecology will be presented. Emphasis will be placed on the biota and the application of ecosystem and community ecology to running water habitats. Human influences on stream systems will also be discussed.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

208. Introduction to Aquaculture
Either semester. Three credits. Two class periods, one 2-hour laboratory. Prerequisite: BIOL 107 or 108 or consent of instructor.

Basic principles and practice of environmentally compatible aquaculture. Emphasis on commercial aquaculture production including concepts and principles of various re-circulation systems, species, and culture techniques. Application of biotechnology will also be covered.

210. Air Pollution
First semester. Three credits. Prerequisite: NRME 241 or consent of instructor. *Miller*

The meteorology, effects and controls of air pollution.

211. Watershed Hydrology
Second semester, alternate years (even). Three credits. Recommended preparation: NRME 242 or ENGR 150, or consent of instructor. Open to sophomores. *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.

214. Dendrology
First semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: BIOL 108 or 110. Open to sophomores. *Schroeder*

The taxonomy, silvics, and distribution of trees and shrubs of the United States with emphasis upon Northeastern species. Field trips will be required.

217. North American Wildlife
First semester. Three credits. Prerequisite: BIOL 107. Open to sophomores. *Ortega*

An introduction to wildlife conservation programs and resource values. The distribution, life history and status of those birds and mammals whose populations man is attempting to preserve, reestablish, or to control are examined.

232P. Wildlife Management
Second semester. Three credits. Prerequisite: NRME 217 or consent of instructor. Recommended preparation: Prior course work in ecology. Must be taken with another P course in NRME to equal one W course. *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.

233. Wildlife Management Techniques
First semester, alternate years. Two credits. One 4-hour laboratory period. Prerequisite: NRME 232. Open only with consent of instructor. One or more field trips will be required. *Barclay*

Collection and reporting of biological data upon which wildlife conservation decisions are based.

235P. Principles of Fishery Management
Second semester. Four credits. Three class periods and one 2-hour laboratory period. Prerequisite: EEB 200 and one course in statistics, or consent of instructor. Must be taken with another P course in NRME to equal one W course. *Neumann*

Principles and practices of fisheries management with applications to biota, habitat, and human users to produce desirable fish populations and communities. Selected topics include harvest regulations, fish population dynamics, stocking concepts, age and growth, and habitat management.

237. Introductory Remote Sensing
First semester. Three credits. Two class periods and one 2-hour laboratory period. Open to only CANR students and GEOG major or with consent of instructor. *Civco*

The principles of the interpretation of remote sensing imagery acquired from aircraft and satellite platforms will be studied. Various applications of remote sensing will be discussed.

238V. Advanced Remote Sensing
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: NRME 237. 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.

239W. Natural Resources Planning and Management
Second semester. Three credits. Prerequisite: Senior standing or consent of instructor. *Clausen*

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.

240. Environmental Law
First semester. Three credits.

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.

241. Meteorology
First semester. Three credits. *Yang*

A survey course in meteorology at the introductory level covering weather and climate processes.

242. Natural Resources Measuremants
First semester. Four credits. Two class periods and two 2-hour laboratories. Open to sophomores. *Miller*

Principles and instrumentation used in the measurement of environmental conditions and processes, with emphasis on the interactions of biological organisms and populations with their environment.

246. Water Quality Management
First semester, alternate years (odd). Three credits. Recommended preparation: NRME 211 or NRME 260P or consent of instructor. *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.

247P. Public Lands Wildlife Management
Second semester. Three credits. Recommended preparation: NRME 217, 232P, EEB 244. Open only with consent of instructor. Must be taken with another P course in NRME to equal one W course. *Ortega*

Applied natural resources management in different ecosystems (forestlands, grasslands, and drylands). Meet one hour per week for background readings from current literature. Two short research papers and presentation to the class. Required field trip last two weeks of May. Students are responsible for cost of field trip.

251C. Computer Utilization in Agriculture and Natural Resources
Second semester. Three credits. Two class periods and one two-hour laboratory. Students who have passed AGEG 201 may not receive credit for NRME 251C.

Instruction in the utilization of microcomputer technology in a variety of natural resources management and engineering applications, such as forest mensuration, water runoff and soil erosion estimation, land use planning, ecological modeling, and general problems from commercial agriculture. Skills will be developed in the use of popular programming languages, such as BASIC and FORTRAN, and commercial packages, including spreadsheets, data base managers, computer graphics and application-specific software.

252. Geographic Information Science for Natural Resources Management
Second semester. Four credits. Three class periods and one two-hour laboratory period. Prerequisite: NRME 242, MATH 112Q. Recommended preparation: PHYS 121Q. Open only to natural resource majors or with consent of instructor. *Meyer*

Introduction to geodetic and cartographic principles underlying the creation of accurate maps. Particular emphasis is given to mapping topography and natural areas. Topics include: horizontal and vertical geodetic datums, the geoid, map projections, coordinate systems, global positioning systems (GPS), GIS data modeling with regional database management systems, and digital terrain models.

256. Natural Resources Modeling
First semester. Three credits. Prerequisite: MATH 112Q or higher. Open only to natural resource majors except by consent. *Warner, Clausen*

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.

260P. Soil and Water Management and Engineering
Second semester, alternate years (odd). Three credits. Two class periods and one 3-hour laboratory. Recommended preparation: NRME 211 or CE 265. Must be taken with another P course in NRME to equal one W course. *Warner*

Floodplain management, erosion and erosion control, reservoir management, storm water control, watershed management, and on-site sewage treatment systems. Written technical and laboratory reports, use of spreadsheets and field work required, some field trips.

271. Environmental Meteorology
Second semester, even numbered years. Three credits. Recommended preparation: NRME 241. *Yang*

Applied meteorology in environmental science and engineering. Solar energy, winds and air pollution, atmospheric-hydrologic interactions, agricultural and forest meteorology, and biometeorology.

280P. Forest Management
Second semester, alternate years (odd). Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: NRME 214. (Not open for credit to students who have passed NRME 230 and NRME 231.) Must be taken with another P course in NRME to equal one W course. *Broderick, Schroeder*

An introduction to forest mensuration, ecology, silviculture, and multiple-use management. Field trips required.

285. Forest Ecology
First semester alternate years (even). Three credits. Two class periods and one 3-hour laboratory. Prerequisite: NRME 214 or consent of instructor.

Forest stand dynamics and ecosystem function including tree response to local and regional site factors individually and in community interactions with other species, and the role of forest stands in ecosystem function (e.g., habitat diversity, interactions among ecosystems, nutrient cycling). Laboratory will be outside or in computer lab.

287. Field Study Internship
Either semester or summer. One to six credits. Hours by arrangement. Open only to Upper Division students with consent of advisor and department head. This course may be repeated provided that the sum total of credits earned does not exceed six.

This course is 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.

295. Seminar
Second semester. One credit. May be repeated for credit. Open only with consent of instructor.

298. Special Topics
Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Open only with consent of instructor.

Nursing (NURS)

Dean: Laura Cox Dzurec
Office: Room 111, Storrs Hall

For major requirements, see the School of Nursing section of this *Catalog*.

110. Introduction to Health
First semester. Three credits.

An interdisciplinary course that provides an introduction to the intrinsic and extrinsic factors that influence health. Includes approaches to health promotion and disease prevention, study of leading causes of illness, injury and death in a university community, and cultural practices and beliefs about health. Examples of topics covered include: sexuality and sexually transmitted diseases, assessment of genetic history, healing practices to enhance wellness.

111. Humanizing Health Care: Nursing's Past, Present and Future
Second semester. Three credits.

This course is designed to explore the history of health care in the United States as it relates to nursing. Historical imperatives, dealing with such issues as gender related constraints and other social, political and economic factors will be identified. Both external and internal forces that shape the substance of nursing education, practice and research and reinforce its mission to society will be analyzed.

112. Health Care Delivery System
Second semester. 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.

198. Introduction to Nursing Arts
Either semester. One credit.

Introduction to foundational allopathic and holistic nursing art skills needed in all practice settings, grounded in Nightengale's philosophy/theory of nursing. Includes psychomotor competency, theoretical and philosophic foundations for nursing as a caring/healing art, and self-care foundations for becoming a nurse healer.

202. The Basis of Scientific Inquiry
Either semester. Three credits. Prerequisite: PHIL 104. Open to sophomores.

This course will acquaint the learner with issues salient to an understanding of science as a source of knowledge. Perspectives on scientific truth, the nature of science, and the science in modern culture will be presented.

204. Clinical Science I
First semester. Three credits. Open to Nursing majors only. Prerequisite: CHEM 127Q and 128Q, PNB 264. PNB 265 concurrent or prerequisite. Open to sophomores.

Critical examination of concepts from microbiology, pathophysiology, and pharmacology as they relate to health care of individuals throughout the lifespan. Emphasis will be placed on microbiology and anti-infectives.

205. Theoretical Foundations of Nursing I
First semester. Two credits. Prerequisite: PHIL 212, SCI 240 or NURS 202.

An exploration of the empirical way of knowing in nursing. Selected models and theories illustrating an empirical approach will be analyzed.

206. Theoretical Foundations of Nursing II
Second semester. Two credits. Prerequisite: NURS 205, 217, or RN license.

An exploration of the existential way of knowing in nursing. Selected models and theories illustrating an existential approach will be analyzed.

207. Clinical Science II A
Second semester. Three credits. Prerequisite: PNB 264 and NURS 204; PNB 265 concurrent. Open to sophomores.

Critical examination of concepts from pathophysiology, pharmacology and nutrition as they relate to preventative health care of adults. Emphasis will be placed on nutritional aspects of preventative health care.

211C. Information Systems in Health Care
Either semester. Three credits. Two class periods and two hours of laboratory. Open to sophomores.

Concepts of problem-solving and decision-making will be used to explore the basic elements of information processing. Applications of computerized information processing in health care will be examined.

212. Clinical Science for Sub-acute and Chronically Ill Adults
First semester. Three credits. Prerequsites: NURS 110, 111, 112, 204, 207 and 221.

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.

213. Nursing Research
Either semester. Three credits. Open to Nursing majors only. Prerequsite: STAT 100V or 110V.

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.

213W. Nursing Research

214. Clinical Science II B
First semester. Three credits. Prerequisite: CHEM 127Q, 128Q; PNB 264, 265; PHYS 101; NURS 204. Open to Nursing majors only.

Concepts from pathophysiology, pharmacology, and normal and therapeutic nutrition as they relate to the nursing care of adults with acute non-life threatening health problems.

216. Adult Health I
First semester. Three credits. Co-requisite: NURS 214 and 217.

Clinical decision-making utilizing functional health patterns, dependent, independent, and interdependent nursing actions related to care of adults with acute non-life threatening and/or life modifying health problems.

217. Practicum: Adult Health I
First semester. Five credits. Fifteen laboratory hours. Prerequisites: Co-requisites: NURS 214 and 216.

Application of functional health patterns to the care of adults with acute, non-life threatening and/or life modifying health problems. Focus is on psychomotor, communication and decision-making skills basic to nursing.

218. Nursing Science for Adults with Sub-Acute and Chronic Health Issues
First semester. Three credits. Prerequsites: NURS 110, 111, 112, 207 and 221.

Critical examination of theory, research and expert clinical practice supportive of nursing with adults experiencing sub-acute and chronic health problems and their families.

219. Practicum with Sub-acute and Chronically Ill Adults
First semester. Six credits. Prerequsites: NURS 110, 111, 112, 204, 207, 221; NURS 212, 218 concurrent.

Nursing and interdisciplinary care of person and family with sub-acute and chronic health issues.

220. Historical and Contemporary Topics in Nursing
Either semester. Three credits. Open to non-majors only with the consent of the instructor.

Contemporary topics in nursing will be explored from historical and phenomenological perspectives. The ideas and actions of individuals, the genesis and impact of various professional issues, and pervasive themes throughout nursing will be examined.

220W. Historical and Contemporary Topics in Nursing

221. Health Assessment through the Lifespan
Second semester. Three credits. Prerequisites: PNB 264; PNB 265 concurrent. Open to Nursing majors only. Open to sophomores.

In this course, 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.

224. Clinical Science III
Second semester. Four credits. Prerequisite: NURS 214.

Concepts from pharmacology, microbiology, nutrition and pathophysiology as they relate to the nursing care of adults with life modifying, life threatening health problems.

225. Theoretical Foundations of Nursing III
First semester. Three credits. Prerequisite: NURS 206, 227, or RN license.

An exploration of the ethical way of knowing in nursing. Selected models and theories illustrating an ethical approach will be analyzed.

226. Adult Health II
Second semester. Two credits. Concurrent or recommended preparation: Corequisites NURS 224 and 227.

Clinical decision-making utilizing functional health patterns, dependent and interdependent nursing actions related to care of adults with life threatening health problems.

227. Practicum: Adult Health II
Second semester. Five credits. Fifteen laboratory hours. Concurrent or recommended preparation: NURS 214, 216, and 217. Co-requisites NURS 224 and 226.

Application of functional health patterns to the care of adults with life threatening health problems. Focus is on independent decision making.

232. Clinical and Nursing Science: Nursing Care of the Childbearing Family
Both semesters. Four credits. Prerequsites: NURS 212, 218, and 219.

This course 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.

234. Clinical Science IV
Either semester. Two credits. Prerequisite: NURS 224.

Concepts from pharmacology, microbiology, pathophysiology, and nutrition as they relate to child bearing, child rearing families.

235. Theoretical Foundations of Nursing IV
Second semester. Three credits. Prerequisite: NURS 225, 227 or RN license.

An exploration of the esthetic way of knowing in nursing. Selected models and theories illustrating an esthetic approach will be analyzed.

236. Parent-Child Nursing
Either semester. Four credits. Prerequisites: NURS 224 and 226. Corequisite NURS 234.

Functional health patterns and clinical decision-making related to the care of the child bearing, child rearing family. Focus is an anticipatory guidance, preventive intervention, and health restoration.

237. Practicum Parent-Child Nursing
Either semester. Five credits. Fifteen laboratory hours. Prerequisites: NURS 220 or 220W and 213 or 213W. Co-requisites: NURS 234 and 236.

Application of functional health patterns and clinical decision-making in care of the child bearing, child rearing family.

239. Practicum with Childbearing Families
Both semesters. Three credits. Prerequsites: NURS 212, 218, and 219; NURS 232 concurrent. Open to Nursing majors only.

This course 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.

240. Epidemiology in Nursing Practice: Clinical Science V-A
Either semester. One credits. Prerequisites: NURS 227 or RN license.

An introduction to the principles of epidemeology used in nursing practice.

241. Community Health Nursing
Either semester. Two credits. Prerequisites: NURS 206, 226 and 224. Corequisite: NURS 240.

Analysis of theories from nursing and related disciplines for application to community health nursing. Provide the basis for clinical decision-making for individuals, families, and groups.

242. Clinical Science in Psychiatric-Mental Health Nursing Practice: Clinical Science V-B
Either semester. One credit. Prerequisite: NURS 227 or RN license.

Concepts from microbiology, pharmacology, nutrition and pathophysiology as they relate to psychiatric-mental health nursing.

243. Psychiatric-Mental Health Nursing
Either semester. Two credits. Prerequisites: NURS 206, 224 and 226. Corequisite: NURS 242.

Analysis of theories from nursing and related disciplines for application to psychiatric-mental health nursing. Focus is on nursing processes for clinical decision-making for individuals, families, and groups.

248. Community Health Nursing Practice
Either semester. Three credits. Prerequisites: NURS 213 or 213W, 220 or 220W, 226 and 227.

Clinical application of theory from nursing and related disciplines to individuals, families and community groups in a variety of community health settings. Focus is on nursing care applied throughout the wellness illness continuum in collaboration with other members of the health care team.

249. Psychiatric-Mental Health Nursing Practice
Either semester. Two credits. Prerequisites: NURS 213 or 213W, 220 or 220W, 226 and 227. Corequisite: NURS 240 and 242.

Focus is on the application of nursing theory, the Caring-Praxis Model and therapeutic communication to psychiatric-mental health nursing. Emphasis on a) application of the lived experience persons with mental illness; b) self-reflective abilities and their significance to affecting the nurse patient encounter; c) therapeutic use of self, and d) actualizing intuitive and rational ways of knowing in responding to the mental health and/or psychiatric illness experience.

250. Nursing Leadership in the 21st Century
Second semester. Three credits. Prerequsites: NURS 219, 239, 259, 269, and 279; NURS 289 concurrent. Open to Nursing majors only.

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 communication, leadership, social disclosure and social justice to benefit the client and the discipline.

252. Clinical and Nursing Science for Nursing Care of Childrearing Families
Both semesters. Four credits. Prerequsites: NURS 212, 218, 219; NURS 232 concurrent. Open to Nursing majors only.

This course 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.

253. Professional Nursing Practice: Leadership, Management and Financial Issues
Second semester. Two credits.

Designed to examine and prepare individuals for the lived experience of nursing as a business. The course addresses management, leadership and fiscal skills as they relate to health care delivery and the profession of nursing.

259. Practicum with Childrearing Families
Both semesters. Three credits. Prerequsites: NURS 212, 218, 219; NURS 252 concurrent. Open to Nursing majors only.

This course 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, childbirth education classes, schools, clinics, group homes, women's health centers and agencies providing acute and chronic care.

262. Clinical Science for Psychiatric and Mental Health Nursing
Both semesters. Two credits. Prerequsites: NURS 212, 218 and 219; NURS 263 concurrent. Open to Nursing majors only.

Biochemical, neural activity, functional and structural aspects of the brain, cognition, mental health and illness (behavioral health) are overviewed. The psychopharmacology and nutrition of behavioral health is addressed. Psychopharmacological issues will consist of how to offer a safe and effective biochemical environment for a person (group or family) with mental health (behavior health) issues. Psychological, sociological, and physiological integrity will be addressed for behavioral health.

263. Nursing Science for Psychiatric and Mental Health Nursing
Both semesters. Two credits. Prerequsites: NURS 212, 218, 219; NURS 262 concurrent. Open to Nursing majors only.

The role of nursing, in regard to psychiatric and social parameters of any person, family or group with a medical or psychiatric illness is examined. Major elements are the use of therapeutic communication, critical thinking, and the nursing process to examine multiple therapeutic interventions. This course stresses assessment of health and mental illness in populations that will be the focus of interventions in a professional nurse's career. Students will be exposed to knowledge that explicates how to provide a safe and effective environment in diverse milieus; how to promote health and support growth and development issues through the lifespan; how to assist persons in coping and adaptation and how to reduce risks in population of interest.

269. Practicum for Psychiatric and Mental Health Nursing
Both semesters. Three credits. Prerequisites: NURS 212, 218, 219; NURS 262 and 263 concurrent. Open to Nursing majors only.

This course entails 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, the nursing process in persons with a primary or secondary/adjunctive illness. The target of nursing care is the individual, family, group or community.

270. Public Health Nursing
Both semesters. Three credits. Open to Nursing majors only.

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.

272. Clinical Science for Adults with Acute Illness
Both semesters. Two credits. Prerequisites: NURS 212, 218 and 219; NURS 273 concurrent. Open to Nursing majors only.

Critical examination of pharmacology, microbiology, nutrition and pathophysiology as they relate to nursing care of adults experiencing acute, life threatening problems.

273. Nursing Science for Acutely Ill Adults
Both semesters. Two credits. Prerequisites: NURS 212, 218 and 219: NURS 272 and 279 concurrent. Open to Nursing majors only.

Critical examination of theory, research and expert clinical practice supportive of nursing with adults experiencing acute life-threatening health problems.

279. Practicum with Acutely Ill Adults
Both semesters. Three credits. Prerequisites: NURS 212, 218, 219; NURS 272 and 273 concurrent. Open to Nursing majors only.

Nursing and interdisciplinary care of acutely ill persons and their families.

289. Capstone Practicum
Second semester. Six credits. Prerequisites: NURS 219, 239, 259, 269 and 279; NURS 250 concurrent. Open to Nursing majors only.

This course is the capstone clinical practicum and seminar taken in the final semester of the baccalaureaute program. The course is designed to provide the student with opportunities to apply knowledge and skills from all required courses to special clinical situations. The student works with a clinical preceptor in the development, implementation and evaluation of objectives specific to clinical emphasis area.

292. Health Perspectives on Alcohol and Other Drug Abuse
Either semester. Three credits. Open to non-nursing majors.

An interdisciplinary examination of the health consequences of alcohol and other drug abuse across the lifespan with emphasis on: epidemiology; pharmacology; theoretical models; strategies for prevention and treatment; needs of special populations; and, ethical, political and legal ramifications.

292W. Health Perspectives on Alcohol and Other Drug Abuse

298. Special Topics in Nursing
Either semester. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, this course may be repeated for credit.

299. Independent Study
Either semester. Credits and hours by arrangement. 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.

Nutritional Sciences (NUSC)

Head of Department: Professor Carol J. Lammi-Keefe
Department Office: Room 214, Roy E. Jones Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

160. The Science of Food
(Also offered as ANSC 160.) Second semester. Three credits. *Faustman, Zhao*

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.

165. Fundamentals of Nutrition
Either semester. 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.

166. Food, Culture and Society
Second semester. Three credits. *Furr*

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.

167. Honors Colloquium in Nutrition
First semester. One credit. One class period and one 2-hour discussion/laboratory every other week. Concurrent enrollment in NUSC 165 required. *Clark*

Lectures, discussions, and laboratory exercises to complement topics from NUSC 165. Primarily for, but not restricted to, honors students.

200. Nutrition and Human Development
First semester. Three credits. Recommended preparation: NUSC 165. Open to sophomores. *Ferris*

Nutritional needs and consequences of nutritional deficiencies throughout the life cycle: periconception, pregnancy, lactation, childhood, adolescence and aging. Maternal and child public health issues in the developed and developing world.

212. Principles of Food Science
Second semester. Three credits. Recommended preparation: MCB 203 or 204. *Zhao*

Chemical, physical, microbiological, and legal aspects of food production, preservation and processing. Safety, aesthetics and nutrition topics included.

213. Principles of Food Science Laboratory
Second semester. Two credits. One class period and one 2-hour laboratory period. Consent of instructor required. Recommended preparation: NUSC 212.

Flavor, color, texture, viscosity and consistency, enzyme reactions, and processing. Field trips.

233. Food Composition and Preparation
First semester. Three credits. Prerequisite: NUSC 165. Recommended preparation: CHEM 141 or 243. *Fernandez*

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.

235. Food Composition and Preparation Laboratory
First semester. One credit. One 3-hour laboratory period. Prerequisite: NUSC 165 and concurrent registration in NUSC 233. Recommended preparation: CHEM 141 or 243. Enrollment restricted to Nutritional Sciences and Allied Health Dietetic majors. Open to others by consent if space is available. *Fernandez*

Laboratory techniques related to composition of foods, and the physical and chemical changes that occur during preparation.

236. Principles of Nutrition
Second semester. Three credits. Prerequisite: NUSC 165. Recommended preparation: PNB 250 or 265, MCB 203 or 204. *Clark*

Function and metabolism of carbohydrates, proteins, fats, minerals, and vitamins.

241. Nutritional Assessment
Second semester. One credit. One class period and one 2-hour laboratory, every other week. Prerequisite: NUSC 200. Recommended preparation: MCB 203 or 204, PNB 250 or 265. Enrollment restricted to Nutritional Sciences and Kinesiology majors. *Clark*

Anthropometric, clinical, and biochemical techniques for assessment of human nutritional status.

250. Nutrition for Exercise and Sport
Second semester. Three credits. Prerequisite: NUSC 165 and Biology: PNB 250 or 265. *Rodriguez*

Basic nutrition principles. Physical activity, exercise, sport performance and consequences of nutritional ergogenic aids.

260. Readings in Human Nutrition
First semester. Two credits. Two class periods. Prerequisite: NUSC 200.

Readings dealing with utilization and metabolism of nutrients in the human body, with particular emphasis on understanding research methodology.

265. Medical Nutrition Therapy
First semester. Three credits. Prerequisite: NUSC 241. Recommended preparation: Biology: MCB 203 or 204. *Rodriguez*

Metabolic basis for medical nutrition therapy. Enteral and parenteral nutrition. Pathology of disease. Role of dietary management of disease.

266. Medical Nutrition Therapy Recitation
First semester. One credit. Prerequisite: NUSC 241. NUSC 265 must be taken concurrently. *Rodriguez*

Case studies and presentations. Medical terminology. Practical aspects of medical nutrition therapy administration.

267. Principles of Community Nutrition
First semester. Three credits. Prerequisite: NUSC 200 which may be taken concurrently. *Perez-Escamilla*

Role of community structures, agencies, services and the professional nutritionist in community health.

270W. Food Services Systems Management I
Second semester. Three credits. Two class periods and one 2-hour laboratory/discussion period. Recommended preparation: AH 244 or MGMT 201, NUSC 233, 235. *Shanley*

Quantity food procurement, preparation and distribution; recipe standardization; sanitation and safety; portion and quality control; food cost control; computer applications; and personnel management.

272C. Food Service Systems Management II
First semester. Three credits. Two class periods and one 2-hour laboratory/discussion period. Prerequisite: NUSC 270W. *Shanley*

Institutional menu development; cost and budgeting; recipe analysis and adaption; equipment layout and design; personnel management; communications skills; computer applications; marketing and merchandising; food delivery systems.

275. Experience in Food Service Systems Management
Either semester. One to six credits. Prerequisite: NUSC 270W. Consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major. *Shanley*

Application of principles of food service management. Supervised placement.

281. Experience in Community Nutrition
Either semester. One to six credits. Prerequisite: NUSC 165. Recommended preparation: NUSC 267. Consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major. *Ferris, Perez-Escamilla*

Supervised field work with community nutrition education or problem-solving. Readings and reports.

295. Seminar
Second semester. One credit. One class period. Prerequisite: NUSC 200. May be taken twice.

Review, evaluation, and oral and written presentation of contemporary nutrition issues.

296W. Senior Thesis in Nutrition
Either semester. Three credits. Hours by arrangement. Enrollment limited to Nutritional Sciences honors students. Consent of honors advisor and department head required.

298. Special Topics
Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Consent of instructor required.

Topics and credits to be published prior to the registration period preceding the semester offerings.

299. Independent Study
Either semester. One to 3 credits. 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.

Operations and Information Management (OPIM)

Head of Department: Professor James R. Marsden
Department Office: Room 302, School of Business Administration

For major requirements, see the School of Business Administration section of this *Catalog*.

Courses in this department are open to juniors and seniors only.

203C. Business Information Systems
Either semester. Three credits. Prerequisite: ACCT 131. Open only to School of Business Administration students; 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.

204. Operations Management
Either semester. Three credits. Prerequisite: OPIM 203.

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.

#205. Introduction to Database Management
Either semester. Three credits. Prerequisite: OPIM 203C or equivalent. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

Introduction to the development and implementation of database applications. Topics covered include costs and benefits of database approach, database design lifecycle, conceptual database design, the relational data model, data administration, database security, database backup and recovery, and database management system selection and implementation. Students participate in the hands-on design and implementation of a small database using the relational architecture.

#206. Business Application Programming
Either semester. Three credits. Prerequisite: OPIM 203C or equivalent. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

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.

#207. Internet Technologies and Electronic Commerce
Either semester. Three credits. Prerequisite: OPIM 205, OPIM 206. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

This course 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.

#208. System Development and Process Management
Either semester. Three credits. Prerequisite: OPIM 205, OPIM 206. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

The course covers the system development life cycle of business information systems. Topics include business process reengineering, detailed process modeling and data modeling techniques, project management concepts, system architecture, testing and implementation considerations. The potential system issues and relevant up-to-date technologies are also explored in the class. Students participate in a project using supportive software tools.

210. Operations Research for Information Systems Analysis
Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently.)

The philosophy and techniques of Operations Research, including problem definition, modeling, and solution in the context of analysis, design, and implementation of computer-based information systems.

211. Systems Analysis and Design
Either semester. Three credits. Prerequisite: OPIM 203C, 220, 221, 222. Open to MIS majors only.

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.

212. Advanced Information Technologies
Either semester. Three credits. Prerequisite: OPIM 203C, 220, 221, 222. Open to MIS majors only.

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.

220. Business Software Development
Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently). Open to MIS majors only.

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.

221. Business Data Base Systems
Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently). Open to MIS majors only.

Development and implementation of database applications for business. Topics include: data modeling, relational database concepts, query languages, hands-on design and implementation of a relational database system, database administration, non-relational database models, distributed architectures, and advanced object bases.

222. Network Design and Applications
Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently.) Open to MIS majors only. Open only to juniors and seniors.

Principles and applications of business telecommunications emphasized. Course covers important network systems as well as crucial techniques in building these systems. Students participate in network design and implementation project.

223. Advanced Business Application Development
Three credits. Prerequisite: OPIM 203C, 220, 221, and OPIM 222. Open to MIS majors only. Open only to juniors and seniors.

Course designed to cover 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.

230. Management of Production/Operations Systems
Second semester. Three credits. Prerequisite: OPIM 204.

In-depth study of the problems and models applicable to the design, operation and control of systems which produce goods and services. Students will learn to define, relate to, and solve production and operations problems using such media and methods as cases, projects, simulations, behavioral and quantitative models.

Offered only at the Stamford Regional Campus.

252. Industrial Quality Control
Semester by arrangement. Three credits. Prerequisite: STAT 100 or 110, and OPIM 204.

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.

†289. Field Study Internship
Either or both semesters. One to six credits. Hours by arrangement. Prerequisite: Completion of Lower Division School of Business Administration Requirements and consent of instructor and Department Head.

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.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. 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.

296W. Senior Thesis in Operations and Information Management
Either semester. Three credits. Hours by arrangement. Open only to OPIM Department Honors Students with consent of instructor and department head.

298. Special Topics
Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. 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.

299. Independent Study
Either semester or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor and Department Head.

Individual study of special topics in operations management, operations research and information management as mutually arranged between a student and an instructor.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Pathobiology and Veterinary Science (PVS)

Head of Department: Professor Herbert E. Whiteley
Department Office: Room 103, Animal Pathology Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

103. The Biology of Human Health and Disease
(Also offered as Biology 103.) (Formerly offered as PATH 103.) First semester. Four credits. Three lecture periods and one 2-hour laboratory. This course may not be combined with BIOL 102 to satisfy the General Education Group VIII Requirement. *Smolin, Terry, Van Kruiningen.*

A laboratory course which introduces the concepts of biology and their application to the individual, society and humankind by focusing on health and disease issues.

113. Biomedical Issues in Pathobiology
(Formerly offered as PATH 113.) Second semester, alternate years (odd). Two credits. *Frasca*

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.

200. Anatomy and Physiology of Animals
(Formerly offered as PATH 200.) First semester. Four credits. Three class periods and one 2-hour discussion/laboratory period. Open to sophomores. *Bushmich*

A study of the anatomy and physiology of animals with reference to pathological changes of the component parts of the body.

202. Health and Disease Management of Animals
(Formerly offered as PATH 202.) Second semester. Three credits. Prerequisite: PVS 200 or consent of instructor. Open to sophomores. *Bushmich*

This course is 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.

235. Clinical Chemistry
(Formerly offered as PATH 235.) Second semester, alternate years (odd). Four credits. Prerequisite: CHEM 141. Recommended preparation: Biochemistry course. *D. Hill*

Deviations in normal concentrations of endogenous chemicals in biological fluids and tissues and use in the diagnosis of disease. Analysis and relationship of these chemicals to diagnostic interpretations.

248. Principles of Animal Virology
(Formerly offered as PATH 248.) First semester. Three credits. *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.

248W. Principles of Animal Virology
(Formerly offered as PATH 248W.)

252. Pathobiology of the Avian Species
(Formerly offered as PATH 252.) First semester. Three credits. Offered in odd-numbered years. *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.

256. Systemic Pathology and Microbiology of Finfish and Shellfish
(Formerly offered as PATH 256.) Second semester. Three credits. Offered in even-numbered years. Two class periods and one 2-hour laboratory. Prerequisites: required BIOL 107/108, PNB 250 or PVS 200/202; recommended MCB 203/204, MCB 229, EEB 200, NRME 298; or consent of instructor. *French/Frasca*

A systematic study of infectious and noninfectious diseases of commercial finfish and shellfish. Emphasis is placed upon the pathology, diagnoses and preventive measures. For each system of the body, pertinent anatomy, physiology, histology, and gross and microscopic pathology will be discussed.

295W. Seminar
Either or both semesters. Two credits. One class period. Open only with consent of instructor. Majors may take this course in each semester of the senior year. May be repeated for credit. *Whiteley*

296. Histologic Structure and Function
(Formerly offered as PATH 296.) First semester. Four credits. Three class periods and one 2-hour laboratory. Open only with consent of instructor. *French*

The course is designed for students in biologic, paramedical and animal sciences, and its purpose is to integrate histologic and cellular structure with function, utilizing tissues from man and other vertebrates.

297. Principles of Pathobiology
(Formerly offered as PATH 297.) Second semester. Three credits. *Van Kruiningen*

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. Knowledge of anatomy and physiology is recommended.

298. Special Topics
(Formerly offered as PATH 298.) Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

299. Independent Study
(Formerly offered as PATH 299.) Either or both semesters. 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, diagnostic parasitology.

Pharmacy (PHAR)

For major requirements, see the School of Pharmacy section of this *Catalog*.

The following courses are open only to students enrolled in the professional program (four years) of the School of Pharmacy.

Drugs and the Diseased State

Director: Professor Ronald O. Langner
Office: Room R-301, Pharmacy Building

200. Drugs and the Diseased State I
First semester. Three credits. Prerequisite: PHAR 212 and 229, Biology: MCB 203 and 229. *Nieforth*

Basic principles of physiology and pharmacology, basic organ system anatomy and physiology, receptor theory.

214. Drugs and the Diseased State II
First semester. Five credits. Five class periods. Prerequisite: PHAR 200, which may be taken concurrently. *Henkel*

Nervous system physiology, pharmacology and SAR, hematological pharmacology and SAR.

225. Human Physiology I
First semester. Four credits. Hours by arrangement. Open only with consent of instructor. Not open to pharmacy students. *Fournier*

Basic principles of physiology, basic organ system anatomy and physiology, respiratory and nervous system physiology.

226. Human Physiology II
Second semester. Three credits. Hours by arrangement. Open only with consent of instructor. Not open to pharmacy students. *Fournier*

Cardiovascular, renal, endocrine and GI physiology.

242. Drugs and the Diseased State III
Second semester. Four credits. Four class periods. Prerequisite: PHAR 200 and 214. *Langner*

Cardiovascular, renal and steroid endocrine physiology, pharmacology and SAR.

243. Drugs and the Diseased State IV
Second semester. Four credits. Four class periods. Prerequisite: PHAR 242, which may be taken concurrently. *Manautou*

GI and non-steroidal endocrine physiology, pharmacology and SAR, anti microbial, anti viral, antineoplastics, anti allergic agents and SAR.

243W. Drugs and the Diseased State IV
Open only with consent of the course director. D. *Manautou*

245. Drugs and the Diseased State Laboratory
Second semester. One credit. One 3-hour laboratory period. Taken concurrently with PHAR 242 and 243. *Rosenberg*

254. Mechanisms of Drug Action I
First semester. Three credits. Prerequisite: Biology: PNB 264, 265, Biology: MCB 203, or their equivalents. Open only with consent of instructor. Not open for credit to undergraduate pharmacy students. Not open to sophomores. *Rosenberg*

Basic principles pharmacology, receptor theory, nervous system and respiratory system pharmacology.

255. Mechanisms of Drug Action II
Second semester. Three credits. Prerequisite: PHAR 254. Open only with consent of instructor. Not open for credit to undergraduate pharmacy students. *Langner*

Endocrine, cardiovascular and renal, GI pharmacology, anti microbial, anti viral, antineoplastics, anti allergic agents.

Drugs and Dosage Forms

Director: Associate Professor Kevin R. Sweeney
Office: Room C2019, Health Center (Farmington)

229. Drugs and Dosage Forms I
Second semester. Five credits. Five class periods per week. Prerequisite: PHAR 207, 208, 209 and MATH 110. *Burgess*

Kinetics of drug stability, diffusion, and dissolution; solutions as dosage forms; colloids, suspensions, emulsions, aerosols, suppositories, ointments, parenterals opthalmics. Oral solid dosage forms, controlled drug delivery systems. Rheology.

230C. Drugs and Dosage Forms II
Second semester. Three credits. One 4-hour laboratory and two 1-hour lectures per week. Prerequisite: PHAR 207, 208, 209 and MATH 110. *Palmer*

Preparation and dispensing of dosage forms. Pharmacy-practice computer systems are utilized for selected clinical and administrative functions.

233. Drugs and Dosage Forms III
First semester. Four credits. Two 2-hour class periods. Prerequisite: PHAR 229, 230C. *Kramer*

Basic principles of pharmacokinetics; compartmental analysis; drug absorption, distribution, and excretion; optimization of both single and multiple dose regimens.

233W. Drugs and Dosage Forms III

Physico-Chemical Principles of Drug Systems

Director: Professor J. Michael Edwards
Office: Room 254, Pharmacy Building

207. Physico-Chemical Principles of Drug Systems I
First semester. Four credits. Five class periods. Prerequisite: PHYS 122 and CHEM 244. Open only to Pharmacy students enrolled in the Professional Program. *Bogner*

Basic physical and chemical phenomena applied to drug systems. Thermodynamics, solution theory, ionic equilibrium, non-covalent interactions, interfacial phenomena.

208. Physico-Chemical Principles of Drug Systems II
First semester. Four credits. Prerequisite: PHYS 122 and CHEM 244. Open only to Pharmacy students enrolled in the Professional Program. *Rhodes*

Identification and analysis of drug molecules. Instrumental and functional group analysis. Chemical reactivity, physical organic chemistry.

209. Physico-Chemical Principles of Drug Systems III
First semester. Two credits. One 3-hour laboratory and one 1-hour lecture per week. Prerequisite: PHYS 122 and CHEM 244. Open only to Pharmacy students enrolled in the Professional Program. *Moring*

Pharmaceutical analysis.

212. Physico-Chemical Principles of Drug Systems IV
Second semester. Five credits. Five class periods. Prerequisite: Biology: MCB 203 and 229, PHAR 207, 208, 209 and CHEM 245. *Nieforth*

Physical and chemical properties of drug molecules.

212W. Physico-Chemical Principles of Drug Systems IV

213. Physico-Chemical Principles of Drug Systems V
Second semester. Two credits. One 3-hour laboratory and one 1-hour lecture per week. Prerequisite: PHAR 207, 208, 209 and CHEM 245. *Witczak*

A laboratory for Pharmacy 212.

Drugs and Society

Director: Associate Professor Kenneth A. Speranza
Office: Room 136, Pharmacy Building

240. Drugs and Society I: Social and Legal Aspects of Pharmacy Practice
First semester. Four credits. Two 2-hour class periods. Prerequisite: ECON 111 and any 100's level, 3 credit Sociology course. Open only to pharmacy majors. *Facchinetti*

The pharmacist's role in society. Principles of pharmaceutical care, pharmaceutical sociology, federal drug law, and pharmacy practice law.

246. Drugs and Society II: Pharmaceutical Marketing
Second semester. Three credits. Prerequisite: PHAR 240. *Speranza*

Economic and societal constraints on the delivery of health and pharmaceutical care. Pharmacoeconomics, professional ethics, U.S. health care system, managed care and third party financing.

266. Drugs and Society III: Management of Pharmacy Systems
Second semester. Three credits. Prerequisite: PHAR 246. Open only to students who have passed all the courses of the first professional year. *Kelly*

Organizational theory and the delivery of health and pharmaceutical care. Finance and personnel management in pharmaceutical care systems.

266W. Drugs and Society III: Management of Pharmacy Systems

Other Required Courses

241. Immunology
Second semester. Three credits. Prerequisite: Biology: MCB 229. *Hubbard*

Basic principles of immunity. Mechanisms of B and T cell mediated responses.

280. Therapeutics
First semester. Five credits. Four class periods. Prerequisite: PHAR 214, 242, 243, and PATH 297. *Cardoni*

Basic pathophysiology, diagnosis, and pharmaco–therapy of human disease.

280W. Therapeutics

281. Principles of Toxicology
First semester. Three credits. Prerequisite: PHAR 200 and Biology: MCB 203. *Cohen*

Target organs, environmental chemicals and biochemical mechanisms.

291. Institutional Clerkship
Either semester. Five credits. Prerequisite: PHAR 233, 280, and 281. Open only with consent of instructor. *Chapron*

Introduction to the practice of pharmacy in an institutional setting.

292. Community Pharmacy Externship
Either semester. Five credits. Hours and sequencing by arrangement. Prerequisite: Completion of the third and fourth year of the Pharmacy curriculum and attendance at an orientation meeting. Open only with consent of instructor. Site assignments and sequencing arrangements will be made by instructor. Students register for each of the two sections. *Kelly*

293. Hospital Pharmacy Externship
Both semesters and summers. Five credits. Hours by arrangement. Prerequisite: Completion of the third and fourth year of the Pharmacy curriculum. Open only with consent of instructor. *Palmer*

An experience program conducted at participating hospitals. Duties of a hospital pharmacist pertaining primarily to the drug distribution and administrative roles.

Elective Courses Pharmacy (PHAR)

150. Toxic Chemicals and Health
Second semester. Three credits. Not open to pharmacy students in the Professional Program. *Morris*

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.

201. Pharmacy Research Seminar
First semester. One credit. One class period. A divisional grade point of 2.3 or above is normally required for enrollment. May be repeated up to two times for credit. *Bogner*

A seminar series providing an overview of current research areas and contemporary issues in pharmacy practice and the pharmaceutical sciences.

247-248. Pharmacology
Both semesters. Three credits each semester. Prerequisite: Biology: PNB 264, 265, Biology: MCB 203 and CHEM 141, or 243, 244. Not open for credit to pharmacy students. *Gianutsos*

A study of the effect produced by drugs and the mechanisms whereby these effects are produced.

262. Geriatric Pharmacy Practice
Second semester. Three credits. Prerequisite: PHAR 200, 214, and 233. *Kelly*

The course is designed to present basic concepts in aging and their concomitant effects on the drug use process to students of pharmacy. The course deals with physical, social and economic aspects of the aging individual. The population focus is the ambulatory elderly. Basic concepts and applications will be presented to expose the student to potential problem-solving activities in pharmacy practice.

263. Industrial Pharmacy
Either semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHAR 207 and 229. *Kalonia*

A study in the formulation and preparation of pharmaceutical dosage forms using modern manufacturing techniques.

269. Non-Prescription Medication
First semester. Three credits. Prerequisite: PHAR 243. Open only with consent of instructor. *Palmer*

Drug products designed for self-medication (non-prescription or over-the-counter drugs). Drugs are discussed and evaluated from a pharmaceutical and pharmacological standpoint.

277. Hospital Pharmacy Administration
Second semester. Three credits. Open to Professional Program Pharmacy students. *Rubino*

A detailed overview of the administration, functions, and organization of contemporary hospital pharmacy services.

294. Advanced Clinical Experience
Second semester. Five credits. Prerequisite: PHAR 291. Open only with consent of instructor. *Kelly*

An advanced level clinical pharmacy practicum in one of a variety of specialized rotations.

295. Introduction to Clinical Pharmacy
Second semester. One credit. Prerequisite: PHAR 214. Open only with consent of instructor. *Cerreto*

A course intended for those students wishing to obtain some exposure to the operations and activities that take place in the clinical environment before enrolling in Pharmacy 291. Physical assessment practices, organization of problem-oriented medical records, patient-practitioner communication skills, and clinical interactions in several therapeutic areas, including the cardiovascular and central nervous systems.

296. Home Health Care
First semester. Two credits. Two class periods. *Toce*

An introduction to the area of home health care with special emphasis on those topics which impact upon pharmacy practice. Emphasis is placed on the devices, aids, and products used in home health care.

297W. Honors Thesis in Pharmacy
Either semester. Three credits. Hours by arrangement. Open only to honors students within the School of Pharmacy with consent of the instructor and Associate Dean. *Bogner*

298. Special Topics
Either semester. Credits by arrangement. Open only with consent of instructor. This course may be repeated for credit. *Fournier*

299. Undergraduate Research
Either semester. Credits by arrangement. Open only with consent of instructor and Associate Dean. This course may be repeated for credit.

This course is designed primarily for qualified students who wish to extend their knowledge in the various fields represented in the School of Pharmacy. A divisional and pharmacy 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.

Pharmacy (PHRM)

Courses for the Doctor of Pharmacy (Pharm.D.)

Associate Dean for Academic Affairs: Associate Professor Donna J. Fournier
Office: Room 152, School of Pharmacy, Hewitt Building

For major requirements, see the School of Pharmacy section of this *Catalog*.

The following courses are open only to students enrolled in the professional program of the School of Pharmacy.

200. Evaluation Skills
First semester. Three credits. Three class periods. *Bahr, White*

Development of skills needed to critically evaluate and assess data published in pharmacy literature. This course will include an introduction to computer-based software programs, fundamentals of biostatistics, drug literature evaluation, literature search programs and fundamentals of epidemiology.

201. Pharmaceutical Care I
First and second semester. One credit total. Hours by arrangement. *Rafferty*

Provision of a historical perspective of pharmacy practice, development of a theoretical foundation for the practice of pharmaceutical care and experiential opportunities for the student to begin to develop skills in providing pharmaceutical care.

202. Health Care Organization
First semester. One credit. One class period. Prerequisite: ECON 111. *Speranza*

A study of the United States health care system, with emphasis given to its historical development, its activities, and the major organizational forms and financing mechanisms supporting it and consideration of pharmacy's role within the current and future United States health care system.

203. Social And Behavioral Aspects Of Pharmacy
First semester. Two credits. Two class periods. Prerequisite: SOCI 107 and COMS 105. *Facchinetti*

Social development of pharmacists in the twentieth Century. The need for newer roles. Competence to provide progressive cognitive services. Social and organizational support necessary to provide pharmacy care. Behavioral aspects of patients pertaining to the provision of pharmaceutical care.

204. Administrative Aspects of Pharmacy Practice & Principles of Pharmacoeconomics
First semester. Four credits. Four class periods. Prerequisite: ECON 111. *Kelly*

Development of the basic financial and operational management knowledge and skills necessary to practice successfully in any practice setting. Further, to develop an understanding of the complexities, intricacies and beneficial aspects of pharmacoeconomic studies. To gain understanding of the methodologies of pharmacoeconomic studies and comprehension of the economic forces impacting upon pharmacy practice in varying environments.

206. Interpersonal Skills Development in Pharmacy Practice
Second semester. Two credits. One class period and one two-hour laboratory. Prerequisite: COMS 105; PHRM 202, 203, 204, 205. *Facchinetti*

Principles of interpersonal communications: effective questioning, empathic listening, reflective responding, assertiveness, and other socio-behavioral aspects of patient care. Skill development in patient counseling and interprofessional communications.

207. Pharmaceutical Care II
First and second semester. One credit total. Hours by arrangement. *Silk*

208. Pharmacy Law and Ethics
Second semester. Three credits. Three class periods. Prerequisite: PHRM 206. *Speranza*

A study of federal and state laws and ethical principles governing pharmacy practice. Case-study practice scenarios allow students to make pharmaceutical care decisions based upon legal and/or ethical reasoning.

208W. Pharmacy Law and Ethics

209. Pharmaceutical Care III
First and second semester. One credit total. Hours by arrangement. Prerequisite: PHRM 207 *Jeffery*

Continuation of historical perspective of pharmacy practice, development of a theoretical foundation for

the practice of pharmaceutical care and experiential opportunities for the student to begin to develop skills in providing pharmaceutical care.

210. Non-Prescription Medication
Second semester. Three credits. Three class periods. *Rettman*

Self-medication based on a foundation of pharmaceutical technology, pharmacology and therapeutics. Emphasis will be placed on the role of the pharmacist in enhancing the rational selection and use of non-prescription (OTC) medications by consumers.

211. Introduction to Clinical Practice
Second semester. Two credits. Hours by arrangement. Prerequisite: PHRM 255, concurrent with PHRM 256 *Campbell*

Development of skills necessary in professional practice of pharmacy. Emphasis on patient assessment skills necessary for providing pharmaceutical care and approaches in conducting medication regimen review and pharmacological consultation.

212. Prescription Processing (lab)
Second semester. Three credits. One two-hour lecture and three-hour laboratory period. Prerequisite: PHRM 255, concurrent with PHRM 256. *James*

Practice oriented course focused on prescription processing, home diagnostic and monitoring devices, compliance enhancement programs, computer usage and relevant contemporary issues in pharmacy.

219. General Principles & Organ System Overview
First semester. Three credits. Three class periods. Prerequisite: Must have satisfied all science and math requirements of the first two years. *Aneskievich*

Basic principles of physiology, pharmacology and receptor site theory and overview of cell biology and all the organ systems.

220. Nervous System
Second semester. Five credits. Five class periods. Prerequisite: PHRM 219. *Gianutsos*

Functions of the autonomic, somatic and central nervous systems; pharmacological effects and mechanism of action of drugs and biotechnologically- derived products used to treat diseases of the autonomic nervous system, sensory system disorders and neurological and psychiatric diseases, and structural features imparting biological activity and the design of drugs used to treat diseases of the autonomic nervous system, sensory system disorders, and neurological psychiatric diseases.

221. Cardiovascular/Renal/Respiratory Systems
First semester. Four credits. Four class periods. Prerequisite: PHRM 220. *Langner*

A study of the physiology, pharmacology, and structure-activity relationships of drugs affecting the cardiovascular, renal, and respiratory systems.

221W. Cardiovascular/Renal/Respiratory Systems

222. Endocrine/Gastrointestinal Systems
Second semester. Three credits. Three class periods. Prerequisite: PHRM 221. *Manautou*

A study of the physiology, pharmacology, and structure-activity relationships of drugs affecting the gastrointestinal and endocrine systems.

223. Pharmacology Discussion / Lab
First semester. One credit. Three hours of laboratory/ conference. Prerequisite: PHRM 222. *Aneskievich*

Continuing development of problem solving based skills. Topics and issues will be related to pharmacology didactic concepts and theory acquired through the first two professional years.

224. Chemotherapy
First semester. Two credits. Two class periods. Prerequisite: PHRM 222, 234, 254; PVS 297. *D. Hubbard*

Development of an understanding of the clinical indications, pharmacology, adverse drug events and structure activity relationships of drugs used in the treatment of infectious diseases.

225. Toxicology
First semester. Two credits. Two class periods. Prerequisite: PHRM 222, 234, 254; PVS 297. *Manautou*

Development of an understanding of basic principles of toxicology which determine effects of therapeutic, occupational, or environmental chemicals on human health. Rationale for and nature of procedures required during preclinical safety assessment of therapeutic agents will be discussed.

226. Immunology
Second semester. Three credits. Three class periods. Prerequisite: PHRM 222, 234, 254; PVS 297. *Hubbard*

Development of an understanding of principles of immunology focusing on mechanisms underlying disease processes and the role of immunotherapeutics and biopharmaceuticals in altering outcome of immunologic disease.

233. Pharmaceutical Bio-Organic Chemistry I
First semester. Three credits. Three class periods. Prerequisite: Must have satisfied all science and math requirements of the first two years. *Rhodes*

Development of the fundamental medicinal and natural products chemistry knowledge, as well as the critical thinking and problem solving skills to apply this knowledge which will be required in the provision of pharmaceutical care and will serve as the foundation for the Pharmacy graduate's continuing professional maturation, education and development.

234. Pharmaceutical Bio-Organic Chemistry II
First semester. Three credits. Three class periods. Prerequisite: PHRM 233. *Bouvier*

A continuation of PHRM 233.

234W. Pharmaceutical Bio-Organic Chemistry II

235. Pharmaceutical Bio-Organic Chemistry Laboratory
Second semester. One credit. One laboratory session and one pre-laboratory session. Must be taken concurrently with PHRM 234. *Vigil-Cruz*

A study of organic compounds, having pharmaceutical significance with ten laboratory exercises which include physical properties and chemical reactivities of drug molecules, their chromatographic analysis, the study of enzymes, and biotechnological techniques and their isolation from natural products.

242. Solution & Solid Dosage Forms
First semester. Four credits. Four class periods. Prerequisite: Must have satisfied all science requirements of first two years. *Kalonia*

An investigation of the principles underlying the formulation, dissolution, stability, and release of drug products for optimum delivery. Solution dosage forms, parenteral formulations, tablets and capsules are considered in detail.

242W. Solution & Solid Dosage Forms

244. Dosage Forms Preparation Laboratory
First semester. One credit. One discussion period and one three-hour laboratory. Prerequisite: Must have satisfied all science requirements of first two years. To be taken concurrently with PHRM 242. *Pikal*

Extemporaneous preparation of sterile and nonsterile dosage forms, with particular attention to solutions, solids and dispersed systems.

245C. Pharmacokinetics
First semester. Three credits. Three class periods. Prerequisite: Must have satisfied all science requirements of first two years, PHRM 220, 234. *Kramer*

A study of the basic principles of Pharmacokinetics and their application to the rational design of both dosage forms and dosing regimens, optimizing the latter to further the likelihood of safe effective drug therapy in a variety of clinical situations.

246. Dispersed Systems
Second semester. Three credits. Three class periods. Prerequisite: PHRM 242. *Burgess*

Investigation of the principles and factors affecting the performance of dosage forms classified as dispersed systems: suppositories, aerosols, emulsions, suspensions, transdermals, and ointments.

247. Dosage Forms Preparation Laboratory II
Second semester. One credit. One class period and one three-hour laboratory. Prerequisite: Must be taken concurrently with PHRM 246. *Bogner*

Extemporaneous preparation of sterile and nonsterile dosage forms, with particular attention to solutions, solids and dispersed systems.

253. Therapeutics I
First semester. Two credits. One class period and one three-hour conference. Prerequisite: PHRM 220 and concurrent with PHRM 221. *Cardoni*

A study of the clinical features of diseases of the central nervous system and the provision of pharmaceutical care to psychiatric, neurologic, and pain syndrome patients. Drug related problems concerned with the treatment of these patients is emphasized.

254. Therapeutics II
Second semester. Three credits. Two class periods and one three-hour conference. Prerequisite: PHRM 253. *Reddy, Wang*

A study of the etiology, clinical manifestations, and treatment regimens of cardiovascular diseases, acid peptic disease, inflammatory bowel diseases, and liver and respiratory diseases.

254W. Therapeutics II

255. Therapeutics III
First semester. Two credits. Two class periods. Prerequisite: PHRM 254. *Chapron*

Development of skills necessary to make meaningful therapeutic contributions to the investigation and management of patients with various renal, electrolyte, acid-base, endocrine and metabolic disorders and further develop the student's ability to apply problem-solving strategies in the above clinical situations.

256. Therapeutics IV
Second semester. Three credits. Three class periods. Prerequisite: PHRM 255. *Aeschlimann*

Development of skills necessary to make meaningful therapeutic contributions to the investigation and management of patients with infectious diseases, cancers, and immunologically mediated diseases and further develop the student's ability to apply problem-solving strategies in the above clinical situations.

257. Clinical Pharmacokinetics
First semester. Three credits. Three class periods. Prerequisite: PHRM 245, 254. *Sweeney*

Development of an understanding of drug dosing regimen design with application to these concepts to relevant drugs. Emphasis will be placed on recogni-

tion of special dosing situations due to potentially altered pharmacokinetics and drugs exhibiting unique pharmacokinetics.

262. Professional Experience in Community Pharmacy *
Either semester. Four credits. Hours by arrangement. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *James*

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.

263. Professional Experience in Institutional Pharmacy I
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Silk*

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.

264. Professional Experience in Ambulatory Care Pharmacy *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Jeffery*

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.

265. Professional Experience in General Medicine *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Reddy*

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.

Electives, minimum of 5 (one month each). At least 2 of the electives must be direct patient contact.
Direct patient contact indicated by *

266. Professional Experience in Cardiology *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *White*

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.

267. Professional Experience in Infectious Disease *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Aeschlimann*

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.

268. Professional Experience in Oncology *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Pham*

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.

269. Professional Experience in Psychiatry *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Cardoni*

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.

270. Professional Experience in Pediatrics *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Bessmertny*

The student will apply knowledge of the therapeutics of pediatric disorders to the provision of pharmaceutical care to non-intensive care 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.

271. Professional Experience in Geriatrics *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Chapron, Jeffery*

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.

272. Professional Experience in Community Practice II *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *James*

A continuation of PHRM 262. 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.

273. Professional Experience in Critical Care *
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *White*

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.

274. Professional Experience in Dermatology
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of common dermatological diseases to the provision of pharmaceutical care to patients with these diseases. Emphasis is on optimization of medication-related outcomes in patients with common dermatological disorders through past and current medication assessment, efficacy and safety monitoring, and patient education.

275. Professional Experience in Drug Control
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacy and state and Federal pharmacy laws to the drug control activities of the Drug Control Division of the Department of Consumer Protection of the State of Connecticut. Emphasis is on active participation in daily activities of drug control officers in enforcing state and Federal drug control laws.

276. Professional Experience in Emergency Medicine
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

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.

277. Professional Experience in Home Health Care
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Jeffery*

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.

278. Professional Experience in Institutional Pharmacy II
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Silk*

A continuation of PHRM 263. 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.

279. Professional Experience in Industry
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Chapron*

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.

280. Professional Experience in Managed Care
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Jeffery*

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.

281. Professional Experience in Nuclear Pharmacy
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

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.

282. Professional Experience in Nutrition
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

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.

283. Professional Experience in Obstetrics/ Gynecology
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of OB-GYN disorders to the provision of pharmaceutical care to patients with these disorders. Emphasis is on optimization of medication-related outcomes in patients with OB-GYN disorders through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

284. Professional Experience in a Skilled Care Nursing Facility
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Chapron*

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.

285. Professional Experience in Surgery
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

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.

286. Professional Experience in General Medicine II *
Either semester. Four credits. Prerequisite: PHRM 265. May be taken concurrently with PHRM 265. *Reddy*

A continuation of PHRM 265. 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.

287. Professional Experience in Ambulatory Care *
Either semester. Four credits. Prerequisite: PHRM 264. May be taken concurrently with PHRM 264. *Jeffery*

A continuation of PHRM 264. 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.

288. Professional Experience in Pharmacist-Directed Anticoagulation Service *
Either semester. Four credits. Prerequisites: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Chapron*

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.

289. Professional Experience in Gastroenterology *
Either semester. Four credits. Prerequisites: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Chapron*

The student will apply knowledge of pharmacotherapy of acute and chronic gastroenterologic disorders to the provision of pharmaceutical care to patients requiring such therapy. Emphasis is on the optimization of medication-related outcome in gastroenterologic patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

290. Professional Experience in Hospice Care *
Either semester. Four credits. Prerequisites: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Pham*

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.

291. Professional Experience in Sub-acute Care and Chronic Disease and Rehabilitate Medicine *
Either semester. Four credits. Prerequisites: PHRM 210, 211, 212, 256. *Chapron*

The student will apply knowledge of pharmacotherapy of chronic and subacute disorders to the provision of pharmaceutical care to patients undergoing physical rehabilitation. 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.

298. Special Topics in Clinical Rotations
Either semester. Credits by arrangement. Open only with consent of the instructor and associate dean. This course may be repeated for credit.

299. Undergraduate Experiential Research Rotations
Second semester. Credits by arrangement. Recommended preparation: Divisional and Pharmacy required course GPA of 2.8 or higher.

Elective Courses
Pharmacy (PHAR)
See course descriptions in PHAR section.

201. Pharmacy Research Seminar

297W. Honors Thesis in Pharmacy

298. Special Topics

299. Undergraduate Research

Philosophy (PHIL)

Head of Department: Professor Crawford L. Elder
Department Office: Room 101, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

101. Problems of Philosophy
Either semester. Three credits. No student may receive more than 6 credits for PHIL 101, 102, 103, 104, 105, 106.

Topics may include skepticism, proofs of God, knowledge of the external world, induction, free-will, the problem of evil, miracles, liberty and equality.

102. Philosophy and Logic
Either semester. Three credits. No student may receive more than 6 credits for PHIL 101, 102, 103, 104, 105, 106.

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.

102C. Philosophy and Logic

103. Philosophical Classics
Either semester. Three credits. No student may receive more than 6 credits for PHIL 101, 102, 103, 104, 105, 106.

Discussion of selections from such philosophers as Plato, Aristotle, Descartes, and Hume.

104. Philosophy and Social Ethics
Either semester. Three credits. No student may receive more than 6 credits for PHIL 101, 102, 103, 104, 105, 106.

Topics may include the nature of the good life, the relation between social morality and individual rights, and practical moral dilemmas. At least one section each term emphasizes women-men issues: sex relations, sex roles, sex equality, abortion, the family, etc. Other sections may emphasize issues concerning Science and

Technology or Political Philosophy. (See *Directory of Classes* for relevant sections.)

105. Philosophy and Religion

Either semester. Three credits. No student may receive more than 6 credits for PHIL 101, 102, 103, 104, 105, 106.

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.

106. Non-western and Comparative Philosophy

Either semester. Three credits. No student may receive more than 6 credits for PHIL courses 101, 102, 103, 104, 105, 106.

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.

175. Ethical Issues in Health Care

Either semester. Three credits. *Krimerman*

Theories of ethics, with specific application to ethical issues in modern health care.

185W. Philosophy and Literature

Either semester. Three credits. Prerequisite: ENGL 105 and 109; the latter may be taken concurrently.

Philosophical problems raised by, and illuminated in, major works of literature.

200. Philosophical Issues in Contemporary Life

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. 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.

205. Aesthetics

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

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.

205W. Aesthetics

210. Metaphysics and Epistemology

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Topics may include time, personal identity, free-will, the mind-body problem, skepticism, induction, perception, *a priori* knowledge.

210W. Metaphysics and Epistemology

211Q. Symbolic Logic I

Either semester. Three credits. Prerequisite: At least one of LING 101, POLS 106, PHIL 101, 102, 103, 104, 105, 106. Open to sophomores. *Lehmann, Wheeler*

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.

211V. Symbolic Logic I (Q,C)

Emphasis on computer-related material.

212. Philosophy of Science

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Issues concerning the nature and foundations of scientific knowledge, including, for example, issues about scientific objectivity and progress.

212W. Philosophy of Science

213. Philosophy of Social Science

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Nature and extent of social phenomena; nature and consequence of group membership; methods of investigation of social phenomena; problems of interpretation. Related doctrines of classic and contemporary theorists such as Durkheim, Weber, Simmel, Wittgenstein.

214Q. Symbolic Logic II

Second semester. Three credits. Prerequisite: PHIL 211. *Lehmann*

Logical concepts developed in PHIL 211 applied to the study of philosophical issues in the foundations of mathematics.

215. Ethics

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

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?

215W. Ethics

217. Social and Political Philosophy

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

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.

217W. Social and Political Philosophy

218. Feminist Theory

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106 or WS 103, 104, or 124. *Meyers*

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.

221. Ancient Philosophy

(Also offered as CAMS 257.) Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Greek philosophy from its origin in the Pre-Socratics through its influence on early Christianity. Readings from the works of Plato and Aristotle.

221W. Ancient Philosophy

222. Seventeenth and Eighteenth-Century Philosophy

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores. *Troyer*

Central philosophical issues as discussed by philosophers such as Descartes, Locke, Berkeley, Hume and Kant.

222W. Seventeenth and Eighteenth-Century Philosophy

224. Nineteenth-Century Philosophy

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Readings from philosophers such as Kant, Hegel, Marx and Engels, Bentham, Mill Schopenhauer, Nietzsche, and Kierkegaard; topics such as the debate between individualism and collectivism in the nineteenth century.

224W. Nineteenth-Century Philosophy

225W. Analysis and Ordinary Language

Either semester. Three credits. Prerequisite: At least one of PHIL 210, 221, 222, 227.

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.

226. Philosophy of Law

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106, 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.

228. American Philosophy

Either semester. Three credits. Prerequisite: At least one of PHIL 101,102, 103, 104, 105, 106.

Doctrines advanced by recent American philosophers.

230. Contemporary Marxism and Its Foundation

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106, which may be taken concurrently.

Marx's criticisms of capitalism; the distinctive functional explanations Marx offered for the relations of production and the superstructure; application of such explanations to aspects of American culture.

230W. Contemporary Marxism and Its Foundation

231. Philosophy of Religion

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Various religious absolutes, their meaning and validity, existentialism and religion, the post-modern religious quest.

234. Phenomenology

Second semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. *Elder*

Husserl's theory of meaning; its promise of silencing skepticism and setting philosophy on a new footing; the challenge to it posed by applying it to talk about other minds.

241. Language: Meaning and Truth

Either semester. Three credits. Prerequisite: PHIL 102 or 211, and at least one of PHIL 210, 221, 222, 227.

An analysis of the concepts used in thinking about language.

243W. Philosophy of History

Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106.

Philosophical problems concerning the nature of

historical explanation, the foundations of historical knowledge, and the nature of historical change.

245. Philosophy and Economics
(Also offered as ECON 206.) Either semester. Three credits. Prerequisite: ECON 102, 112, or 113.

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.

250. Philosophy of Mind
Either semester. Three credits. Prerequisite: At least one 200-level, three-credit philosophy course or consent of instructor.

Contemporary issues in the philosophy of mind. Topics may include the nature of the mental; the relation of the mental to the physical; specific phenomena such as emotions, beliefs, or sensations, and relevant scientific developments.

261. Medieval Philosophy
Second semester. Three credits. Prerequisite: At least one of PHIL 210, 221, 222, 227. *McGrade*

Readings from the principal philosophers between the fourth and fourteenth centuries.

263. Oriental Philosophy and Religion
Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. *Luyster*

The historical, religious, and philosophical development of Hinduism, Buddhism, Tantrism, and Taoism.

264. Classical Chinese Philosophy and Culture
Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106.

Classical Chinese philosophy, including such works as The Analects of Confucius and the works of Chuang Tzu, and their influence on Chinese culture.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement up to a maximum of six credits. Consent of Department Head required, preferably prior to the student's departure.

Special topics taken in a foreign study program.

296W. Senior Thesis in Philosophy
Either semester. Three credits. Hours by arrangement. Open only with consent of instructor and Department Head. Independent study authorization form required. Prerequisite: Twelve credits in Philosophy at the 200's level or above, three of which may be taken concurrently.

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Advanced and individual work. Open only with consent of instructor. May be repeated for credit with a change in topic.

Physical Therapy (PT)

Head of Department: Professor Scott M. Hasson
Department Office: Room 214, Koons Hall

For major requirements, see the School of Allied Health section of this *Catalog*.

The following courses are open only to the students enrolled in the Physical Therapy Program unless otherwise noted. Others must obtain the permission of the Director of the Physical Therapy Program.

210. Fundamentals of Assessment
Either semester. Five credits. Hours by arrangement. Clinical field experiences will be required. Open only to Physical Therapy students. Prerequisites: PT 213, PT 215, PT 217 and PT 220.

This course provides a foundation for the physical therapy assessment process, introducing the student to more general observational and interview skills to gather, document and analyze evaluation data. Students build skill in specific evaluation procedures which are fundamental to the practice of physical therapy. Students explore the scientific evidence which supports or questions the measuring characteristics of selected evaluation procedures. Students begin to use information from assessments in decisions for diagnosis, program planning and referrals.

212. Fundamentals of Treatment: Acute Care
Either semester. Six credits. Hours by arrangement. Clinical Field experiences will be required. Open only to Physical Therapy students. Prerequisites: PT 213, PT 215, PT 217, PT 210 and PT 240.

An exploration of the practice of physical therapists in the acute care setting. Students will develop competency in clinical assessment of functional limitations, identification of appropriate treatment options and implementation of interventions to improve performance of functional activities for patients commonly encountered in acute care practice settings.

213. Human Anatomy
(Formerly offered as HESC 213.) Either semester. Three credits. Three hours of lecture. Open to students in Physical Therapy; EKIN students second semester only; others with consent of instructor. Prerequisite: PNB 264; PT 215 and PNB 265, either of which may be taken concurrently.

Discussion of the conceptual and structured bases of osteology, myology, neurology, human development and basic kinesiology and biomechanics. Selected anatomical and physiological dysfunctions will also be analyzed.

215. Human Anatomy Laboratory
(Formerly offered as HESC 215.) Either semester. Three credits. Laboratory and discussion. Open to students in Physical Therapy; EKIN students second semester only; others with consent of instructor. Prerequisite: PNB 264; PT 213 and PNB 265, either of which may be taken concurrently.

Laboratory and discussion utilizing bones, models, audiovisuals and prosected human specimens to provide in-depth study of the skeletal, articular, muscular, cardiovascular, respiratory and nervous systems of the entire human body.

217. Human Physiology
(Formerly offered as HESC 217.) Either semester. Three credits. Open to students in Physical Therapy and EKIN students; others with consent of instructor. Prerequisite: PT 213 and 215 or the equivalent, which may be taken concurrently.

Discussion of the biochemical, nutritional, cellular and physiological principles necessary for the analysis of the normal and abnormal function and for the rehabilitation of the human musculoskeletal, cardiovascular and respiratory systems. The effects of exercise and of selected pathologies upon these systems will also be analyzed.

220. Tissue Dysfunction
Either semester. Hours by arrangement. Open only to Physical Therapy students. Prerequisites: PT 213, PT 215; and PT 217 which may be taken concurrently.

After a general introduction to cellular mechanisms by which an organism becomes dysfunctional, pathological conditions common to the musculoskeletal, gastrointestinal, genitourinary, endocrine, integumentary, central and peripheral nervous and cardiopulmonary systems are overviewed. Focus is on knowledge of pathology and disease management as a basis for program planning in physical therapy. Discussion groups may be scheduled.

221. Pharmacology for Physical Therapy
Either semester. Two credits. Hours by arrangement. Open only to Physical Therapy students. Prerequisites: PT 217 and PT 220.

The body's response to single and multiple medications, radiation and chemical treatments are considered as they relate to safe, comprehensive and effective outcomes of physical therapy care.

222. Musculoskeletal Dysfunction
Either semester. Four credits. Hours by arrangement. Open only to Physical Therapy students. Prerequisites: PT 210, PT 240; and PT 221 which may be taken concurrently.

Pathology related to the musculoskeletal system is overviewed. Focus is on knowledge of pathology and disease management as a basis for assessment, diagnosis, program planning, treatment and referrals in physical therapy. Interaction with physicians and other health professionals gives students an understanding of the role physical therapy plays in a complex multiprofessional health care system.

224. Neuromuscular Dysfunction
Either semester. Three credits. Hours by arrangement. Open only to Physical Therapy students. Prerequisites: PT 210, PT 221 and PT 260.

Focus is on pathology related especially to the neuromuscular systems. Knowledge of pathology and disease management is presented for assessment, diagnosis, program planning, treatment and referrals in physical therapy. Interaction with physicians and other health professionals as well as consumers gives the students the basis for understanding the role physical therapy plays in a complex multiprofessional health care system.

226. Field Work in Socialization and Leisure Time Activity with Persons with Disabilities
Either semester. Two credits. Hours by arrangement. Field work and independent study. Open only to Physical Therapy majors and Sophomore Pre-Allied Health majors in the College of Liberal Arts & Sciences; others with consent of instructor.

Students will have the opportunity to meet and work with persons with disabilities outside of the regular clinical setting through participation in residential weekends at an outdoor recreational center. In addition to studying the common physical barriers, students will examine the common psychological and social difficulties encountered in an attempt to reach an optimal level of productivity in society. Students are required to provide their own transportation.

227. Field Work in Normal Motor Development
Either semester. Three credits. Hours by arrangement. Open only to Physical Therapy majors and Sophomore Pre-Allied Health majors in the College of Liberal Arts & Sciences; others with consent of instructor.

This course provides an opportunity for observation of normal motor skill development through participation in the educational programming, daily care, and social and emotional support offered to infants, toddlers, and preschool age children. Students are required to spend six hours per week participating in programming and care of the children. Field work and independent study are used to develop expertise in a selected area of motor development and students are required to present in-service training in their chosen area.

240. Clinical Kinesiology
Either semester. Three credits. Hours by arrangement. Prerequisite: PHYS 122; PT 213 and 215 which may be taken concurrently.

Students will analyze the impact of force systems on the human body during functional motion, thus preparing the student to apply knowledge of normal anatomical structure and function to therapeutic intervention.

260. Functional Neurology and Movement
Either semester. Four credits. Hours by arrangement. Prerequisite: PT 213 and 215.

The goal of this course is to provide the students with basic information on the central nervous system structure and function in order that they may better understand normal movement, the movement of patients with neurological disorders and the neurological basis behind treatment procedures. Emphasis will be placed on the analysis of segmental motion as seen in the acquisition of posture, postural reactions and adult movement patterns.

298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. (Investigation of special topics is available to qualified students.) May be repeated for credit.

Investigation of special topics related to, but not ordinarily covered in the undergraduate offerings. These courses will be announced in advance for each semester.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

The course is designed primarily for students who wish to extend their knowledge in some specialized subject in the field of physical therapy.

Physics (PHYS)

Head of Department: Professor William C. Stwalley
Department Office: Room 101, Physics Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

101Q. Elements of Physics
Either semester. Four credits. Three class periods and one 2-hour laboratory period. Not open for credit to students who have passed PHYS 121, 131, 141 or 151.

Basic facts and principles of physics with introduction to quantitative laboratory.

103Q. Physics of the Environment
Either semester. 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.

104Q. Physics of the Environment with Laboratory
Either semester. Four credits. Three 1-hour lectures and one 2-hour laboratory. No previous knowledge of physics is assumed. Not open for credit to students who have passed Physics 103Q.

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.

107Q. Physics of Music
First semester. Four credits. Three class periods and one 2-hour laboratory period. Prerequisite: Satisfactory performance on Q-readiness Test or equivalent. Physics 101Q and 107Q may not both be combined to satisfy the Group 8 requirement.

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.

121Q-122Q. General Physics
Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: MATH 112 or 109 or 118 or passing score on the calculus readiness test or equivalent. PHYS 121 not open for credit to students who have passed PHYS 131, 141 or 151. PHYS 122 not open for credit to students who have passed PHYS 132, 142 or 152. PHYS 121 required for PHYS 122.

Basic facts and principles of physics. The laboratory offers fundamental training in precise measurements.

123Q. General Physics Problems
Either semester. Three credits. Prerequisite: PHYS 122 and MATH 114 or 116, both of which may be taken concurrently. Not open for credit to students who have passed PHYS 141 or 151.

Problems, including applications of calculus, dealing with topics in general physics.

125Q. General Physics Problems for Engineers
Either semester. Four credits. Three class periods and one 1-hour recitation period. Prerequisite: PHYS 122 and MATH 114 or 116, both of which may be taken concurrently. Not open for credit to students who have passed PHYS 123, 141 or 151.

Problems, including applications of calculus, dealing with topics in general physics. Intended for those students who have taken or are taking PHYS 122 and who desire to have a calculus-based physics sequence equivalent to PHYS 151-152.

131Q-132Q. General Physics with Calculus
Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 131 required for PHYS 132. Recommended preparation: MATH 113 or 115, for PHYS 131, and MATH 114 or 116, for PHYS 132. PHYS 131 is not open for credit to students who have passed PHYS 141 or 151. PHYS 132 not open for credit to students who have passed 142 or 152. PHYS 131 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credits for PHYS 121. PHYS 132 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 122.

Quantitative study of the basic facts and principles of physics. The laboratory offers fundamental training in physical measurements. This course is recommended for students planning to apply for admission to medical, dental or veterinary schools. It is also recommended for science majors for whom a one year introductory physics course is adequate.

140Q. Introduction to Modern Physics
First semester. Four credits. Two class periods, two recitations, and one 3-hour laboratory. Recommended preparation: MATH 109, which may be taken concurrently, or a pass on the Calculus Readiness Test.

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. This course is recommended for prospective Physics majors.

141Q. Fundamentals of Physics I
Second semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: MATH 113 or 115 or 120, any of which may be taken concurrently. MATH 120 is preferred for Physics majors. Not open for credit to students who have passed PHYS 131 or 151. May be taken for not more than three credits, with the permission of the instructor, by students who have received credit for PHYS 121.

Fundamental principles of mechanics, statistical physics, and thermal physics. Basic concepts of calculus are used. This course is recommended for prospective Physics majors.

142Q. Fundamentals of Physics II
First semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 141, and MATH 114 or 116 or 121, any of which may be taken concurrently. MATH 121 is preferred for Physics majors. Not open for credit to students who have passed PHYS 132 or 152. May be taken for not more than three credits, with the permission of the instructor, by students who have received credit for PHYS 122.

Fundamental principles of electromagnetism, optics and wave propagation. Basic concepts of calculus are used. This course is recommended for prospective Physics majors.

143Q. Fundamentals of Physics III
First semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 132, or 142, or 152; and MATH 210 or 220, which may be taken concurrently.

Optics, wave propagation, statistical and thermal physics. This course is the third semester of a two year introductory physics sequence which begins with PHYS 140-141 in the first year.

151Q. Physics for Engineers I
Either semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 101 or secondary school physics; and CE 211 or 213, as well as either MATH 210 or 220, which may be taken concurrently. Not open for credit to students who have passed PHYS 131 or 141. PHYS 151 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 121.

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.

152Q. Physics for Engineers II
Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 151. Not open for credit to students who have passed PHYS 132 or 142. PHYS 152 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 122.

Electric and magnetic fields, electromagnetic waves, quantum effects, introduction to atomic physics.

155Q. Introductory Astronomy
Either semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Satisfactory performance on Q-Readiness Test or equivalent mathematics.

A basic introductory astronomy course including celestial coordinate systems, fundamental optics and telescope design, recent space probe results, applications of fundamental physical laws to the sun, stars and groups of stars, stellar evolution, modern cosmology and the early universe. Basic quantitative laboratory techniques relevant to astronomy.

191. Directed Study in General Physics
Either or both semesters. One credit. One class period. To be taken concurrently with any of the following: PHYS 121, 122, 141, 142, 151, or 152. Open only with consent of instructor. With a change in content this course may be repeated for credit.

A special study course for students who desire extra work and credit in certain 100-level physics courses.

209Q. Intermediate Physics I
First semester. Three credits. Prerequisite: PHYS 132 or 142 or 152 or, with consent of instructor, PHYS 122.

Classical mechanics, electricity, and magnetism.

210Q. Intermediate Physics II
Second semester. Three credits. Prerequisite: PHYS 132 or 142 or 152 or, with consent of instructor, PHYS 122.

Kinetic theory, introduction to quantum mechanics.

230Q. The Development of Quantum Physics
Second semester. Three credits. Prerequisite: PHYS 132, 142; or PHYS 152, which may be taken concurrently; or PHYS 122 with consent of instructor. Open to sophomores.

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.

242Q. Mechanics I
First semester. Three credits. Prerequisite: PHYS 142 or, with consent of instructor, PHYS 123 or 152 or 209; MATH 210 or 220, which may be taken concurrently. Open to sophomores.

Newton's Laws of motion applied to mass points, systems of particles, and rigid bodies.

246Q. Mechanics II
Second semester. Three credits. Prerequisite: MATH 211 or 221 and PHYS 242 or CE 212. Open to sophomores.

Further applications of Newton's Laws; continuous media; Lagrange's and Hamilton's formulation of dynamics.

255Q. Electricity and Magnetism I
First semester. Three credits. Prerequisite: PHYS 143; or, with consent of instructor, PHYS 123 or 152 or 210; MATH 210 and 211, or 220 and 221.

Properties of electric and magnetic fields; direct and alternating current circuits.

256Q. Electronics
Second semester. Three credits. Two class periods and one 3-hour laboratory period. Recommended preparation: PHYS 132 or 142 or 152, or consent of instructor.

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.

257Q. Electricity and Magnetism II
Second semester. Three credits. Prerequisite: PHYS 255.

Mathematical theory of the electromagnetic field; electric and magnetic properties of matter.

258Z-259Z. Laboratory in Electricity, Magnetism, and Mechanics (Q, W, C)
Both semesters. Three credits each semester. 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. Prerequisites: First semester, PHYS 121 or 131 or 141 or 151; Second semester, PHYS 122 or 132 or 142 or 152. Open to sophomores.

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.

261Q-262Q. Introductory Quantum Mechanics
Both semesters. Three credits each semester. Prerequisite: PHYS 230; MATH 210 and 211, or 220 and 221.

Elementary principles of quantum mechanics; applications to electrons, atoms, molecules, nuclei, elementary particles, and solids.

271Q. Statistical and Thermal Physics
First semester. Three credits. Prerequisite: PHYS 123 or 125 or 132 or 142 or 152; MATH 210 and 211, or 220 and 221.

The laws of thermodynamics and their microscopic statistical basis; entropy, temperature, Boltzmann factor, chemical potential, Gibbs factor, and the distribution functions.

273Q. Introduction to Solid State Physics
First semester. Three credits. Prerequisite: PHYS 123 or 125 or 132 or 142 or 152.

Crystal lattices, lattice waves, thermal and electronic properties, imperfections in solids.

274Q. Nuclei and Particles
Second semester. Three credits. Prerequisite: PHYS 261 or equivalent.

Properties of nuclei and particles, conserved quantities, isospin, quark model, Fermi gas model, electroweak interaction, high energy scattering.

275Q. Principles of Lasers
Second semester. Three credits. Prerequisite: PHYS 257 and 261, or consent of instructor. PHYS 281 is recommended.

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.

281Q. Optics
First semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 255.

An introduction to geometrical and physical optics. Thick lenses, stops, aberrations, interference, diffraction, polarization.

285Z. Experimental Physics Design Laboratory (Q,W,C)
Either semester. 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 230, 246, and 257; PHYS 261, which may be taken concurrently; and PHYS 258 or 259 or ECE 262 or MTGY 236.

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.

291. Seminar in Current Topics
Either or both semesters. One credit. One class period. To be taken concurrently with any of the following: PHYS 242, 246, 255, 257, 261, 262, 271 or 281. Open only with consent of instructor. With a change in content this course may be repeated for credit only once.

Lectures on topics relevant to current research.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits by arrangement, not to exceed 3 each semester. Open only with consent of instructor. With a change of topic, this course may be repeated for credit.

Physiology and Neurobiology (PNB)

Head of Department: Professor Angel de Blas
Department Office: Room 104, Physiology and Neurobiology Building (Horsebarn Hill #4 Annex)

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

225. Biological Rhythms
Second semester, alternate years. Three credits. Prerequisite: PNB 250 or PNB 274-275 or MCB 259 or consent of instructor. *Goldman*

Neuroendocrine and environmental factors in the control of biological rhythmicity, especially circadian and annual rhythms. Emphasis on animals.

230. Hormones and Behavior
First semester, alternate years. Three credits. Prerequisite: PNB 250 or PNB 262 or PNB 274 - 275 or consent of instructor. *Goldman*

Hormones and regulation of behaviors: reproductive, parental, social, and aggressive

behaviors, as well as migration, hibernation, learning and memory.

235. Fish Physiology and Endocrinology
Second semester. Three credits. Prerequisite: EEB 200 (may be taken concurrently). *Chapple, Chen, Crivello, Laufer, Renfro*

Mechanisms and regulation of basic physiological processes in fish. Mainly teleost fishes of commercial value; also invertebrate physiological processes important to aquaculture.

250. Animal Physiology
First semester. Three credits. Prerequisite: BIOL 107 and either 108 or 110. Open to sophomores. *Crivello, Renfro*

Physiological mechanisms and regulation in vertebrate animals.

250W. Animal Physiology

251. Biology of the Brain
Second semester. Three credits. Two class periods. Prerequisites: PNB 250 or PNB 274-275 or consent of instructor. *LoTurco*

Brain functions, from molecular and cellular to overall central nervous system organization. Topics of current scientific interest.

260. Microtechnique
First semester. Four credits. One class period and two 3-hour laboratory periods. Offered in alternate years. Open only with consent of instructor.

Preparation of cells and tissues for microscopic examination, using histological stains, immunohistochemistry, and photomicrography.

262. Mammalian Endocrinology
Second semester. Two credits. Two class periods. Prerequisite: PNB 250 or PNB 274-275 or consent of instructor. *Gallo*

Functions of hormones in mammalian physiology emphasizing humans.

263W. Investigations in Neurobiology
First semester. Three credits. One 1-hour discussion, one 4-hour laboratory period. Prerequisite: PNB 250 or PNB 274-275. *Moiseff*

Experimental investigations in neurobiology. Emphasis on designing and carrying out independent research projects, and on communicating the results.

264.-265. Human Physiology and Anatomy
Both semesters. Four credits each semester. Three class periods and one 3-hour laboratory. Prerequisite: CHEM 122Q or 127Q. Recommended preparation: BIOL 107, PHYS 101 or 122. Open to sophomores. Not open to students who have passed PNB 274-275. These courses must be taken in sequence to obtain credit, and may not be counted toward the Biological Sciences or Physiology and Neurobiology majors. *Chapple, Kimball, Moiseff, Nishiyama*

Fundamentals of human anatomy and physiology for students in medical technology, physical therapy, nursing, and education (Sport Science).

274.-275. Enhanced Human Physiology and Anatomy
Both semesters. Four credits each semester. Three class periods and one 3-hour laboratory. Prerequisite: BIOL 107, CHEM 127Q. Recommended preparation: PHYS 121, 131, or 141. Not open to students who have passed PNB 264-265. Must be taken in sequence to obtain credit. Open to sophomores. *Chapple, Kimball, Moiseff, Nishiyama*

Fundamentals of human physiology and anatomy enhanced through inquiry-based laboratories.

292W. Senior Research Thesis in Physiology and Neurobiology
Either semester. Three credits. Hours by arrangement. Prerequisite: Three credits of PNB 299, which may be taken concurrently. 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

297. Undergraduate Seminar
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change in topic.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

Plant Science (PLSC)

Head of Department: Professor Gerald A. Berkowitz
Department Office: Room 119, W.B. Young Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

Agronomy

124. Turfgrass Management
First semester. Three credits. Two class periods and one 2-hour laboratory. Not open to students who have passed PLSC 289. *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.

150. Agricultural Technology and Society
Second semester, alternate years (odd). Three credits. *Allinson*

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.

205. Soil Morphology, Genesis, and Taxonomy
First semester, alternate years (even). Four credits. Two class periods, one 4-hour field laboratory session. Prerequisite: PLSC 250, GEOL 102 or GEOL 101 or consent of instructor. Not open for credit to students that have passed PLSC 207 and 208. Students that have passed either PLSC 207 or PLSC 208, but not both, will be allowed to take an appropriately modified version of the course for two credits.

Students will be expected to master the nomenclature and techniques required to describe and characterize soils as natural bodies occurring on geomorphic surfaces. Theories of soil genesis and major systems of soil taxonomy will be rigorously examined, both in theory and in practice. Field trips are required.

224. Turfgrass Physiology and Ecology
Second semester. Three credits. Three class periods. Prerequisite: PLSC 124 or PLSC 289. *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.

250. Soils
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: CHEM 122, 127 or 129. Open to sophomores. *Luce*

Introduction to the physical, chemical and biological properties of soils: the relationship between soils and the growth of higher plants.

253. Soils, Environmental Quality, and Land Use
Second semester, alternate years (even). Three credits. Three class periods plus required field trips. Prerequisite: PLSC 250. Not open for credit to students that have passed Plant Science 209.

Principles and procedures for using soils information in solving environmental and land use problems. The functions of soils in natural ecosystems and in the hydrologic cycle will be included.

253W. Soils, Environmental Quality, and Land Use

254. Forage Crops
First semester, alternate years (even). Three credits. Two class periods and one 2-hour laboratory period. *Allinson*

Production, utilization, and storage of species used as forages and their relationship to the ruminant animal.

257. Ecology and Control of Weeds
First semester. Three credits. Two class periods and one 2-hour laboratory. Prerequisite: A course in plant physiology or consent of instructor.

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.

258. Soil Fertility
First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: PLSC 250. Offered in odd-numbered years. *Schulthess*

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.

259C. Soil Chemistry
First semester, alternate years (even). Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: CHEM 128. PLSC 206 and PLSC 250 are recommended. *Schulthess*

Basic concepts of the physical chemistry of soil constituents. Topics include clay mineralogy, soil organic matter, weathering processes, ion-exchange, extraction of sorbed compounds, formation of colloids, and the mobility of contaminants.

285. Plant Gene Transfer Techniques
Second semester. Three credits. *Li*

Techniques of plant gene delivery and transgenic plant production. Verification and analysis of transgenic plants.

Horticulture

203. Plant Diseases
First semester. Three credits. Two class periods and one 2-hour laboratory. Prerequisite: BIOL 108 or 110. *von Bodman*

The causes, development and management of diseases of economic plants. Lectures cover general principles and laboratories review specific examples of plant diseases of horticultural and agronomic crops.

204. Integrated Pest Management
First semester. Three credits. *Gauthier*

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.

212. Vegetable Crops and Their Environment
Second semester. Four credits. Three class periods and one 2-hour laboratory period. *Bible*

The responses of vegetable crops to mineral nutrients, soil pH, plant population, temperature, photoperiod, pest organisms and to the modification of these factors by technology. Radish, lettuce, tomato, cucumber, sweet corn, basil, cauliflower and watercress are grown by students in the laboratory.

213. Physiology of Economic Plants
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: BIOL 110 and CHEM 122 or 127. *Bible*

Water uptake, water potential, transpiration, stomatal movement, ion uptake, nutrient deficiencies, respiration, photosynthesis, phytohormones, phytochrome, circadian leaf movement, flowering, dormancy, cold injury and allelochemicals.

225. Greenhouse Technology and Operations
First semester. Four credits. Three class periods and one 2-hour laboratory period. Field trips required. *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.

226. Greenhouse Crop Production I
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Field trips required. Prerequisite: PLSC 225. Taught jointly with SAPL 26. Not open for credit to graduate students. *Elliott*

Environmental and cultural requirements and scheduling of major greenhouse crops, exclusive of edible produce. Emphasis on cut flowers and flowering potted plants and bedding and garden plants produced for spring and early summer markets. Laboratories provide experience in crop production.

230. Floral Art
Second semester. Two credits. One class period and one 2-hour studio period. Taught jointly with SAPL 030. Open to sophomores.

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.

231. Herbaceous Ornamental Plants
Second semester. Three credits. Taught jointly with SAPL 031. Open to sophomores. *Bridgen*

Identification, nomenclature and culture of over 160 herbaceous perennials, biennials, annuals and bulbous plants. Live plants and visual presentation are used to highlight plant characteristics and morphology. Lectures include discussions of organic growing, composting, plant morphology, trough and container gardens, and underground storage structure. Field trips to retail and wholesale businesses are a part of this class.

235. Advanced Floral Design
Second semester. Two credits. Taught concurrently with SAPL 035. Not open for credit to graduate students. One class period and one 2-hour lab. Prerequisite: PLSC 230. *Pastormerlo*

In-depth study of post-harvest requirements for specialized floral crops. Exposure to novel floral materials and abstract, tribute, high-style, and wedding designs. Retail price structuring, wire services, and mass-production concepts.

238. Plant Propagation
Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Bridgen, Elliott*

Fundamental principles of reproducing plants by seeds, cuttings, grafting, layering, divisions, and tissue culture. Techniques of propagating plants to establish and maintain clones.

240. Nursery Management
First semester, alternate years (odd). Three credits. Two class periods and one 2-hour laboratory period. *Corbett*

Principles of field and container production of nursery stock. Emphasis on production practices for woody nursery stock from propagule to sale.

240W. Nursery Management

243. Plant Biotechnology
Second semester. Three credits. Prerequisites: One of PLSC 213, BIOL 110, BIOL 201, BIOL 204. *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.

244. Garden Center Management
First semester. Three credits. Taught concurrently with SAPL 71. Not open for credit to graduate students. *Ashley*

Fundamentals related to horticultural specialty businesses with particular emphasis on the retail and contracting areas. Specialty and mass merchandising firms are considered and compared.

245. Landscape Plant Maintenance
Second semester. Three credits. One three-hour class period. Taught concurrently with SAPL 68. Not open for credit to graduate students.

Provides practical information on the planting and maintenance of trees and shrubs in the landscape. Includes learning how to plan landscape projects, install plant material and maintain the established landscape through proper pruning, mulching, irrigation, fertilization and other horticultural practices.

246. Biotechnology - Science, Application, Impact, Perception
Second semester. Three credits. *von Bodman*

Scientific, legal, and ethical aspects of Biotechnology application in agriculture, health medicine, forensics, and the environment. Designed for students with diverse departmental affiliations.

260. Woody Landscape Plants: Deciduous
First semester. Three credits. Two class periods and one 2-hour laboratory. *Auer*

Appropriate landscape use, ornamental features and taxonomy of deciduous ornamental trees, shrubs, vines and ground covers. Laboratories present field identification features and require the examination of plants in the landscape.

261. Woody Landscape Plants: Evergreen
Second semester. Three credits. Two class periods and one 2-hour laboratory. *Auer*

Appropriate landscape use, ornamental feature and taxonomy of coniferous or broadleaf evergreen ornamental trees, shrubs, vines and ground covers. Laboratories present field identification features and require the examination of plants in the landscape.

263. Fruit Culture
First semester. Three credits. Offered in even-numbered years. *Bible*

Biology of small fruit and tree fruit species, technology of fruit production, major aspects and recent advances in pomology.

264. Fruit Production Laboratory
Second semester, alternate years (odd). Two credits. Two 2-hour laboratory periods.

Practical application of techniques associated with the production of fruit crops. Emphasis is on apples, pears, peaches, raspberries, blueberries, and grapes. Oral and written reports are required. Field trips are required.

274. Plant Breeding
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Biology: MCB 213 or consent of instructor. Offered in even-numbered years.

Principles of cultivated plant improvement, breeding techniques and germplasm manipulation.

292. Plant Micropropagation
First semester, odd-numbered years. Three credits. One class period and two 2-hour laboratory periods. Prerequisite: CHEM 122 or 127 and consent of instructor. *Bridgen*

The use of aseptic techniques for the micropropagation of plants of economic interest. Laboratory techniques covered include rapid propogation of plants *in vitro*, meristem culture for the elimination of diseases, somaclonal variation, somatic embryogenesis and media preparation.

Landscape Architecture

202. Design of Small Spaces
Second semester. Two credits. One class period and one 2-hour studio. Prerequisites: PLSC 255 and PLSC 275. Not open to Landscape Architecture majors.

Studio-based course emphasizing the acquisition skills necessary for the landscape design for small spaces. The skills will include: visualization methods, methodology in design process, derivation of basic forms and planting design.

241C. Computer Applications in Landscape Architecture
First semester. Three credits. Prerequisites: PLSC 256 and 262 or consent. *Westa*

This course will provide basic knowledge of a wide variety of computer applications related to Landscape Architecture. A central theme of this course will be the selection and use of the appropriate applications and integrating data between applications.

247. Landscape Contracts
Second semester. Three credits. *Westa*

A study of the various contract documents, their legality, and their relationship to landscape construction and maintenance. Practice in writing contract

documents, contract cost estimation and bidding procedures will be provided.

255. Landscape Design Drawing
First semester. Three credits. Three 2-hour studios. Open only with consent of instructor. Open to sophomores. *Schwab*

An introductory drawing course aiming to introduce the landscape design student to the communication of ideas through sketches and presentation drawings. One-point and two-point perspective and isometric drawing techniques are taught. Various drawing media are used in a studio environment.

256. Landscape Design Communication
Second semester. Three credits. Three 2-hour studios. Open only with consent of instructor. Open to sophomores. *Alexopoulos*

The presentation of landscape designs in plan form are covered through studio drawing assignments. The color rendering of plans, the making of cross-sections, elevations and models are studies in a studio environment.

262. Landscape Design Fundamentals
Second semester. Three credits. One lecture and two 2-hour studios. Prerequisite: PLSC 256 which may be taken concurrently. Open to sophomores. *Miniutti*

Introduction to basic landscape design concepts, theory and the design process.

265. Intermediate Landscape Design I
First semester. Four credits. One class period and two 3-hour studios. Prerequisite: PLSC 255, 262 and 275. PLSC 275 may be taken concurrently. Field trips are required. *Miniutti*

The development of a design process utilizing small-scale design projects. A comprehensive investigation of site analysis methods is also covered.

266. Intermediate Landscape Design II
Second semester. Four credits. Three 3-hour studios. Prerequisite: PLSC 265. Field trips are required. *Schwab*

Landscape design studio. Application of the design of landscapes: planning theory, land use planning, visual assessment, urban design, transportation, public participation.

267. Advanced Landscape Design
Second semester. Four credits. Three 3-hour studios. Prerequisite: PLSC 266 and 281. Field trips are required. *Miniutti*

A comprehensive course which covers the range of projects which the design professional might encounter in practice. Students will be expected to provide recommendations for case studies varying in subject and scale, depending on the particular expertise of the instructor.

268. Planting Studies in Landscape Architecture
First semester. Three credits. Three 2-hour studios. Prerequisite: PLSC 260, 261, 266. Open to landscape architecture majors only. *Alexopoulos*

The role and use of plants in the landscape architectural design process. Technical, functional, and design aspects of plantings are included. Not open to students who have passed PLSC 278. Field trips are required.

271. Professional Practice
Second semester. Three credits. Prerequisite: PLSC 256 and PLSC 262 or consent of instructor. *Westa*

The course will cover many of the business and professional aspects of Landscape Architecture including: various modes of practice, resumes and portfolios, licensure and ethics, developing and administering contracts, and preparing for the professional registration exam.

275. Landscape Design
First semester. Two credits. Two class periods. Open only with consent of instructor. Open to sophomores. *Miniutti*

An introduction to landscape architecture: landscape history, natural and human factors; planning and design for parks, housing, urban spaces, etc.

276. Community Planning and Design
First semester. Four credits. Three 3-hour studios. Prerequisite: PLSC 266 or consent of instructor. Open to landscape architecture majors only. Field trips are required. *Westa*

Studio based course which investigates current theories and design of large scaled landscapes with an emphasis on residential, commercial and industrial subdivisions as well as the redesign of town centers.

277. The Development of Landscapes
First semester. Three credits. Prerequisite: PLSC 275 or consent of instructor. *Alexopoulos*

The development of man-made landscapes through time and their influence on present styles and trends.

278. Planting Design
First semester. Four credits. Three, 3-hour studios. Prerequisite: PLSC 260, 261, and 266. *Alexopoulos*

The use of plants to strengthen design concepts and to achieve special effects.

280. Landscape Construction Materials and Methods
First semester. Three credits. Two class periods and one 2-hour studio. Prerequisite: PLSC 256 or consent of the instructor. *Schwab*

Basic hard materials used in landscape construction: masonry, wood, metals, etc. Construction documents. Layout and detail drawings for landscape structures. Computer applications.

281. Landscape Site Engineering
Second semester. Three credits. One class period and two 2-hour studios. Prerequisite: PLSC 256. *Alexopoulos*

Fundamental site engineering concepts and methods are investigated. Basic grading and drainage of landform are emphasized with the aim to develop essential skills. Earthwork computation, drainage systems, sedimentation and erosion control, and roadway design are also covered.

290W. Environmental Planning and Landscape Design
Second semester. Three credits. Two class periods and one recitation period. *Schwab*

Theories, concepts and methods for planning and designing the land to meet societal needs and goals. Topics include landscape planning theory, land use planning, visual assessment, urban design, and other contemporary issues significantly affecting landscape development.

293. Seminar in Landscape Architecture
Either semester. One credit. Open only with consent of instructor. Course may be repeated with credit.

Presentations of topics in landscape architecture.

Plant Science Research and Seminar

†287. Field Study Internship
Either semester or summer. One to 6 credits. Hours by arrangement. Open to Upper Division students who have demonstrated outstanding academic ability and who possess excellent 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 will work with professionals in an area of research or management.

295. Seminar
Either semester. One credit. Open only with consent of instructor. Course may be repeated for credit.

Professional presentations of current topics in Plant Science.

298. Special Topics
Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open to qualified students with consent of instructor and Department Head. Students are expected to submit written reports. Course may be repeated for credit.

Political Science (POLS)

Department Head: Professor John T. Rourke
Department Office: Room 137, Monteith Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

106. Introduction to Political Theory
Either semester. Three credits.

Major themes of political theory such as justice, obligation, and equality, and their relevance to contemporary political concerns.

121. Introduction to Comparative Politics
Either semester. Three credits.

A survey of institutions, politics, and ideologies in democratic and non-democratic states.

121W. Introduction to Comparative Politics

132. Introduction to International Relations
Either semester. Three credits.

The nature and problems of international politics.

132W. Introduction to International Relations

143. Introduction to Nonwestern Politics
Either semester. Three credits.

A survey of institutions, ideologies, development strategies, and the political processes in nonwestern culture.

173. Introduction to American Political Processes
Either semester. Three credits.

Analysis of the organization and operation of the American political system.

173W. Introduction to American Political Processes

201. Classical and Medieval Political Theory
First semester. Three credits.

An examination of Greek, Roman and early Judeo-Christian political ideas and institutions, and their relevance to the present.

202. Modern Political Theory
Second semester. Three credits.

Major political doctrines of the contemporary

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

period, and their influence upon political movement and institutions as they are reflected in the democratic and nondemocratic forms of government.

203W. Women in Political Development
(Also offered as WS 203W.) Second semester. Three credits.

Analysis of the role of women in the process of political development in Africa, Asia and Latin America. The importance of gender to the understanding of development and modernization will be explored and the ways in which change in traditional societies has affected the position of women, economically, socially and politically will be examined.

204. Women and Politics
(Also offered as WS 204). Either semester. Three credits.

An introduction to feminist thought, the study of women as political actors, the feminist movement and several public policy issues affecting women.

204W. Women and Politics

206W. Western Marxist Tradition
Either semester. Three credits.

Exploration of the social and political theories of Marx and Engels, and of later interpretations and modifications of their ideas.

207. American Political Thought and Ideology
Second semester. Three credits.

American political thought from the colonial to the contemporary period. Political thought discussed as the ideological expression of the larger sociopolitical situation.

208. Politics, Propaganda, and Cinema
Second semester. Three credits. Four class hours (three lecture/film, one discussion).

Lectures, discussions, 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.

211. Contemporary International Politics
Either semester. Three credits. Not open for credit to students who have passed POLS 213.

Problems in international relations with emphasis on changing characteristics of international politics.

212. Global Interdependence and the Crisis of World Order
Second semester. Three credits.

The nature and meaning of interdependence; origins and consequences of development and underdevelopment; international resource politics; future world models.

215. American Diplomacy
First semester. Three credits.

A chronological examination of the foreign relations of the United States from 1776 to the first World War.

216. International Political Economy
Either semester. Three credits.

Politics of international economic relations: trade, finance, foreign direct investment, aid.

217. Recent American Diplomacy
Second semester. Three credits.

The foreign relations of the United States from the first World War to the present.

218. Inter-American Relations
Second semester. Three credits.

Major problems in inter-American relations; the Western hemisphere in contemporary world politics.

219. The Politics of American Foreign Policy
Either semester. Three credits.

Instructions, forces and processes in the making of American foreign policy. Emphasis will be on contemporary issues.

220. Simulation and Gaming in Foreign Policy
Second semester. Three credits.

A comparative study of foreign policy making. Use of computer-assisted simulation provides realistic experience in foreign policy decision making and international negotiation.

221. National and International Security
Either semester. Three credits.

Key American national security issues as integral parts of the larger problem of global security.

222. Foreign Policies of the Russian Federation and the Former USSR
Second semester, alternate years. Three credits.

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.

224. American Diplomacy in the Middle East
Either semester. Three credits.

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.

225. International Organizations and Law
Second semester. Three credits.

The role of general, regional and functional intergovernmental organizations and international law in modern diplomacy, with special attention to questions of war, peaceful settlement of disputes, and social and economic development.

226. International Relations of the Middle East
Either semester. Three credits.

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.

227W. International Politics in East Asia
First semester. Three credits.

Comparison and analysis of the foreign policies of the states of East Asia, with special emphasis on the impact of the former Soviet Union (Russia), People's Republic of China, Japan, and the United States.

228W. East Asian Governments and Politics
First semester. Three credits.

The processes of political modernization in Japan and other East Asian areas.

229. Chinese Government and Politics
Second semester. Three credits.

Chinese political processes, with emphasis on ideology and problems of development.

230W. Politics in Eastern Europe
Second semester. Three credits.

The politics of the East European states in a comparative and analytical framework, stressing ideology, political culture, participation, and elite behavior.

231. Political Institutions and Behavior in Western Europe
Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed POLS 233.

Comparative analysis of the governments and politics of Western Europe.

231W. Political Institutions and Behavior in Western Europe
(Formerly offered as POLS 233.) Open to sophomores.

233. Comparative Political Parties and Electoral Systems
Either semester. Three credits.

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.

233W. Comparative Political Parties and Electoral Systems

235. Latin American Politics
First semester. Three credits.

Theories and institutions of Latin American politics, with emphasis on issues of stability and change.

236W. Political Leadership in the Third World
Second semester, alternate years. Three credits.

The objectives and effectiveness of national leaders, with case studies from Asia, Africa, and Latin America.

237. Politics of Russia and the Former Soviet Union
First semester. Three credits. Not open for credit to students who have passed POLS 238.

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.

237W. Politics of Russia and the Former Soviet Union
(Formerly offered as POLS 238.)

239W. Politics in Africa
First semester, alternate years. Three credits.

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.

240. Contemporary German Politics
First semester. Three credits.

The development of the German polity in the 20th century, focusing on the period since 1945: the forces leading to division in 1945; the comparative analysis of the two German States (1949-1990); and the politics of a unified Germany.

241. American Political Parties
Either semester. Three credits. Prerequisite: POLS 173. Open to sophomores. Not open for credit to students who have passed POLS 243.

An analysis of the aims, organization, and growth of parties in the United States.

241W. American Political Parties
(Formerly offered as POLS 243.) Open to sophomores.

242. Political Opinion and Electoral Behavior
Either semester. Three credits.

Analysis of public opinion and its potential to affect government policies. Emphasis on explaining elections and the basis for voters' decisions.

244. Politics of South Africa
First semester. Three credits.

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.

246. Comparative State Politics
Second semester. Three credits. Not open for credit to students who have passed POLS 247.

A comparison of the political parties of the 50 states. The development and the relationship of the local and state parties in the federal system.

246W. Comparative State Politics
(Formerly offered as POLS 247.)

248. African-American Politics
Either semester. Three credits.

Political behavior, theory, and ideology of African-Americans, with emphasis on contemporary U.S. politics.

251. Law and Society
(Formerly offered as POLS 254.) Either semester. Three credits. When students intend to take several courses in the Judicial Process field (250's series), it is recommended that 251 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 f eatures 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.

252. Constitutional Law
Either semester. Three credits.

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.

253. Judiciary in the Political Process
Second semester. Three credits. Prerequisite: POLS 173.

The Supreme Court in the Political Process.

255. Politics of Crime and Justice
Either semester. Three credits.

Criminal justice in the United States, with emphasis on the links between law, politics, and administration.

256. Constitutional Rights and Liberties
Either semester. Three credits. Prerequisite: POLS 252 or HIST 235 or consent of instructor.

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.

260. Public Administration
Either semester. Three credits.

The politics of public administration. Role of administrative agencies and officials in American national, state, and local governments.

263W. Urban Politics
(Also offered as Urban Studies 263W.) Either semester. Three credits. Not open for credit to students who have passed URBN 263.

Political systems and problems confronting urban governments.

264. Politics of Budgeting
Either semester. Three credits.

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.

264W. Politics of Budgeting
Second semester. Three credits.

270W. Connecticut State and Municipal Politics
First semester, alternate years. Three credits.

An examination of contemporary Connecticut politics on the state and municipal levels.

274. State and Local Government
Either semester. Three credits. Open to sophomores.

The practical working of democracy and the role of state and local governments.

275. The Presidency and Congress
First semester. Three credits.

The contemporary Presidency and its interactions with the Congress in the formation of public policy.

276. The Policy-making Process
Second semester. Three credits. Not open for credit to students who have passed POLS 277.

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.

276W. The Policy-making Process
(Formerly offered as POLS 277.)

278. Science, Technology, and Public Policy
Second semester, alternate years. Three credits. Hiskes

An examination of how policy is made regarding scientific and technological development; focusing on agencies, citizens and current issues in the areas of science and technology.

279. South Asia in World Politics
Either semester. Three credits.

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.

279W. South Asia in World Politics

287. Foreign Study
Either or both semesters. Credits (up to a maximum of 15) and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted before the student's departure. May count toward the major with consent of the advisor.

Special topics taken in a foreign study program.

288W. Senior Thesis
Either semester. Three credits. Hours by arrangement. Prerequisite: POLS 289. Open only with consent of instructor and Department Head. All honors and distinction students writing an honors or distinction thesis must register for this course in their last semester.

289. Senior Seminar
First semester. Three credits. Open only with consent of instructor.

Recommended for students in the Honors Program, required of distinction students not in the Honors Program, and open to other qualified students. A weekly seminar on selected topics in political science.

291V. Quantitative Analysis in Political Science (Q,C)
Either semester. Three credits. Prerequisite: Recommended preparation: High School Algebra II. Open to sophomores.

Explanation of the quantitative methods used in political science. Application of these methods for the analysis of substantive political questions.

296. Political Issues
Either semester. Three credits. May be repeated for credit with a change in subject matter. Open to sophomores.

An exploration of the fundamental nature of political conflicts on the national and international levels.

296W. Political Issues

†297. Supervised Field Work
Either or both semesters. Credits up to 12. Hours by arrangement. Open only with consent of the department head.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. This course may be repeated for credit with a change in subject matter. Open only with consent of instructor and department head.

Portuguese (PORT)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical Languages Departmental listing in this *Catalog* for requirements for Majors in Portuguese.

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

135-136. Elementary Portuguese I and II
Both semesters. Four credits each semester. Four class periods and one hour of laboratory practice. The fourth class period is devoted to culture and society. Not open for credit to students who have had three or more years of Portuguese in high school, except with Departmental consent.

Emphasis is on oral and written communication skills.

137-138. Intermediate Portuguese I and II
Both semesters. Four credits each semester. Four class periods including one 1-hour class on Portuguese, Brazilian and Afro-Portuguese culture and social issues, and one hour of laboratory practice. Prerequisite: PORT 136 or two years of Portuguese in high school.

Further development of understanding, speaking, reading and writing skills within a cultural setting. Readings to enhance awareness of the Portuguese-speaking world.

140. Major Works of Portuguese and Brazilian Literature in Translation
Either semester. Three credits. Knowledge of Portuguese is not necessary.

A study of major works selected from Portuguese and Brazilian writers.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Depart-

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

ment Head required, normally before the student's departure.

Special topics taken in a foreign study program.

220. Contemporary Portugal
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

An analysis of the social structures and cultural life of Portugal today.

221. Contemporary Brazil
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

An analysis of the politics, economics, social structures and cultural life of Brazil in relation to other Latin American countries.

234. Portuguese Composition
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

Treatment of the finer points of Portuguese grammar. Exercises in translation and free composition. Stylistic analysis of texts chosen from Portuguese and Brazilian authors, newspapers and magazines.

236. Modern Brazilian Literature
Either semester, alternate years. Three credits. Prerequisite: PORT 232-233, or 240 and 241, which may be taken concurrently.

Prose, poetry, and theatre of nineteenth- and twentieth-century Brazil.

237. Modern Portuguese Literature
Either semester, alternate years. Three credits. Prerequisite: PORT 232-233, or 240 and 241, which may be taken concurrently.

Prose, poetry, and theatre of nineteenth- and twentieth-century Portugal.

240. Studies in Portuguese Literature I
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

Selected novels, plays, and poems of the Middle Ages and the 16th, 17th, and 18th centuries. Literature in relation to society.

241. Studies in Portuguese Literature II
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

Selected novels, plays, and poems of the 19th and 20th centuries in relation to social and cultural issues.

242. Studies in Brazilian Literature I
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

Selected novels, stories, plays and poems from the 16th to the 19th century, focusing on a particular aspect of Brazilian cultural history.

243. Studies in Brazilian Literature II
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

Selected novels, stories, plays, and poems of the 19th and 20th centuries. Emphasis is on aesthetic, social and cultural qualities particular to Brazilian literature.

244. Portuguese Literature of the Discoveries
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.

Selected readings from Camões' *Os Lusíadas*, Fernão Mendes Pinto's *Peregrinacão*, *História Trágico-Maritima*, and other major works.

A study of the confrontation between the old and the new worlds.

251. Advanced Portuguese Conversation
Either semester. Three credits. Prerequisite: Four years of high school Portuguese or PORT 138 or instructor's consent.

Extensive practice in oral Portuguese based on authentic cultural materials. Development of language skills and vocabulary for effective communication and self- expression through debates and oral reports on Portuguese films and news programs viewed in class.

270. Business Portuguese
Either semester. Three credits. Prerequisite: PORT 138, which may be taken concurrently, or consent of instructor.

Intensive review of Portuguese grammar. Introduction to commercial terminology. Designed to meet the needs of students desiring to use Portuguese as a tool for industry or commerce.

275. Portuguese for Students With a Background in Other Romance Languages
Either semester. Three credits. Prerequisite: Consent of instructor. Knowledge of another Romance language at an advanced level is required.

Intensive study of the Portuguese language in all its aspects – reading, writing, speaking and oral understanding.

276. Portuguese for Reading Knowledge
Either semester. One credit. Consent of instructor.

Basic Portuguese grammar and intensive practice in reading prose and poetry, in preparation for the Ph.D. reading examination.

290. Portuguese Seminar
Either semester. Credits and hours by arrangement. Prerequisite: Consent of instructor. With a change in content, may be repeated for credit.

A study of selected writers and problems in the literature of the Portuguese-speaking world.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Study Abroad in Portugal and Brazil

Students may spend a semester or academic year studying Portuguese language and culture at the University of Lisbon in Portugal, or the University of São Paulo in Brazil.

Psychology (PSYC)

Head of Department: Professor Charles Lowe
Department Office: Room 105, Psychology Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

112. Brain, Behavior and Mental Activity
Either semester. Three credits.

Current research and concepts about the brain as related to behavioral adjustments made by human beings to their physical, biological and social environments.

132. General Psychology I
Either semester. 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.

133. General Psychology II
Either semester. Three credits. Prerequisite: PSYC 132. Not open for credit to students who have passed PSYC 135. May not be taken concurrently with PSYC 135.

Psychology as a social science. Research methodology, developmental, personality, clinical, abnormal and social psychology.

135. General Psychology II (Enhanced)
Either semester. Four credits. Three lecture periods and one 1-hour discussion section. Prerequisite: PSYC 132. Not open for credit to students who have passed PSYC 133. May not be taken concurrently with PSYC 133.

Psychology as a social science. Research methodology, developmental, personality, clinical, abnormal and social psychology. Applications of theory, writing, and demonstrations during discussion periods.

202Q. Principles of Research in Psychology
Either semester. Four credits. Three 1-hour lectures and one 2-hour laboratory/discussion. Prerequisite: PSYC 135 or 133 and STAT 100 or 110 (or Statistics Q 100 level). Open to sophomores.

Design and analysis of psychological research. Experimental and quasi-experimental designs, laboratory and correlational techniques, research ethics.

210W. Laboratory in Cognition
Semester by arrangement. Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 202Q, and PSYC 220 or 256, which may be taken concurrently. *Rueckl*

Selected experiments from the following topics: memory processes, categorization, language comprehension and problem solving.

211W. Psycholinguistics Laboratory
Either semester. Three credits. Two 3-hour laboratory periods. Prerequisite: PSYC 202Q. Recommended preparation: PSYC 221 or PSYC 256 or LING 202. May be taken concurrently. *Tabor*

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.

215W. Laboratory in Sensation and Perception
Semester by arrangement. Three credits. Two 3-hour laboratory periods. Prerequisite: PSYC 202Q, and PSYC 254, which may be taken concurrently. *Carello, Growney*

Techniques for the study of sensory capacities and perceptual processes.

220. Learning
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores.

Learning and memory principles found in animal research and their relationship to human behavior. Human and other species' specific types of unique learning abilities.

221. The Psychology of Language
First semester. Three credits. Prerequisite: PSYC 135 or 133. *Shankweiler*

Those aspects of language that make it a uniquely efficient vehicle for communication and thought.

232W. Laboratory in Developmental Psychology
Second semester. Four credits. Prerequisite: PSYC 236 and PSYC 202Q. *Naigles*

The techniques necessary for performing psychological research on young children; advanced topics.

236. Developmental Psychology
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores. *Gustafson, Sanders*

Social behavior, personality, perception, cognition, language, intelligence, learning, biobehavioral processes, and research methodology in developmental perspective.

238. Child Psychology
Either semester. Three credits. Prerequisite: PSYC 236. *Dickerson*

Historical and contemporary theories of development. Includes Piaget, Vygotsky, Freud, Erikson, social-learning theory, ethological theory, and information-processing theory.

239. Current Topics in Developmental Psychology
Either semester. Three credits. Prerequisite: PSYC 236 or consent of instructor. 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.

239W. Current Topics in Developmental Psychology

240. Social Psychology
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores.

Attitudes, social cognition, social influence, interpersonal relations, group dynamics.

241. Current Topics in Social Psychology
Semester by arrangement. Three credits. Prerequisite: PSYC 240 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.

241W. Current Topics in Social Psychology

242. Laboratory in Social Psychology
Semester by arrangement. Three credits. Two class periods and one 2-hour research/laboratory period. Prerequisite: PSYC 202Q or STAT 110; PSYC 240, and consent of instructor.

Methods and techniques of research in social psychology. Supervised research investigations.

242W. Laboratory in Social Psychology

243. The Study of Personality
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores. *Kirsch*

Theories, methods, and research in both clinical and experimental approaches to personality.

244. Laboratory in Personality
First semester. Three credits. One 2-hour laboratory period. Class experimentation and some practice in research writing. Prerequisite: PSYC 202Q or STAT 110, PSYC 243, and consent of instructor.

Experimental design and methodology in personality research, followed by a class project written individually by each student.

244W. Laboratory in Personality

245. Abnormal Psychology
Either semester. Three credits. Prerequisite: PSYC 135 or 133. *Schwarz*

Nature of abnormal behavior, theories and data regarding symptoms, etiology, treatment and prevention of mental disorders.

245W. Abnormal Psychology

246. Psychology of Women
Either semester. Three credits. Prerequisite: Three credits of 200-level psychology. *Crawford*

Gender roles, socialization, women and work, women's relationships, violence against women, and other topics. Theory and research.

246W. Psychology of Women

248. Environmental Psychology
Either semester. Three credits. Prerequisite: PSYC 240.

Reciprocal relationships between built and natural environments and human behavior.

249. Emotional/Behavioral Disorders of Childhood
Either semester. Three credits. Prerequisite: PSYC 236.

Theory, research, treatment, and prevention in developmental psychopathology from infancy through adolescence.

253. Animal Behavior
Either semester. Three credits. Prerequisite: BIOL 100 or 102 or 107, and PSYC 132. *Maxson, Miller*

Principles of animal behavior derived from a review of descriptive and analytic studies in laboratory and field. Sometimes offered in multimedia format.

253W. Animal Behavior

254. Sensation and Perception
Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Sensory and perceptual processes in vision, hearing, touch, taste, and smell.

255. Motivation and Emotion
(Also offered as COMS 255.) Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Cognition, brain mechanisms, biofeedback, aggression, sex, competence, social influence, and conformity.

256. Cognitive Psychology
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores. *Rickards, Rueckl*

Different views of mental representation and processes involved in memory, language comprehension, perception, attention, and problem solving. Historical development of models in cognitive psychology.

257. Physiological Psychology
Either semester. Three credits. Prerequisite: BIOL 100 or 102 or 107 or PNB 264-265, and PSYC 132. Open to sophomores. *Salamone, Swadlow*

Physiological processes related to motivation, emotion, sensory processes, motor skills, learning, and psychiatric conditions.

257W. Physiological Psychology

258. Hormones and Behavior
Either semester. Three credits. Prerequisite: PSYC 132 and BIOL 100 or 102 or 107, and PSYC 257 or BIOL 262 (which may be taken concurrently), or consent of instructor.

Interactions among hormones, behavior, and psychological states and processes.

259. Drugs and Behavior
Second semester. Three credits. Prerequisite: PSYC 132 or BIOL 107. *Salamone, Chrobak*

An overview of drug effects on chemical transmission in the nervous system, with an emphasis on the behavioral/psychological effects of drugs.

260. Computer Modelling of Cognitive Processes
Semester by arrangement. Three credits. Prerequisite: PSYC 254 or 256. *Dickerson*

Symbolic and connectionist approaches to modelling vision, problem solving, planning, deduction, language understanding, learning, and memory.

263. Laboratory in Animal Behavior and Learning
Semester by arrangement. Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 202Q, 253, and consent of instructor. *Salamone*

A laboratory course to supplement PSYC 253.

263W. Laboratory in Animal Behavior and Learning

267. Laboratory in Physiological Psychology
Semester by arrangement. Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 202Q, and PSYC 257, which may be taken concurrently.

Techniques employed in experimental investigation of the anatomical and physiological bases of behavior.

267W. Laboratory in Physiological Psychology

268. Industrial Psychology
Either semester. Three credits. Prerequisite: PSYC 135 or 133. *Barnes-Farrell, Henning, Mellor, Sohn*

Applications of psychology in the workplace: Measurement, personnel decisions, performance appraisal, training, motivation, worker attitudes, leadership, ergonomics and job design, workplace health and safety.

269. Introduction to Clinical Psychology
Either semester. Three credits. Prerequisite: 245 or 245W.

History of clinical psychology as a profession; graduate training and ethical responsibilities; assessment and treatment of psychological disorders; and clinical sub-specialities.

270. Black Psychology
First semester. Three credits. Prerequisite: PSYC 135 or 133 and consent of instructor. *Williams*

Empirical and theoretical literature on psychological experiences of African Americans. Impact of race, culture, and ethnicity on psychological development.

270W. Black Psychology

272. Psychology of Aging
Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Psychological theories and research on adult development and aging. Focus on self development from adolescence through young adulthood, midlife and later life.

278. Human Factors Design
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Recommended preparation: PSYC 268. *Henning*

Human factors/ergonomics design applied to human-machine and sociotechnical systems. Independent work in conjunction with class project.

281. Psychological Tests and Measurements
Second semester. Three credits. Prerequisite: PSYC 202Q or STAT 110.

Individual differences, measurement theory, issues of validity, reliability, and sampling. Intelligence, achievement, personnel, vocational, and personality testing.

282W. Social-Organizational Psychology
Either semester. Three credits. Prerequisite: PSYC 268 or PSYC 240 or any 200-level Management course. *Lowe*

Social psychological phenomena in organizational settings. Motivation, leadership, decision-making, and group productivity.

290. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head or advisor may be required prior to the student's departure.

Special topics taken in a foreign study program.

291. The History and Systems of Psychology
Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Philosophical and scientific origins and major schools, including structuralism, functionalism, behaviorism, gestalt, and psychoanalysis.

291W. The History and Systems of Psychology

292. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

†294. Field Experience
Either semester. Credits, not to exceed six per semester, and hours by arrangement. Prerequisite: PSYC 135 or 133. Open only with consent of instructor. With a change in content, this course may be repeated for credit.

Supervised field work in clinical, community, or organizational settings.

295. Seminar in Psychology
Semester by arrangement. Three credits. Prerequisite: PSYC 135 or 133 and consent of instructor. With a change in content, may be repeated for credit.

Recent developments in psychology. Topics vary with each offering.

296W. Senior Thesis in Psychology
Either semester. Three credits. Hours by arrangement. Prerequisite: Three credits of PSYC 297 or PSYC 299. Open only to Honors students with consent of instructor and Department Head.

297. Undergraduate Research
Either semester. Credits, not to exceed six per semester, and hours by arrangement. Open only with consent of instructor. Prerequisite: PSYC 202Q. With a change in content, this course may be repeated for credit.

Participant activities related to research.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either semester. Credits and hours by arrangement. Prerequisite: PSYC 202Q. 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.

Puerto Rican & Latino Studies (PRLS)

Director, Institute for Puerto Rican & Latino Studies: Professor Blanca Silvestrini
Office: Room 413, Beach Hall, 4th floor

241. Latin American Minorities in the United States
(Also offered as ANTH 241). First semester. 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.

260. Media and Special Audiences
(Also offered as COMS 260.) Either semester. Three credits. Recommended preparation: COMS 102. *Rios*

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, Lesbians.

295. Variable Topics in Puerto Rican and Latino Studies
Either semester. Three credits. With a change in topic, may be repeated for credit.

Intensive study of specialized topics not ordinarily covered in the undergraduate curriculum, taught by visiting scholars or joint appointment faculty.

298. Special Topics in Puerto Rican and Latino Studies
Either or both semesters. Three credits. With a change in topic, may be repeated for credit.

Special topics in Puerto Rican and Latino Studies.

299. Independent Study in Puerto Rican and Latino Studies
Either semester. Credits and hours by arrangement. With a change in content, this course may be repeated for credit. Consent of the instructor.

Russian (RUSS)

Head of Department: David Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical Languages Departmental listing in this *Catalog* for requirements for Majors in Russian.

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

155-156. Elementary Russian I and II
Both semesters. Four credits each semester. One lecture, three recitation periods, and one hour of laboratory practice. Not open for credit to students who have had three or more years of Russian in high school, except with Departmental consent. Not open for credit to students who have passed RUSS 115-116.

Elementary Russian grammar. Extensive training in pronunciation, reading, speaking and writing. Second semester; short stories, outside reading.

157-158. Intermediate Russian I and II
Both semesters. Four credits each semester. Four class periods and one hour of laboratory practice. Prerequisite: RUSS 156 or equivalent. Not open for credit to students who have passed RUSS 117-118.

A thorough grammar review. Reading of selected texts of Russian authors. Oral and written practice. Outside reading.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the student's departure.

231. Masterpieces of Modern Russian Literature in Translation
Either semester. Three credits. Conducted in English. Required of all Russian majors, who will be asked to read part of the material in the original. Open to students from other fields with an interest in Russian or comparative literature.

A survey of Russian literature from the Revolution to the present.

232. Masterpieces of 19th-Century Russian Literature in Translation
Either semester. Three credits. Conducted in English. Required of all Russian majors, who are required to read part of the material in the original. Open to students from other fields with an interest in Russian or comparative literature.

A survey of Russian literature from Pushkin to Chekhov.

241. The Russian Cultural Heritage
Either semester. Three credits. Conducted in English.

Contemporary Russian life and its reflection of traditional Russian cultural values.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student's departure.

Special topics taken in a foreign study program.

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Science (SCI)

110. Humans and the Changing Global Environment
Either semester. Three credits.

An introduction to the basic scientific principles that govern the interaction between human beings and their environment. Emphasis is placed on understanding the ways in which environmental processes affect humanity and the ways in which human activities affect the environment.

150. Unifying Concepts in Biology, Chemistry and Physics
First semester. Four credits. Three lecture periods and one 2-hour laboratory. Prerequisite: Must have passed Q-readiness test or MATH 101. *Knox, Markowitz, Shaw, Terry*

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.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

Special topics taken in a foreign study program.

206. Introduction to the History of Science
(Also offered as HIST 206.) First semester. Three credits. Open to sophomores. This course may be used only once to meet the distribution requirement.

Rise and development of scientific inquiry; case studies designed to illustrate problems and methods in the study of the history of science.

240. The Nature of Scientific Thought
Second semester. Three credits. Open to sophomores.

An inquiry into the underlying assumptions and aims of scientific knowledge. Emphasis is placed on philosophical issues generated by current theories in the physical and biological sciences.

241. Seminar in the Nature of Scientific Thought
Second semester. One credit. One class period. Prerequisite: SCI 240 must be taken concurrently. Open to sophomores.

Discussions based on the content of SCI 240.

Sociology (SOCI)

Head of Department: Professor Wayne Villemez
Department Office: Room 115, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

107. Introduction to Sociology
Either semester. 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.

107W. Introduction to Sociology
Prerequisite: ENGL 105 and 109; ENGL 109 may be taken concurrently.

115. Social Problems
Either semester. 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.

115W. Social Problems
Prerequisite: ENGL 105 and 109; ENGL 109 may be taken concurrently.

125. Race, Class, and Gender
Either semester. Three credits.

Race, class, and gender, as they structure identities, opportunities, and social outcomes.

125W. Race, Class, and Gender

205. Methods of Social Research
Either semester. Three credits. Prerequisite: SOCI 107.

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.

207Q. Quantitative Methods in Social Research
Either semester. Three credits. Prerequisite: SOCI 205 or consent of instructor; and STAT 100 or 110.

Practical work in the design and execution of research, hypothesis testing, data analysis, and interpretation.

208C. Computing in the Social Sciences
Either semester. Three credits. One 2-hour lecture and one 2-hour laboratory per week. Prerequisite: Q course and SOCI 205 or equivalent. *Oates*

Introduction to applied computing skills using a statistical package.

209. Applying Sociology to Social Issues
Either semester. Three credits. Prerequisite: SOCI 107 and 205 or consent of instructor. *Ratcliff*

Applying sociology and its methods to ask research questions, gather information, and evaluate social programs.

212. Language and Society
Either semester. Three credits.

Linguistic construction of social reality, social variations in speech behavior, and political issues.

216. Criminology
Either semester. Three credits. Open to sophomores. *DeFronzo, Logan*

Theories and research on crime, criminal law, and the criminal justice system.

216W. Criminology
Open to sophomores.

217. Deviant Behavior
Either semester. Three credits. *McNeal*

Behaviors labeled by society as deviant, such as crime, prostitution, suicide, alcoholism, drug abuse, and mental illness.

217W. Deviant Behavior

218. Juvenile Delinquency
Second semester. Three credits. *Wright*

An overview of sociological theory and research on juvenile delinquency.

218W. Juvenile Delinquency

219. Drugs and Society
Either semester. Three credits. *Sanders*

Drug taking as a social problem, the "war on drugs," drug education, treatment and prevention approaches, the illegal drug market.

219W. Drugs and Society

221. Sociological Perspectives on Asian American Women
(Also offered as AASI 221.) Either semester. Three credits. *Purkayastha*

An overview of social structures and inter-group relations focusing on the experience of Asian American women.

221W. Sociological Perspectives on Asian American Women
(Also offered as AASI 221W.)

222. Asian Indian Women
First semester. Three credits. Prerequisites: SOCI 107, 115 or 125.

How gender, class and ethnicity/race structure everyday lives of Asian Indian women in both India and the United States.

226. Modern Africa
Either semester. Three credits. *Gugler*

Cultural patterns, social structure, and political conflict in Subsaharan Africa.

226W. Modern Africa

227. Revolutionary Social Movements Around the World
Either semester. Three credits. One 3-hour class per week. Open to sophomores. *DeFronzo*

Lectures and documentary films on the Russian, Chinese, Vietnamese, Cuban and Nicaraguan revolutions and movements in South Africa and the Middle East.

227W. Revolutionary Social Movements Around the World

230. Society and the Individual
Either semester. Three credits. Prerequisite: SOCI 107. *Dashefsky, Oates*

Modern social systems and the behavior, psychological organization, and development of individuals.

230W. Society and the Individual

235. African Americans and Social Protest
Either semester. Three credits. *Cazenave*

Social and economic-justice movements, from the beginning of the Civil Rights movement to the present.

236. White Racism
Either semester. Three credits. *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.

240. Ethnicity and Race
Either semester. Three credits. *Oates, Villemez*

Ethnic groups, their interrelations, assimilation, and pluralism. Culture, and identity that arise from differences in race, religion, nationality, region, and language.

240W. Ethnicity and Race

241. Women and Health
Either semester. Three credits. *Ratcliff*

Social factors shaping women's health, health care, and their roles as health-care providers.

242. American Jewry
(Also offered as JUDS 242.) Either semester. Three credits. *Dashefsky*

Historical, demographic, organizational, and sociopsychological perspectives.

242W. American Jewry

243. Prejudice and Discrimination
Either semester. Three credits. *McNeal, Taylor*

Sources and consequences of racial and ethnic prejudice and discrimination.

243W. Prejudice and Discrimination

244. Sociology of Mental Illness
Either semester. Three credits. *Broadhead, Oates*

Madness in human societies; its history, incipience, epidemiology, etiology, institutionalization, and other issues.

244W. Sociology of Mental Illness

246. Human Sexuality
Either semester. Three credits. Open to sophomores.

How sexual behavior is molded by culture and social structure. Among the topics are premarital sex, homosexuality, pornography, and rape.

246W. Human Sexuality
Open to sophomores.

247. Sociology of Health
Either semester. Three credits. *Ratcliff*

Social factors related to health, illness, and health-care systems.

247W. Sociology of Health

248. Aging in American Society
(Also offered as HDFS 248.) Either semester. Three credits. This course may be used only once to meet the distribution requirements. *Sheehan*

Social gerontology: the role and status of older people in a changing society.

248W. Aging in American Society
(Also offered as HDFS 248W.)

249. Sociological Perspectives on Poverty
Either semester. Three credits. *Cazenave, Neubeck, Villemez*

Poverty in the U.S. and abroad, its roots, and strategies to deal with it.

249W. Sociological Perspectives on Poverty

250. Sociology of the Family
Either semester. Three credits. Open to sophomores. *McDonald*

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.

250W. Sociology of the Family

252. Sociological Perspectives on Women
Either semester. Three credits. *McDonald, Tuchman*

The status of women in American society.

252W. Sociological Perspectives on Women

253. Sociology of Religion
Either semester. Three credits.

Religion in social context: differences of church, denomination, sect, and cult; religious culture, organization, and ideology.

253W. Sociology of Religion

255. Population
Either semester. Three credits. *Hadden*

Size, growth, composition and distribution of population; social factors in population change.

255W. Population

258. The Developing World
Either semester. Three credits. *Gugler*

Social and economic conditions in Asia, Africa, and Latin America and attempts to improve them.

258W. The Developing World

259. Energy, Environment, and Society
Either semester. Three credits.

Sociological perspectives on energy production, distribution and consumption, environmental, and social organization.

259W. Energy, Environment, and Society

260. Social Organization
Either semester. Three credits. Prerequisite: SOCI 107. *Villemez, Weakliem*

Social organization and structure in modern society. Sociology majors should take this required course in their junior year.

260W. Social Organization

265. Complex Organizations
Either semester. Three credits. *Villemez*

Theories and research on complex organizations in society; relationship between organizations and their environments; varieties of organizational forms, structures, and processes.

267. Public Opinion and Mass Communication
Either semester. Three credits. *Ferree, Tuchman*

Contemporary public opinion and ideology, the process and effects of mass communication, and the measurement of public opinion.

267W. Public Opinion and Mass Communication

268. Class, Power, and Inequality
Either semester. Three credits. *Glasberg, Neubeck, Villemez*

Inequality and its consequences in contemporary societies.

268W. Class, Power, and Inequality

269. Political Sociology
Either semester. Three credits. *Glasberg, Neubeck, Weakliem*

Social analysis of power, democracy and voting, society and the state, and political economy.

269W. Political Sociology

270. Social Theory
Either semester. Three credits. Prerequisite: SOCI 107. *McDonald, Tuchman*

Sociological theory for advanced undergraduates.

270W. Social Theory

274. Work and Occupations
Either semester. Three credits. *McDonald, Villemez*

Occupations, jobs, careers, and the professions, and their effects on the division of labor, on the workplace, and on individuals in the labor force.

275. Collective Bargaining
Either semester. Three credits.

Labor-management relations, with emphasis on issues of public policy.

280. Urban Sociology
(Also offered as URBN 280.) Either semester. Three credits. Open to sophomores. *Abrahamson, Gugler*

Social and physical organization of cities and suburbs.

280W. Urban Sociology
(Also offered as URBN 280W.) Open to sophomores.

281. Urban Problems
(Also offered as URBN 281.) Either semester. Three credits.

Social problems of American cities and suburbs, with emphasis on policy issues.

281W. Urban Problems
(Also offered as URBN 281W.)

282. Urbanization
Either semester. Three credits. *Gugler*

The rapid urbanization of the world's population: its causes, characteristics and consequences.

282W. Urbanization

283. City Life
Either semester. Three credits.

Ways of life in large cities and suburbs and the culture of modernism.

283W. City Life

284. Communities
Second semester. Three credits. Three class periods. Prerequisite: One introductory level sociology course or consent of instructor.

Sociological analysis of processes and structures of various kinds of communities.

285. Social Welfare and Social Work
Either semester. Three credits. Open to seniors in the social sciences; to others only with consent of instructor.

Social welfare needs and programs; introduction to social work as a professional service.

288. Sociology of Education
Either semester. Three credits. *McNeal*

Education and society: primary schools through universities as agencies for social selection and socialization.

288W. Sociology of Education

290. Social Movements and Social Change
Either semester. Three credits.

Revolutionary, reform, reactionary, religious, communal, and escapist movements.

290W. Social Movements and Social Change

293. Foreign Study
Either or both semesters. Credits and hours by arrangement up to a maximum of six credits. Consent of Department Head required, preferably prior to the student's departure.

Special topics in a foreign-study program.

294W. Senior Thesis in Sociology
Either semester. Three credits. Prerequisite: Fifteen credits in sociology and consent of instructor and Department Head.

296. Field Experience
Either semester. Variable (1-9) credits, by arrangement. Class and field work by arrangement with instructor and field agency. May be repeated for credit, not to exceed 9 credits total for 296 and 296W. Prerequisite: Sociology 107. *Logan, Neubeck, Ratcliff*

Internship in a social-welfare agency or institution.

296W. Field Experience
Three credits may be taken for W credit.

297. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. A lecture course. Topics vary by semester.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated.

Spanish (SPAN)

Head of Department: David Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical 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.

181-182. Elementary Spanish I and II
Both semesters. 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, except with Departmental consent.

Development of ability to communicate in Spanish, orally and in writing, to satisfy basic survival needs within a cultural setting.

183-184. Intermediate Spanish I and II
Both semesters. Four credits each semester. Four class periods and additional laboratory practice. Prerequisite: SPAN 182 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.

185-186. Spanish for Reading Knowledge
Both semesters. Three credits each semester. Open only to seniors and graduate students. Not open for credit to undergraduates who have had SPAN 181-182. 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.

187. Major Works of Hispanic Literature in Translation
Either semester. Three credits. Knowledge of Spanish is not required.

A study of major works selected from the best of Spanish and Spanish-American literature.

190. Language, Culture, and Health in Spanish-Speaking Societies
Four credits. Semester and hours by arrangement. Prerequisite: Two years of high school Spanish or equivalent and consent of instructor. Open to graduate and undergraduate students in the health professions as well as practicing health professionals. May be repeated once for credit with a change in topic. May not be used to meet the undergraduate foreign language requirement.

Content-based language instruction with a focus on the cultural construct and context of "health" in Spanish-speaking environments. Development of Spanish language skills through intensive work with authentic materials drawn from technical literature, fiction, print media, video, radio, and other sources.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the student's departure.

Special topics taken in a foreign study program.

200. Spanish Civilization to the Modern Period
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

An interdisciplinary course analyzing the politics, social structures, and cultural life of Spain from its beginnings to the start of the nineteenth century.

201. Ibero-American Civilization and Culture
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

History of the major social, intellectual, and artistic trends of Spanish-speaking America.

202. Studies in Spanish-American Literature
Either semester. Three credits. Recommended preparation: SPAN 201.

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.

204. Language and Culture of U.S. Hispanics
Either semester. Three credits. Prerequisite: SPAN 184 or consent of instructor.

Comparison of linguistic, historical and cultural backgrounds of various Hispanic groups in the U.S. through fiction, non-fiction, films, music, and guest speakers.

205. Contemporary Spanish America
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

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.

206. Contemporary Spain
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

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.

207. Women's Studies in Spanish
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

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.

208. Issues in Hispanic Thought
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor. 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.

209. Film and Literature
Either semester. Three credits. One three-hour class period. Recommended preparation: SPAN 278 or consent of instructor.

Films from the Spanish or Portuguese-speaking worlds are viewed and literature examined to show how literature is transformed into cinema.

210. Spanish for Social Workers
Either semester. Two credits. Two class periods. Open only to graduate students in the School of Social Work. Offered at the Hartford Campus.

Development of conversational skills within the cultural perspective of Hispanics in the U.S. Emphasis on intake interviewing techniques using vocabulary and structures relevant to human services contexts.

214. Topics in Hispanic Cultures
Either semester. 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.

220. Introduction to Literary Study
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

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.

223. Old Spanish Language and Literature
Either semester. Three credits. Prerequisite: SPAN 281.

Linguistic and literary analysis of Medieval and Renaissance Spanish texts.

224. Studies in Spanish Golden Age Literature
Either semester. Three credits. Recommended preparation: SPAN 200. 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.

225. Studies in Spanish Literature of the Eighteenth and Nineteenth Centuries
Either semester. Three credits. Recommended preparation: SPAN 200. 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.

226. Studies in Spanish Literature of the Twentieth Century
Either semester. Three credits. Recommended preparation: SPAN 200. 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.

270. Business Spanish
Either semester. Three credits. Prerequisite: SPAN 184 or consent of instructor.

Introduction to commercial terminology in Spanish. Designed to meet the needs of students desiring to use Spanish as a tool for industry or commerce.

278. Intermediate Spanish Composition
Either semester. Three credits. Prerequisite: SPAN 184 or three or more years of Spanish in high school.

This course provides a thorough review of grammar and methodical practice in composition leading to command of practical idioms and vocabulary.

279. Spanish Conversation: Cultural Topics
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

In-depth development of speaking skills through cultural readings, group discussions and oral presentations on selected topics concerning the Spanish-speaking world.

280. Composition and Reading for Speakers of Spanish
Either semester. 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.

281. Great Works of Spanish Literature from its Origins to the Golden Age
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

The study of selected poems, plays, fables and novels reflecting the development of Spanish society from feudalism to world empire.

282. Literature of Crisis in Modern Spain
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

The study of selected poems, plays, short fiction, and novels reflecting the clash between tradition and progress in nineteenth- and twentieth-century Spain.

289. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

290. Spanish Phonetics
Either semester. Three credits. Recommended preparation: SPAN 278.

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.

291. Advanced Spanish Composition
Either semester. Three credits. Recommended preparation: SPAN 278.

Treatment of the finer points of Spanish grammar. Exercises in translation and free composition. Stylistic analysis of texts chosen from Spanish authors, newspapers and magazines.

292. Selected Topics in Hispanic Literature
Either semester. Three credits. May be repeated for credit once with a change of topic. Consult department for particulars each year.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. 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.

294. Literature of Puerto Rico and the Spanish Caribbean
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

Readings and discussions of major authors and works of the Spanish Caribbean with special emphasis on Puerto Rico.

295. Spanish-American Literature: The Formative Years
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

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."

296. Great Works of Modern Spanish-American Literature
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

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.

297. Spanish-American Fiction
Either semester. Three credits. Recommended preparation: SPAN 201.

Lectures, readings and reports on the development of the Spanish-American novel and short story.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Study 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.

Study 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.

Statistics (STAT)

Head of Department: Professor D. Dey
Department Office: Room 428, Mathematical Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

Credit restrictions: 100 level statistics courses are not open for credit to students who have passed a 200 level statistics course or who are taking such a course concurrently. Students can receive no more than four credits from Statistics 100 and 110.

100V. Introduction to Statistics I (Q, C)
Either semester. 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.

110V. Elementary Concepts of Statistics (Q, C)
Either semester. 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.

201Q. Introduction to Statistics II
Either semester. Three credits. Prerequisite: STAT 100 or 110. Open to sophomores.

Analysis of variance, multiple regression, chi-square tests, and non-parametric procedures.

220Q-221Q. Statistical Methods (Calculus Level)
Either semester. Three credits each semester. Prerequisite: MATH 114 or 116 or 121.

Basic probability distributions, point and interval estimation, tests of hypotheses, correlation and regression, analysis of variance, experimental design, non-parametric procedures.

224Q. Probability Models for Engineers
Either semester. Three credits. Prerequisite: MATH 210Q or 220Q. Students may not receive more than three credits from STAT 224 and STAT 220 or from STAT 224 and STAT 230.

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.

230Q-231Q. Introduction to Mathematical Statistics
Both semesters. Three credits each semester. Prerequisite: MATH 210 or 220. Students may not receive credit for both STAT 230 and 315, or both STAT 231 and 316.

The mathematical theory underlying statistical methods. Probability spaces, distributions in one and several dimensions, generating functions, limit theorems, sampling, parameter estimation. Neyman-Pearson theory of hypothesis testing, correlation, regression, analysis of variance.

235Q. Elementary Stochastic Processes
(Also offered as MATH 232Q.) Either semester. Three credits. Prerequisite: STAT 220 or 224 or 230 or MATH 231. Not open for credit to students who have passed MATH 232Q.

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.

242Q. Analysis of Experiments
Either semester. Three credits. Prerequisite: STAT 201 or 220 or consent of instructor. Credit may not be received for both STAT 242 and 342.

Straight-line regression, multiple regression, regression diagnostics, transformations, dummy variables, one-way and two-way analysis of variance, analysis of covariance, stepwise regression.

243Q. Design of Experiments
Second semester. Three credits. Prerequisite: STAT 201 or 220 or consent of instructor. Credit may not be received for both STAT 243 and 343.

Methods of designing experiments utilizing regression analysis and the analysis of variance.

252Q. Sampling Theory
Either semester. Three credits. Prerequisite: STAT 231 or consent of instructor.

Sampling and nonsampling 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.

253Q. Nonparametric Methods
First semester. Three credits. Prerequisite: STAT 231 or consent of instructor.

Basic ideas, the empirical distribution function and its applications, uses of order statistics, one- two- and c-sample problems, rank correlation, efficiency.

261V. Statistical Computing
Second semester. Four credits. Prerequisite: STAT 220 or STAT 230. Recommended preparation: An applied statistics course. Open only with consent of instructor.

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.

271V. Statistical Quality Control and Reliability
Either semester. Three credits. Prerequisite: STAT 231.

Development of control charts, acceptance sampling and process capability indices, reliability modeling, regression models for reliability data, and proportional hazards models for survival data.

272Q. Introduction to Biostatistics
Either semester. Three credits. Prerequisite: STAT 220 or an applied statistics course along with either STAT 230 or MATH 231 or consent of instructor.

Rates and proportions, sensitivity, specificity, analysis of two-way tables, odd ratios, relative risk, ordered and nonordered classifications, trends, case-control studies, review of basic regression, logistic regression, additivity and interaction, Poisson regression, survival analysis, combining studies and meta-analysis.

280V. Applied Time Series
Either semester. Three credits. Prerequisite: STAT 231 or consent of instructor.

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.

284Q. Probability and Statistics Problems
Either semester. One or two credits. Hours by arrangement. Prerequisite: MATH 231 and STAT 230. Not open for credit to students who have passed MATH 284Q.

Designed to help students prepare for the second actuarial examination.

286Q. Introduction to Operations Research
(Also offered as MATH 286Q and STAT 356.) Either semester. Three credits. Prerequisite: MATH 231 or STAT 220 or 230. Not open for credit to students who have passed MATH 286 or STAT 356.

Introduction to the use of mathematical and statistical techniques to solve a wide variety of organizational problems. Topics include linear programming, network analysis, queueing theory, decision analysis.

†294. Field Study Internship
Either semester. Credits and hours by arrangement. Prerequisites: Completion of Lower Division General CLAS requirements. Completion with a grade of "C" or better of STAT 220 or STAT 230 and STAT 242 or STAT 243.

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).

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

296. Undergraduate Research
Either semester. Three credits. Hours by arrangement. Open only with consent of instructor.

Supervised research in probability or statistics. A final written report and oral presentation are required.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either semester. Credits and hours by arrangement.

Open only with consent of instructor. May be repeated for credit.

Urban Studies (URBN)

Director, Urban Studies Program: Peter L. Halvorson
Office: Room 442, College of Liberal Arts and Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

130. The City in the Western Tradition
(Also offered as GEOG 130.) Either semester. Three credits. *Allen, Cooke, Halvorson*

A broad discussion of the role and structure of the city in the western tradition from ancient Mesopotamia 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 .

230. Introduction to Urban Studies
Second semester. Three credits. Open to sophomores. *Halvorson*

Introduction to the analysis of urban development with particular stress on those problems pertinent to the American central city. This course is also listed under Anthropology, Geography, and Sociology.

†231. Internship in Urban Studies: Field Study
Either semester. Credits, not to exceed three, by arrangement. Hours by arrangement with hosting agency. To be elected concurrently with URBN 232. Prerequisite: Consent of instructor. *Cooke*

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.

232. Internship in Urban Studies: Seminar
Either semester. Credits, not to exceed three, by arrangement. To be elected concurrently with URBN 231. Prerequisite: Consent of instructor. *Cooke*

Description, analysis, and evaluation of the fieldwork portion (URBN 231) of the internship. Written reports are required.

233. Urban Geography
(Formerly offered as URBN 212.) (Also offered as GEOG 233.) Either semester. Three credits. Not open for credit to students who have passed GEOG 233. *Halvorson, Meyer*

Analysis of the growth, distribution, and functional patterns within and among Western cities. Particular attention is placed on applying urban geographical concepts to city planning problems.

241. The History of Urban America
(Also offered as HIST 241.) Second semester. Three credits. Not open for credit to students who have passed HIST 241. *Stave*

The development of urban America with emphasis on social, political, physical, and environmental change in the industrial city.

241W. The History of Urban America
(Also offered as History 241W.)

248. Urban Anthropology
(Also offered as ANTH 248.) First semester. Three credits. Not open for credit to students who have passed ANTH 248. *Magubane*

A general course on urbanization, emphasizing contrasts between "developed" and "developing" countries.

259. Urban and Regional Economics
(Also offered as ECON 259.) Second semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111, 102 or 113 and One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Heffley, Miceli*

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.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

263W. Urban Politics
(Also offered as POLS 263W.) Either semester. Three credits. Not open for credit to students who have passed POLS 263.

Political systems and problems confronting urban governments.

280. Urban Sociology
(Also offered as SOCI 280.) Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed URBN/SOCI 286. *Abrahamson, Allen, Gugler*

Social and physical organization of cities and suburbs.

280W. Urban Sociology
(Also offered as SOCI 280W.) Open to sophomores.

281. Urban Problems
(Also offered as SOCI 281.) Either semester. Three credits. Not open for credit to students who have passed URBN/SOCI 284.

Social problems of American cities and suburbs with emphasis on policy issues.

281W. Urban Problems
(Also offered as SOCI 281W.)

295. Variable Topics
Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Prerequisite: Consent of instructor. May be repeated for credit.

Women's Studies (WS)

Director, Women's Studies Program: Mary Crawford
Office: Room 426 Beach Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

103. Introduction to Women's Studies in the Social Sciences
First semester. Three credits.

An introduction to research on women and gender in a variety of social science fields. Considers interpersonal relationships, socioeconomic status, power and authority as women experience them and explores the myths and realities of difference between women and men, and of differences among women of different race, class or ethnic backgrounds in the U.S.

104. Introduction to Women's Studies in the Arts
Either semester. Three credits. *D'Alleva*

Interdisciplinary examination of the representations of women and works by women in one or more of the following genres – drama, art, music, or film. Key issues of feminist criticism and scholarship in the arts are introduced and discussed.

124. Changing Roles of Women and Men: A Global Perspective
Either semester. Three credits.

Exploration of the social position and relations of women and men (political, economic, cultural and familial) in selected non-western societies. Emphasis is given both to understanding the origins of culturally distinctive patterns and to recognizing the ways in which these relationships have been and are being transformed.

193. Foreign Study
Either or both semesters. Credit and hours by arrangement. May be repeated for credit. Consent of program director required, normally before the student's departure.

203W. Women in Political Development
(Also offered as POLS 203W.) Second semester. Three credits. *Creevey*

Analysis of the role of women in the process of development in Africa, Asia and Latin America. The importance of gender to the understanding of development and modernization will be explored and the ways in which change in traditional societies has affected the position of women economically, socially, and politically will be examined.

204. Women and Politics
(Also offered as POLS 204). Either semester. Three credits.

An introduction to feminist thought, the study of women as political actors, the feminist movement and several public policy issues affecting women.

210. History of Women and Gender in Early America
(Also offered as HIST 210.) Either semester. Three credits. Not open to students who have taken HIST 202 or WS 202 before fall 1998. *Dayton*

Compares the evolving gender systems of native American groups, transplanted Africans, and immigrant Europeans up to the early Nineteenth Century. Topics include women's work, marriage and divorce, witch-hunting, masculinity, and women's Revolutionary War roles.

215. History of Women and Gender in the United States, 1790-Present
(Also offered as HIST 215.) Either semester. Three credits. Not open to students who have taken HIST 202 or WS 202 before fall 1998. *Porter-Benson*

Women and gender in family, work, education, politics, and religion. Impact of age, race, ethnicity, region, class, and affectional preference on women's lives. Changing definitions of womanhood and manhood.

217. Women and Film
Either semester. Three credits.

Feminist analysis of Hollywood film. Investigates women's roles as filmmaker, writer, editor, and actress as well as messages communicated to female viewers.

231. Anthropological Perspectives on Women
(Also offered as ANTH 231.) First semester. Three credits. Open to sophomores. *Dussart*

Major conceptual and historical problems in the anthropological study of gender. Women's roles in different historical and contemporary settings, the emergence of new concepts of family, kinship, power, and cultural ideology.

250. Feminisms
Three credits. Prerequisites: WS 103, 104, or 124. *Meyers*

Current feminist theories and related social and political issues.

261. Women's Studies Internship Program
Either semester. Three to nine credits. Hours by arrangement. Prerequisite: One Women's Studies course in field appropriate to placement. To be taken concurrently with WS 262. Open only with consent of Women's Studies Internship Coordinator. Transfer students who wish to major in Women's Studies are not required to take Women's Studies Internship Program.

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 Studies Internship Coordinator.

262. Women's Studies Internship Seminar
Either semester. Three credits. Open only with consent of Women's 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.

263. Women and Violence
Second semester. Three credits. *McComiskey*

A discussion of the various forms of violence against women in our society, including rape, battering, incest and pornography; treats the social, political and personal meaning of violence.

264. Gender in the Workplace
First semester. Three credits.

An examination of the role of gender in shaping the American workplace and the lives of workers. Discussion of important issues such as comparable worth and sexual harassment drawing on research done in a variety of social science disciplines.

265. Women's Studies Research Methodology
First semester. Three credits. Prerequisite: WS 103 or WS 104 or WS 124 or HIST 121. Women's Studies majors are strongly urged to take this course as early as possible and before PHIL 218.

Analyses 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.

266. Women and Ethnicity: Changing Roles in a Changing Society
First semester. Three credits.

An examination of the intersections of gender, race and culture as these are played out in women's studies, oral histories, and other forms of testimony. Readings and discussions will explore the myths and realities of Asian-American, Latin, and African-American women's experiences using a sociohistorical perspective.

267. Women and Poverty
Second semester. Three credits. *McComiskey*

Focus on poverty in the United States with special attention to its effects on women and their families, including emphasis on race and class differences, and on the policies that keep women in poverty and those that will bring them out of it.

268. Gender and Communication
Second semester. Three credits. Not open for credit to students who have passed WS 278.

An examination of the cultural assumptions about gender in our major communication processes. We will draw from the new scholarship on women to critically analyze the theory and practice of communication in contemporary U.S. society.

269. The Women's Movement
Either semester. Three credits. Not open for credit to students who have passed WS 278.

What is feminism? Who are the feminists and what do they want? How effective has the Women's Movement been in accomplishing its goals? What are the most controversial questions it has raised? Is the Women's Movement dead or dying? We will research and discuss questions like these both through examination of the writings and activities of the

contemporary Women's Movement in the United States and through historical and international comparisons.

270. Women and Religion
(Also offered as ANTH 274.) Second semester. Three credits. Not open for credit to students who have passed WS 278.

Religion has been a source of personal empowerment and social change for women throughout history. This course will examine the various roles women have assumed in religion and its effects on their position in their personal lives and in society.

271. Seminar on Rape Education and Awareness I
First semester. One credit.

This course 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.

272. Seminar on Rape Education and Awareness II
Second semester. One credit. Prerequisite: WS 271.

This course 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.

273. Women in the Bible
Either semester. 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.

289W. Senior Seminar in Women's Studies
Second semester. Three credits. Recommended preparation: WS 265 and PHIL 218 (Feminist Theory) or consent of instructor. For WS majors only. *McComiskey*

Capstone course integrating and analyzing Women's Studies theory and substance through research on a common topic and discussion of advanced texts.

290. Ethnicities, Sexualities, Modernisms
(Also offered as ARTH 290.) Either semester. Three credits.

Topics in twentieth-century visual culture (film, advertising, fine arts, crafts, literatures), with emphasis upon matters related to social constructions of ethnicity and sexuality, and upon issues raised by feminist and postcolonial theories.

293. Foreign Study
Either or both semesters. Credit and hours by arrangement. May be repeated for credit. Consent of program director required, normally before the student's departure. May count toward the major with consent of the director.

295. Variable Topics
Either semester. Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study
Either semester. Credits and hours by arrangement. This course may be repeated for credit with a change in subject matter. Open only with the consent of the instructor and Women's Studies Program Director.

Ratcliffe Hicks School of Agriculture

Director: Professor Suman Singha
Office: 211, 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.

Agricultural and Resource Economics (SARE)

050. Principles of Agricultural and Resource Economics
Either semester. Three credits. Prerequisite: SAAG 090 or exemption by examination. Taught concurrently with ARE 150.

An introduction to agricultural economics, the role of agriculture in today's United States economic system, and relationships that regulate the entire economic environment.

060. Agribusiness Management
Either semester. Three credits. Prerequisite: SARE 050.

Covers concepts and techniques essential in managing an agribusiness firm. Topics include: finance, production planning, marketing, and personnel management.

098. Special Topics
Either semester. Credits and hours by arrangement. 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.

099. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

Agriculture (SAAG)

001. Introduction to Computer Use
(Formerly offered as SAME 001.) Either semester. Three credits. Two class periods and one 2-hour laboratory period.

Use of computers for solving problems and accessing information. Includes word-processing, spreadsheets, databases and presentation software.

016. Introduction to Agricultural Mechanics
Either semester. 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.

050. Freshman Seminar
First semester. One credit. *Singha*

A course designed to assist 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.

090. Applied Mathematics
First semester. Three credits. Not open to students who have passed the RHSA math proficiency test.

Practical applications of mathematical principles to problems most likely to be encountered in course work and after graduation. Topics to be included are: Basic arithmetic, percentages, ratios, fraction to decimal conversions and simple algebra. The use of graphs in the metric (SI) system will be covered. This course is required for all RHSA students except those who received exemption by exam.

†091. Tech Prep
Either semester. Credits and hours by arrangement. Total credits not to exceed 12. Open only to students enrolled in the Agricultural Education Tech Prep program.

Topics and credits are established through pre-approved articulation agreements.

098. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic.

099. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

Animal Science (SAAS)

004-005. Anatomy and Physiology of Domestic Animals
Both semesters. Three credits. Two class periods and one 2-hour laboratory period. *Dinger, Riesen*

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.

006. Nutrition and Feeding of Livestock
Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Stake*

This course covers the basic nutrients present in feeds and their breakdown and use by animals. Methods of describing the nutritive value and properties of commonly used feedstuffs are discussed. Nutritive requirements, ration formulations, and feeding problems and practices are covered.

007. Animal Breeding and Genetics
Second semester. Three credits. Two-hour class period and 2-hour discussion and practice period. *Yonash*

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.

020. Introduction to Animal Science
First semester. Three credits. Two class periods and one 2-hour discussion or laboratory period. Taught concurrently with ANSC 120. *Darre*

The biological, physical and social factors that influence animal production and utilization.

025. Behavior and Training of Domestic Animals
Second semester. Three credits. Two class periods and one 2-hour laboratory. Taught concurrently with ANSC 125. *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.

027. Introduction to Companion Animals
Second semester. Three credits. Taught concurrently with ANSC 127. *Stake*

Basic concepts of the nutrition, physiology, health and management of companion animals.

035. Horse Production
Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Dinger*

This course entails the appraisal, structure, use, and management of light horses.

036. Light Horse Training and Management
First semester. Two credits. One class period and one 3-hour laboratory period. Prerequisite: SAAS 035. *Callahan*

The course includes instruction in the breaking and training of young horses.

037. Methods of Equitation Instruction
Second semester. Two credits. One class period and one 2-hour laboratory or discussion period. Taught concurrently with ANSC 237. Consent of instructor required. *Callahan*

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.

038. Management of the Horse Breeding Farm
Second semester. Three credits. One class period and two 2-hour laboratory or discussion periods. Recommended preparation: SAAS 035. *Dinger*

This course is 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.

040. Animal Products
First semester. Three credits. Two class periods and one 3-hour laboratory period. *Faustman*

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. Field trips may be required.

052. Introduction to Poultry Industry
Second semester. 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.

†064. Management Skills and Practices – Beef Cattle
Either semester. One credit. Hours by arrangement. May be repeated once for credit.

Practical experience in common management practices is offered by working in the University facilities under supervision.

†065. Management Skills and Practices – Dairy Cattle
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Kazmer*

Practical experience in common management practices is offered by working in the University facilities under supervision.

†066. Management Skills and Practices – Horses
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Bennett*

Practical experience in common management practices is offered by working in the University facilities under supervision.

†067. Management Skills and Practices – Poultry
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Darre*

Practical experience in common management practices is offered by working in the University facilities under supervision.

†068. Management Skills and Practices – Sheep
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Hoaglund*

Practical experience in common management practices is offered by working in the University facilities under supervision.

†069. Management Skills and Practices – Swine
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Hoagland*

Practical experience in common management practices is offered by working in the University facilities under supervision.

070. Livestock Production
First semester. Four credits. Three class periods and one 2-hour laboratory period. Offered in odd-numbered years. *Hoagland*

Biological and economic aspects of beef, sheep, and swine production. Field trips required.

076. Dairy Herd Management
First semester. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with ANSC 275. Offered in even-numbered years. *Kazmer*

This course is concerned with the biological and economical aspects of commercial milk production, including: milking, sanitation, nutrition, record keeping, and the physiology and anatomy of milk secretion.

077. Applied Dairy Herd Management
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with ANSC 277S. Offered in odd-numbered years. *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.

081. Horse Selection and Evaluation
Second semester. Two credits. One 4-hour laboratory or discussion period. Taught concurrently with ANSC 281. 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.

083. Livestock and Carcass Evaluation
Second semester. Two credits. Two 2-hour laboratory periods. Taught concurrently with ANSC 283.

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.

088. Advanced Animal and Product Evaluation
First semester. One credit. Hours by arrangement. Taught concurrently with ANSC 288. May be repeated for credit once. 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.

094. Seminar
Second semester. One credit. One 2-hour discussion period. *Zinn*

A discussion of current employment opportunities in animal agriculture. In addition, students will prepare resumes and give oral presentations.

096. Professional Internship
Either semester. Credits and hours by arrangement. 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. *Andrew, Darre*

098. Special Topics
Either semester. Credits and hours by arrangement. 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.

099. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

An independent study project is mutually arranged between student and an instructor.

Natural Resources Management and Engineering (SAME)

098. Special Topics
Either semester. Credits and hours by arrangement. 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.

099. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Pathobiology (SAPB)

015. Health and Disease Management of Animals
Second semester, alternate years (even). Three credits. Bushmich, *Khan*

This course will include a study of the causes of diseases, practical preventive control measures and specific mammalian and poultry diseases.

098. Special Topics
Either semester. Credits and hours by arrangement. 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.

099. Independent Study
Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may 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.

Plant Science (SAPL)

003. Introduction to Plant Science
First semester. Four credits. Three class periods and one 2-hour laboratory period. *Allinson*

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.

017. Vegetable Production
First semester. Four credits. Three class periods and one 2-hour laboratory period. *Bible*

A general course dealing with the fundamentals of vegetable gardening and production. Lectures cover modern methods of culture and their influence on food quality. Selected vegetable crops are grown by students.

022. Introduction to Soil Science
First semester. Three credits. Two class periods and one 2-hour laboratory exercise or field trip. *Schulthess*

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.

024. Turfgrass Management
First semester. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with PLSC 124. *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.

025. Greenhouse Operations
First semester. Four credits. Three class periods and one 2-hour laboratory period. Field trips required. *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 crop production.

026. Greenhouse Crop Production I
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Field trips required. Prerequisite: SAPL 025. Taught jointly with PLSC 226. *Elliott*

Environmental and cultural requirements and scheduling of major greenhouse crops, exclusive of edible produce. Emphasis on cut flowers and flowering potted plants and bedding and garden plants produced for spring and early summer markets. Laboratories provide experience in crop production.

029. Forage Crops
First semester. Three credits. Two class periods and one 2-hour laboratory period. *Allinson*

A course on the principles of producing and utilizing pasture, hay and silage crops for forage. Emphasis will be placed on environmental, soil and economic factors in forage production. Details of varietal selection, seeding methods, fertilization, cutting management, pest control, and storage will be discussed for each of the major grass and legume species used in the northeast.

030. Floral Art
Either semester. Two credits. One class period and one 2-hour studio period. Taught concurrently with PLSC 230.

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.

031. Herbaceous Ornamental Plants
Second semester. Three credits. Taught jointly with PLSC 231. *Bridgen*

Identification, nomenclature and culture of over 160 Herbaceous perennials, biennials, annuals and bulbous plants. Live plants and visual presentation are used to highlight plant characteristics and morphology. Lectures include discussions of organic growing, composting, plant morphology, trough and container gardens, and underground storage structure. Field trips to retail and wholesale businesses are a part of this class.

035. Advanced Floral Design
Second semester. Two credits. One class period and one 2-hour studio period. Prerequisite SAPL 030. Taught concurrently with PLSC 235.

In-depth study of post-harvest requirements for specialized floral crops. Exposure to novel floral materials and abstract, tribute, high-style, and wedding designs. Retail price structuring, wire services, and mass-production concepts.

041. Plant Pest Control
First semester. Three credits. Two class periods and one 2-hour laboratory period.

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.

042. Integrated Pest Management
Second semester. Three credits. Three class periods. Prerequisite: SAPL 041 or consent of instructor. *Gauthier*

An overview of integrated pest management (IPM) techniques, from development to implementation, with horticultural crops.

046. Fruit Production
Second semester. Three credits.

A practical course in fruit production, including information for home fruit growing. Particular emphasis is directed toward the culture of apples, peaches, pears, blueberries, grapes, raspberries and strawberries.

047. Fruit Production – Laboratory
Second semester. Two credits. Two 2-hour laboratory periods. Prerequisite: SAPL 046, which may be taken concurrently.

A practical laboratory in the techniques and methods of fruit production and pruning of fruit crops. Emphasis is directed towards apples, peaches, pears, blueberries, grapes and raspberries. Field trips are required.

059. Evaluating and Staging Horticultural Materials
First semester. One credit. Hours by arrangement. Open only with consent of instructor. This course may be repeated once for credit. *Bridgen*

Organization and staging of horticultural exhibits and contests suitable for fairs, garden clubs, and community projects.

060. Nursery Maintenance
First semester. Three credits. Two class periods and one 2-hour laboratory period. *Corbett*

A consideration of the culture, care and maintenance of shade trees and nursery stock. Laboratory periods will be devoted to planting, pruning and maintenance of shade trees and nursery material. At least one field trip will be required.

062. Plant Propagation
Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Bridgen*

The study of methods used to reproduce agricultural and horticultural crops. Discussion will emphasize sexual and asexual propagation techniques. Field trips are required.

066. Plant Materials, Evergreen Plants
Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Corbett*

Trees, shrubs and vines will be studied. Lectures will be devoted to the characteristics, ornamental value and selection of evergreen plants. Laboratory periods will be devoted to identification.

067. Plant Materials, Non-Evergreen Plants
First semester. Three credits. One class period and two 2-hour laboratory periods. Prerequisite: SAPL 066. *Corbett*

Trees, shrubs and vines will be studied. Lectures will be devoted to the characteristics, ornamental value and selection of non-evergreen plants. Laboratory periods will be devoted to identification.

068. Landscape Plant Maintenance
Second semester. Three credits. Taught concurrently with PLSC 245. *Auer*

Lectures will emphasize the ecological dynamics of altered landscapes related to the planting and maintenance of established man-made landscapes. The relationship of ecology to plant installation, plant care during the establishment period, and plant care after establishment will be covered. Protection of existing plants during construction and plant-landscape standards will be discussed.

069. Landscape and Planting Design
Second semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: SAPL 031, 066, and 067 or consent of instructor. *Corbett*

The principles and techniques of landscaping the home grounds to include site analysis, drawing techniques, selections of materials, and selecting plants to fit the design.

071. Horticultural Retailing
First semester. Three credits. Taught concurrently with PLSC 244. *Ashley*

A discussion of the principles of retailing as applied

to the sale of horticultural crops. Emphasis is given to planning, customer preference, competition, merchandising, pricing and inventory as they apply to landscaping, flower shop and garden center management.

†074. Horticulture Production Practicum – Nursery
Second semester. Credits and hours by arrangement. Prerequisite: SAPL 060. Consent of instructor. *Corbett*

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.

†075. Horticulture Production Practicum – Vegetables
Second semester. Credits and hours by arrangement. Prerequisite: SAPL 017. Consent of instructor. *Ashley*

Students will be responsible for planning, producing, and marketing a vegetable crop on a commercial scale. Requires the availability of private production facilities.

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† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

098. Special Topics
Either semester. Credits and hours by arrangement. 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.

099. Independent Study
Either or both semesters. Credits and hours by arrangement. 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.