University *of* New Haven

2008-2010

Undergraduate Catalog

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Provost & Vice President for Academic Affairs
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203-932-7267

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203-932-7319

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New London, CT
(860) 701-5454

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203-932-7304

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UNIVERSITY OF
NEW HAVEN

UNDERGRADUATE CATALOG 2008–2010

300 Boston Post Road
West Haven, CT 06516
203.932.7000

Undergraduate Admissions: 203.932.7319
or Toll-Free: 1.800.DIAL.UNH
Fax: 203.931.6093
Email: *adminfo@newhaven.edu*
Financial Aid: 203.932.7315
Disability Services (Voice/TDD): 203.932.7332
Health Services Office: 203.932.7079
Health Services Fax: 203.931.6090

Website: *www.newhaven.edu*

This catalog supersedes all previous bulletins, catalogs, and brochures published by the University of New Haven and describes academic programs to be offered beginning in Fall 2008. Undergraduate students admitted to the University for Fall 2008 and thereafter are bound by the regulations published in this catalog. Those admitted prior to Fall 2008 are bound by those new regulations, which have been duly instituted and announced prior to the semester during which they are effective.

The University of New Haven is committed to affirmative action and to a policy that provides for equal opportunity in employment, advancement, admission, educational opportunity, and administration of financial aid to all persons on the basis of individual merit. This policy is administered without regard to race, color, national or ethnic origin, age, gender, religion, sexual orientation, or disabilities not related to performance. It is the policy of the University of New Haven not to discriminate on the basis of gender in admission, educational programs, activities, or employment policies as required by Title IX of the 1972 Educational Amendments. This school is authorized under federal law to enroll nonimmigrant alien students.

Inquiries regarding nondiscrimination, affirmative action, equal opportunity, and Title IX may be directed to the University's equal opportunity/affirmative action officer at 300 Boston Post Road, West Haven, CT 06516; phone 203.932.7265. Persons who have special needs requiring accommodation should notify the Director of Disability Services and Resources at 300 Boston Post Road, West Haven, CT 06516, or by Voice/TDD at 203.932.7332.

Every effort has been made to ensure that the information contained in this publication is accurate and current as of the date of publication; however, the University cannot be held responsible for typographical errors or omissions that may have occurred.

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The University reserves the right to make, at any time, whatever changes it deems necessary in admission requirements, fees, charges, tuition, faculty, instructors, policies, regulations, and academic programs prior to the start of any class, term, semester, trimester, or session. The University reserves the right to divide, cancel, or reschedule classes or programs if enrollment or other factors so require. All such changes are effective at such times as the proper authorities determine and may apply not only to prospective students but also to those who are already enrolled in the University.

Dear Student,

At the University of New Haven, we provide world-class career preparation in all our programs. We consider this important to students who seek to achieve success in their careers. But we have another priority as well: to prepare students for meaningful lives. Through our courses in the arts, humanities, and sciences, we cultivate our students' humanity; and by integrating experiential learning in our academic programs — through such areas of emphasis as community service, internships, student-faculty research, and student self-governance — we prepare our students for leadership in their careers and as members of a democratic society.

The technological and economic complexity, as well as the great cultural diversity of the world in which we live and work, will require that our graduates be exceptionally flexible, compassionate, and tolerant human beings. I hope the UNH experience will lead our students and alumni to measure their personal success both by career achievement and by the positive impact they will have on the lives of others. For this reason, I encourage all students to explore UNH for courses that will serve to both improve their skills and enrich their sense of societal responsibility.

The faculty at UNH has impressive academic and professional credentials, in many cases bringing with them national and even international reputations in their field. They are committed in unrivaled ways to the success of each and every one of our students, allowing for the establishing of relationships that extend beyond their experience at UNH.

One of my favorite quotations is from the late Ernest Boyer, a former president of the Carnegie Foundation, who once cautioned that the "crisis of our time relates not to technical competence, but to a loss of the social and historical perspective, to the disastrous divorce of competence from conscience." As UNH students focus on their studies, I encourage them to also allow some time to look for ways to improve the world that they will help to form as members of a global society.

I wish all our students success in their studies and personal enrichment through their experiences at the University of New Haven.

Sincerely,

Steven H. Kaplan
President


UNIVERSITY OF NEW HAVEN
CONNECTICUT

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THE UNIVERSITY

We make tomorrow.

At the University of New Haven, we are wholly dedicated to the professional future of our students and caringly committed to their achievement.

We provide the people, the programs, and the places that enable our students to prepare for personal success — in their careers and in life.

The University of New Haven is a private, independent, comprehensive University based in southern New England, specializing in quality educational opportunities and preparation of both traditional and returning students for successful careers and self-reliant, productive service in a global society.

Our Mission

The University of New Haven is a student-focused comprehensive University with an emphasis on excellence in arts and sciences and professional preparation. Our mission is to prepare our students to lead purposeful and fulfilling lives in a global society through experiential, collaborative, and discovery-based learning.

Our Vision

Our vision is to be the institution of choice for students who seek the highest quality education for professionally oriented careers. We will be noted for our ability to combine professional education with liberal arts and sciences and with the development of high ethical and cultural standards among our graduates.

Our Guiding Principles

UNH is committed to educational innovation, to continuous improvement in career-focused and professional education, and to support for scholarship and professional development.

UNH takes pride in, and models itself by, the standard of best practices in its commitment to service, quality, integrity, and personal caring. All academic programs, as well as campus and student life, provide rich opportunities for leadership, personal growth, and participation in the aesthetics of life so that the University of New Haven will personify a successful commitment to diversity, equality, and "the pursuit of happiness."

Our goal is to distinguish ourselves by the measures of student admissions; retention; career development; collaboration with business, industry, and community; and the success of our graduates and their support as alumni.

Our Values

We emphasize these values as we strive for educational excellence:

- Belief in and practice of UNH's mission and vision
- Commitment to the success of our students through caring and responsive service
- Teamwork: helping each other to succeed
- Communication: trusting, open, honest, and straightforward
- Commitment to thoughtful action
- Thinking, articulating, doing, and evaluating
- Leading by example with continuous improvement
- Facing all issues and being accountable
- Respect for the individual, including his or her thoughtful input
- Recognizing success

How We Will Be Known

We wish to be known for the following qualities:

- Excellence in career professions
- Currency in information technology and knowledge management
- Exceptional faculty, talented students, and accomplished alumni
- Mentored and engaged real-life learning
- Cultural awareness in a global society
- Community, business, and professional partnerships
- Ideal size and presence
- Student satisfaction

The hallmarks of a UNH education are quality educational opportunities at all post-secondary levels, through career-oriented academic programs with a strong liberal arts foundation, taught by a caring and highly qualified faculty in safe, convenient, and diverse campus environments.

A solid core curriculum of liberal, humanistic course work is balanced with professional programs in business, engineering, applied computer sciences, public safety, and other advanced technical areas.

Moreover, the University is flexible enough to meet the needs of students who work while they attend UNH. A range of programs for part-time study is offered at night. A cooperative education program makes it possible for students to augment their academic program with related work experience.

The Graduate School offers students the opportunity to continue study beyond the bachelor degree on a part-time or full-time basis.

By responding to the educational needs of its students, the University of New Haven has become a major regional University serving both our students and the business community.

Accreditation

The University of New Haven is a comprehensive, nonsectarian, independent institution of higher learning chartered by the General Assembly of the State of Connecticut.

The University of New Haven is accredited by the New England Association of Schools and Colleges (NEA.S.C), Inc., a nongovernmental, nationally recognized organization whose affiliations range from elementary schools to collegiate institutions offering postgraduate instruction.

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

Accreditation by NEA.S.C is not partial but applies to the institution as a whole. It is not a guarantee of the quality of every course or program offered or of the competence of individual graduates. Rather, it provides reasonable assurance of the quality of opportunities available to students.

The UNH College of Business is actively seeking accreditation by the Association to Advance Collegiate Schools of Business (AACSB). The College has voluntarily committed to participate in a systematic program of quality enhancement and continuous improvement that makes AACSB accreditation a more realistic and operational objective.

The University of New Haven's curricula leading to the bachelor degrees in chemical, civil, electrical, industrial, and mechanical engineering are fully accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). The computer science bachelor degree program is fully accredited by the Computing Accreditation Commission of ABET (CAC/ABET).

Individual programs, departments, and schools hold various forms of national professional accreditation, which are listed in relevant sections of the catalog.

History

The University of New Haven was founded in 1920 as the New Haven YMCA Junior College, a division of Northeastern University. It became New Haven College in 1926 by an act of the Connecticut General Assembly. For nearly forty years, the College held classes in space rented from Yale University.

In September 1958, the College completed construction of a classroom building on Cold Spring Street, New Haven, for its daytime engineering programs. That same year, the College received authorization from the Connecticut legislature to offer the bachelor of science degree in the fields of business, accounting, management, and industrial engineering.

Although the student body on the new Cold Spring Street campus numbered fewer than 200, the College's facilities were fast becoming overcrowded. To meet the needs of the College and the local community, the Board of Governors purchased, in 1960, three buildings and twenty-five acres of land in West Haven formerly belonging to the New Haven County Orphanage.

The combination of increased classroom space and four-year degree programs sparked a period of tremendous growth in enrollment and facilities. In 1961, the year after the College moved to West Haven, the graduating class numbered seventy-five. Forty-seven years later the figure has climbed to 1,200 graduates annually.

New Haven College received full accreditation for its baccalaureate programs from the New England Association of Schools and Colleges in 1966. In 1969, the College took a major step forward with the addition of the Graduate School. Initially offering programs in business administration and industrial engineering, the Graduate School expanded rapidly. Today, twenty-eight master programs, along with a wide variety of graduate certificates, offer the approximately 1,800 graduate students many choices for post-baccalaureate study.

In 1970, on the fiftieth anniversary of its founding, New Haven College became the University of New Haven, reflecting the increased scope and the diversity of academic programs offered. Today, the University offers a rich variety of undergraduate and graduate degree programs in five schools: the College of Arts and Sciences, the College of Business, the Tagliatela College of Engineering, the Henry C. Lee College of Criminal Justice and Forensic Sciences, and the Graduate School.

Undergraduate and graduate courses and programs are offered on the Main Campus in West Haven and at other off-campus and in-plant sites. Graduate courses in selected fields are offered at our Southeastern campus in New London and in Waterbury, Shelton, and Newington. The graduate program in national security is also offered at a satellite location in New Mexico.

Philosophy

The University of New Haven, a private, comprehensive, multi-campus University based in southern New England, provides quality educational opportunities and preparation for self-reliant, productive, ethical service in a global society.

Since its founding in 1920, the University of New Haven has been an innovator in providing quality educational opportunities with special emphasis on programs addressing current and emerging social needs. Building on its successful past, the University will strive to achieve prominent and distinctive leadership as an institution that empowers students with substantive knowledge, the ability to communicate, skills in problem-solving, and the practical experience appropriate for success as leaders in their professions and as citizens of the local and world communities.

The University is committed to participatory governance and quality management through continuous improvement as the means to achieve its goals and perform its primary service — successful student and faculty growth and learning.

Colleges of the University

The College of Arts and Sciences

The College of Arts and Sciences offers associate and bachelor's degrees in numerous fields, from traditional to career-focused, all of which prepare graduates for life in a global environment.

Through the Graduate School, the College of Arts and Sciences also offers master's degree programs and graduate certificates. Detailed information on the graduate programs is available in the Graduate School catalog.

The College of Business

The College of Business offers programs in the fields of business administration, accounting, marketing and electronic commerce, finance, management of sports industries, hotel and restaurant management, and tourism and hospitality management.

Through the Graduate School, the College of Business offers the M.B.A. and other master degree programs as well as a number of business-related graduate certificates.

The Tagliatela College of Engineering

The Tagliatela College of Engineering offers eleven degree programs in ten fields: chemistry, chemical engineering, civil engineering, computer engineering, computer science, electrical engineering, general engineering, information technology/network administration and security, information technology/web and database development, mechanical engineering, and system engineering.

Master of science degree programs and graduate certificates in several engineering and applied science fields are offered through the Graduate School. Students should consult the Graduate School catalog for details.

The Henry C. Lee College of Criminal Justice and Forensic Sciences

The Henry C. Lee College of Criminal Justice and Forensic Sciences provides programs for students who wish to major in degree programs specifically oriented toward careers in criminal justice, forensic science, forensic psychology, fire science, arson investigation, fire protection engineering, forensic computer investigation, legal studies, and related programs. The College provides a broad professional education, which often incorporates classroom learning with laboratory and field experience. The College attracts students of varied ages and levels of experience, from recent high school graduates to seasoned industry professionals. It also serves professionals seeking programs designed to meet requirements of national and/or regional accreditations and licensures.

Graduate degree programs are available in national security and public safety, criminal justice, forensic science, and fire science, as are numerous certificate programs.

University College

The University of New Haven was founded in 1920 as New Haven College to train students to meet the local needs of the community and region, often integrating education with experiences in business and industry. For more than 80 years UNH has continued to provide upward mobility to adult students who otherwise would not be able to receive a college education. University College was created in 2007 to reflect UNH's continued dedication to meeting the educational needs of adult students.

The Graduate School

The Graduate School, founded in 1969, offers twenty-five master programs and a variety of graduate certificates. The Main Campus in West Haven offers all our graduate programs. Courses leading to the master degree in business administration, education, engineering management, public administration, industrial/organizational psychology, national security, and other selected subjects are also offered at off-campus locations in Connecticut (New London, Newington, Shelton, and Waterbury), and New Mexico, depending on the program.

The following programs are offered by the Graduate School:

Business Administration, M.B.A.
Business Administration, M.B.A., Emerging Leaders
Business Administration, M.B.A., Executive
Business Administration/Industrial Engineering (dual degree)

Business Administration/Public Administration (dual degree)
Cellular and Molecular Biology
Community Psychology
Computer Science
Criminal Justice
Education
Electrical Engineering
Environmental Engineering
Environmental Science
Engineering Management, M.S., Executive
Fire Science
Forensic Science
Health Care Administration
Human Nutrition
Industrial Engineering
Industrial/Organizational Psychology
Labor Relations
Management of Sports Industries
Mechanical Engineering
National Security and Public Safety
Public Administration (M.P.A.)
Taxation

Graduate certificates are also offered through the Graduate School.

The Graduate School operates on a trimester calendar, with terms beginning in September, January, and April. Classes generally meet once each week during the regular trimesters. In addition, an abbreviated summer session is offered during July and August. Classes meet twice each week during the summer session.

To accommodate working professionals, most courses meet in the evenings, beginning at 5:30 or 6 p.m. A few classes are scheduled earlier in the day or on weekends. Students may enroll either full time or part time.

Additional information regarding graduate programs may be obtained from the Graduate School Admissions Office, by emailing gradinfo@newhaven.edu, or by calling 203.932.7133, or 1.800.DIAL.UNH, ext. 7133.

Degrees Offered by the University

The University of New Haven offers undergraduate programs leading to the bachelor of arts degree, the bachelor of science degree, and the associate in science degree. A number of undergraduate certificates are also available.

Bachelor's Degrees

The bachelor's degree programs at the University of New Haven require 120 or more credits of study and generally take a minimum of four years for full-time students. Part-time students take advantage of courses offered in the evening and complete their undergraduate degrees on a schedule that complements their careers. Accelerated programs for working adults are offered in various disciplines.

Associate Degrees

Associate degree programs are designed to encourage students to begin their college education even though they do not yet want to commit themselves to a full, four-year course of study. A minimum of sixty credits is required for the associate degree, and the credits earned usually apply toward relevant bachelor degree programs.

Certificates

Students can take their first step toward an undergraduate degree by registering for one of the certificates offered by the University.

Each certificate is carefully designed as a concentrated introduction to a particular subject area and consists of courses totaling twelve or more credits.

Later, students may choose to apply the credits they have earned toward a relevant undergraduate degree at the University.

Please contact University College or the appropriate academic department for further details.

Graduate Degrees

Through the UNH Graduate School, programs are offered leading to the master of arts, the master of science, the master of public administration, the master of business administration, the executive master of business administration, the executive master of science in engineering management, and a number of graduate certificates. For more information, contact the Graduate School Admissions Office, or consult the Graduate School catalog.

University Policies

Diversity Policy

The University of New Haven is committed to achieving a diverse and pluralistic community that reflects the multiracial and culturally diverse society of contemporary America.

The Diversity Committee has been established to guide the University in implementing this diversity policy. The University will work toward attracting and retaining a diverse faculty, staff, and student body for the purpose of creating a pluralistic scholarly community. The Committee will assist the administration in developing and implementing programs and policies that support an enriched educational experience for a diverse University community.

The University of New Haven does not discriminate in admissions, educational programs, or employment against any individual on the basis of gender identity or expression, race, color, religion, age, disability, sexual orientation, marital or civil union status, or national or ethnic origin.

Notice of Nondiscrimination/Equal Opportunity Statement

The University of New Haven is committed to equal access in educational and employment opportunities for all applicants, regardless of race, color, religion, gender, gender identity or expression, national or ethnic origin, age, sexual orientation, marital or civil union status, or disabilities not related to performance, in compliance with federal and state statutes. Benefits, privileges, and opportunities offered by the University of New Haven are available to all students and employees on a nondiscriminatory basis in accordance with federal and state statutes. In recruitment of students and employees, the University of New Haven subscribes to a policy of affirmative action and equal opportunity. Inquiries regarding affirmative action, equal opportunity, and Title IX may be directed to the university's Affirmative Action Officer at 300 Boston Post Road, West Haven, CT 06516; Phone 203.932.7479.

Notification of the Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act affords students certain rights with respect to their education records, as follows:

(1) **The right to inspect and review records within 45 days of the day the University receives a request for access.** Students should submit to the registrar, dean, head of academic department, or other appropriate official written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

(2) **The right to request amendment of records that the student believes are inaccurate or misleading.** Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding hearing procedures will be provided to the student when notified of the right to a hearing.

(3) **The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.** One exception that permits disclosure without consent is a disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic, research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Governors; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

(4) **The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University of New Haven to comply with the requirements of FERPA.** The name and address of the office that administers FERPA are Family Policy Compliance Office, U.S. Department of Education, 600 Independence Avenue SW, Washington, D.C. 20202-4605.

The Student Right-to-Know and Campus Security Act

In accordance with Connecticut's Public Act 90-259 concerning campus safety and the 1990 federal law, PL101-542: The Student Right-to-Know and Campus Security Act, all colleges and universities receiving state and federal financial assistance are required to maintain specific information related to campus crime statistics and security measures, annually provide such information to current students and employees, and make the data available to prospective students and their families and to prospective employees upon request.

Safety on the University campus is a natural source of concern for parents, students, and University employees. Education — the business of the University of New Haven — can take place only in an environment in which each student and employee feels safe and secure. UNH recognizes this and employs a number of security measures including its own sworn police department to protect the members of this community.

The Student Right-to-Know and Campus Security Act (Clery Act) is a federal law that requires all colleges and universities to disclose annually information about crime on and around their campuses. The Campus Crime Report includes statistics for the three most recently completed calendar years.

The full report for the University of New Haven, prepared by the UNH Police Department, is available on the UNH website and in printed form at the UNH Police Department. This report also includes information on University policies concerning sexual assaults, alcohol, drugs, weapons, and residence hall security.

Drug-Free and Smoke-Free Environment

In accordance with federal law concerning a drug-free campus environment, the relevant University policy and regulations are provided to all current students and employees. The information is also available upon request at the human resource department.

The No Smoking policy is in effect in any campus administrative, academic, or recreational building. This restriction applies to all UNH offices, classrooms, hallways, stairwells, restrooms, dining facilities, conference/meeting facilities, athletic facilities, and any other public spaces within these buildings. Smoking is confined to outdoor space, with ashtrays provided at entrances to each building.

In accordance with Connecticut law, smoking is not permitted in the residence halls.

UNIVERSITY CURRICULA

University Core Curriculum

The University of New Haven's Core Curriculum strives to develop six basic competencies among undergraduate students so that they may better understand and get along with other people, succeed in their chosen careers, and pursue lifelong learning after completing the requirements for the bachelor degree. The revised core aims at graduating students who are

- good thinkers, speakers, and writers,
- skilled at analysis and problem solving,
- skilled at using computer technology,
- effective citizens of their own country and the world,
- aware of cultural similarities and differences, and
- sensitive to artistic accomplishments.

In consultation with a faculty adviser, the student will select at least 40 credits of core courses from six categories. Individual interests are to be encouraged as is a breadth and depth of knowledge through traditional and contemporary areas of study.

Note well:

1. Courses with prerequisites are followed by an asterisk.
2. The adviser and student are cautioned to regard the prerequisites for some courses and plan core choices accordingly.
3. A student may not use a single core course to satisfy more than one category of the core.
4. An academic worksheet may prescribe or proscribe certain choices within core categories but, in general, must allow the adviser and student the widest choice possible. Program worksheets may not limit core course choices without the approval of the University Undergraduate Curriculum Committee.
5. For students who place out of E 105, E 110 will be the beginning English requirement. One course must be selected from Competency 1.2 to replace E 105. That 1.2 course may not be used to also satisfy the 1.2 competency.

Bachelor's Degree Core Requirements

Competency 1 — **Communication** (9 credits) — Ability to develop ideas from critical reading and general observation and to express ideas effectively through writing and speaking.

CC 1.1 Required:

E 105 Composition
E 110 Composition and Literature*

CC 1.2 Select one of the following:

CO 100 Human Communication
CO 205 Intercultural Communication*
E 220 Writing for Business and Industry*
E 225 Technical Writing and Presentation*
E 230 Public Speaking
Foreign Language
Any Literature (E) course*
(list of acceptable courses can be found at the conclusion of this section)

Competency 2 — **Analysis and Problem Solving** (10–11 credits) — Ability to dissect and explain concepts, data, actions, and events in order to understand their meaning, value, and relationship to the whole.

CC 2.1 Select one of the following:

BI 121 General and Human Biology with Lab I
BI 122 General and Human Biology with Lab II*
BI 125 Contemporary Issues in Biology
BI 253 Biology for Science Majors with Lab I
BI 254 Biology for Science Majors with Lab II*
BI 259 Anatomy and Physiology with Lab I*
BI 260 Anatomy and Physiology with Lab II*

CH 103/104 Introduction to General Chemistry and Lab I
CH 105 Introduction to General and Organic Chemistry with Lab
CH 115/117 General Chemistry and Lab I*
CH 116/118 General Chemistry and Lab II*
EA.S. 120 Chemistry with Applications to Biosystems*
EN 101/102 Introduction to Environmental Science and Lab
PH 100 Introduction to Physics with Lab*
PH 103 General Physics with Lab I*
PH 104 General Physics with Lab II*
PH 150 Mechanics, Heat and Waves with Lab*
PH 205 Electromagnetism and Optics with Lab*

CC 2.2 Select one of the following:

M 109 Intermediate Algebra*
M 127 Finite Mathematics*

Any more advanced mathematics or quantitative analysis course*

CC 2.3 Select one of the following:

Option A — one of the following courses:

CJ 250 Scientific Methods in Criminal Justice*
EC 134 Principles of Economics II
EAS 107 Introduction to Engineering*
HS 108 History of Science
HU 300 Nature of Science*
PL 210 Logic
PL 240 Philosophy of Science and Technology

Option B — three laboratory science courses (4 credits each) representing at least two of the following disciplinary groups:

Biology and Environmental Science (BI, EN, or MR prefixes)
Chemistry (CH prefixes)
Physics (PH prefixes)
Courses used to satisfy this option cannot be simultaneously used to satisfy Competencies 2.1, 4.2, or 5.3.

Competency 3 — **Using Technology** (3 credits minimum) — Ability to apply computer skills to academic endeavors.

Select one of the following:

Option A — one of the following courses:

BI 520 Bioinformatics*
CS 107 Computers and their Applications
CS 110 Introduction to Programming C*
EAS 112 Methods of Engineering Analysis*
EN 540 Introduction to Geographical Information Systems
M 203 Calculus III*
M 204 Differential Equations*
M 311 Linear Algebra*
MM 301 Introduction to Multimedia*
QA 380 Operations Management*

Option B — one of the following two-course sequences:

Sequence I —
M 228 Elementary Statistics*
or
P 301 Statistics for Behavioral Sciences*
or
CJ 251 Quantitative Applications in Criminal Justice*;
and
SO 350 Survey Research*

Sequence II—
P 301 Statistics for Behavioral Sciences*
or
M 228 Elementary Statistics*;
and
P 305 Experimental Methods in Psychology*

Competency 4 — **A Sense of History and Effective Citizenship** (3–6 credits) — Ability to understand local, national, and international issues affecting one's own nation and the world and to draw lessons from the experience of the past.

CC 4.1 Select one of the following:

HS 101 Foundations of the Western World
HS 102 The Western World in Modern Times

CC 4.2 Select one of the following or, as directed by your program worksheet, take an additional course from Competency 2.

HS 110 American History since 1607
HS 120 History of Blacks in the United States
HS 312 United States in the Twentieth Century
PS 121 American Government and Politics
PS 122 State and Local Government and Politics
PS 332 Constitutional Law*

Competency 5 — **Social Interaction and Global Perspective** (6–9 credits) — Ability to understand, appreciate, and work well with others.

CC 5.1 Select one of the following:

CS 416 Social and Professional Issues in Computing*
EC 133 Principles of Economics I
P 111 Introduction to Psychology
PL 215 Nature of the Self
PL 222 Ethics
PL 333 Professional Ethics*
PS 101 Introduction to Politics
SO 113 Sociology
SO 114 Contemporary Social Problems*
SO 221 Cultural Anthropology
SO 390 Organizations*
UNIV 450 Oskar Schindler Humanities

CC 5.2 Select one of the following:

Foreign Language (3–6 credits)

CJ 535 Global Perspective on Crime and Justice
E 201 World Literature I*
E 202 World Literature II*
E 217 African-American Literature I*
E 218 African-American Literature II*
E 406–409 International Literature*
EC 200 Global Economy*
GLS 100 Introduction to Global Studies
HS 207 World History Since 1945
HS 260 Modern Asia
HS 262 Modern Chinese History
HS 264 Modern Japanese History
HS 270 Europe from Renaissance Through Enlightenment
HS 306 Modern Technology and Western Culture
HS 345 Europe in the Nineteenth Century
HS 351 Russia and the Soviet Union
HS 353 Modern Britain
HS 355 Modern Germany
HS 381–389 Selected Studies in History
HS 446 Europe in the Twentieth Century
HTM 166 Touristic Geography I — The Western Hemisphere
HTM 167 Touristic Geography II — The Eastern Hemisphere
HTM 307 Cultural Understanding of Food and Cuisine
LS 350 Global Legal Studies
MU 112 Introduction to World Music
PS 222 United States Foreign Policy
PS 241 International Relations
PS 281–285 Comparative Governments

CC 5.3 Select a second course from 5.1 or 5.2 or, as directed by your program worksheet, an additional course from Competency 2.

Competency 6 — **Aesthetic Responsiveness** (3 credits) — Ability to understand and appreciate artistic achievements.

CC 6 Select one of the following:

AT 101 Introduction to Studio Art I
AT 231 History of Art I
AT 232 History of Art II
AT 331 Contemporary Art
Any Literature (E) course*
(list of acceptable courses can be found at the conclusion of this section)
MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 125 Elementary Music Theory
MU 211 History of Rock
PL 356 Philosophy of Art
T 131 Introduction to Theatre

T 132 Theatrical Style
T 241 Early World Drama and Theatre
T 242 Modern World Drama and Theatre

Associate Degree Core Requirements

Students pursuing an associate degree must satisfy the following core curriculum competencies:

Communication (CC1) — 6 credits

Analysis and Problem Solving (CC2) — 3 credits

Using Technology (CC 3) — 3 credits

Social Interaction and Global Perspective (CC 5) — 3 credits

A Sense of History and Effective Citizenship (CC 4) — 3 credits

Aesthetic Responsiveness (CC 6) — 3 credits

These competencies are explained in detail above. All core requirements satisfied by the student for the associate degree will be applied toward the larger bachelor's degree core if the student continues study.

Literature Courses

The following list includes all English courses that are designated in the University Core Curriculum as Literature (E) courses:

E 201 Early World Literature
E 202 Modern World Literature
E 211 Early British Writers
E 212 Modern British Writers
E 213 Early American Writers
E 214 Modern American Writers
E 217 African-American Literature I
E 218 African-American Literature II
E 260 The Short Story
E 275 Popular Lyrics
E 281 Science Fiction
E 290 The Bible as Literature
E 323 The Renaissance in England
E 341 Shakespeare
E 353 Literature of the Romantic Era
E 356 Victorian Literature
E 371 Literature of the Neoclassic Era
E 390 The Novel in English
E 392 Poe, Hawthorne, and Melville
E 393 Mark Twain
E 394 American Humor
E 395 American Realism and Naturalism
E 406–409 International Literature
E 477 American Literature Between the World Wars
E 478 Contemporary American Literature
E 481 Special Topics — when clearly defined as literature by title/description

Academic Advising

To assist students in their academic development, the University assigns an academic adviser from the department of each student's chosen field of study. As soon and as often as possible, wise students seek the advice of their academic advisers regarding major requirements, career opportunities, choice of a minor, and progress in their major, as well as other areas of personal interest. At the time of registration, the academic advisers assist in and approve course selection. Students also confer with their advisers when adding or dropping courses, and advisers often make referrals to other qualified personnel on campus. The academic adviser is, therefore, the link between the student and the academic regulations of the University.

The Honors Program

The UNH Honors Program is designed for exceptionally motivated students who have shown high levels of academic achievement. In order to enter the Program, students currently at the University or transfer students must have completed at least twenty-four credits with a cumulative grade point average of at least 3.3 at the time the first honors course is undertaken. Incoming first-year students with exceptional high-school grade point averages and strong SAT scores, particularly in the reading and writing sections, will be invited to make application to begin the Program upon entrance to the University. These latter students will take honors seminars during the first year, as well as the seminars described below.

Applicants for the Program are evaluated on the basis of high school performance, college performance, standardized test (SAT, ACT) scores, and recommendations of college teachers.

The University requires every student, regardless of major, to take a number of core courses in six general areas. The Honors Program offers students an intellectually exciting and challenging way to satisfy some of these core requirements.

Students in the Program take one honors seminar each semester for four semesters. Each seminar actively involves students in problem-solving and inquiry. Topics in the seminars draw from several disciplines and study linkages between disciplines. Each course satisfies one of the University Core Curriculum requirements.

Honors seminars offered recently included the following:

Engineering and Society — Relationships between engineering and society are investigated by focusing on environmental concerns.

Contexts and Images: African-Americans in Literature and Film — This course provides an opportunity to examine literature and film as integral elements of African-American experience, heritage, and culture, from the Civil War to the present.

Arabic and Christian Influences on Western Culture in the Middle Ages — The Renaissance of the fourteenth century brought forth a flowering of learning in Europe in science, art, music, politics, and economics. This course investigates how forces outside of Europe — in particular the Arab world — had major influences on this rebirth of learning.

Psycholinguistics and Science Fiction — This course presents a psycholinguistics investigation of the impact of the influence of language on the perception of reality as exemplified in selected works of science fiction.

Classical Experiments in Science — In this course, classical science experiments are studied in their historic intellectual context and reproduced in the laboratory. This course is built around nine experiments: three in biology, three in chemistry, and three in physics. Students recreate the conditions that existed in the labs at the times of the experiments, conduct the experiments, and report their findings in the context of the understanding of the day.

The Ethics of Sport — This course examines controversial issues in contemporary sports within the context of several major ethical frameworks. This course draws heavily on both philosophy and sociology.

Cultural Entrepreneurialism — In this course the relationship between the cultural importance and interpretation of the artifacts of Connecticut and their potential as sites for tourism and economic development is explored. Historical, cultural, literary, and economic impact are assessed in relation to geography, population, education, cultural expectations, and funding and long-range planning resources.

After completing the four honors seminars, students write an honors thesis in their major discipline under the guidance of a professor in the major department. Up to six credits may be awarded for this thesis. The results of the research are to be presented orally to members of the student's major department and to members of the Honors Committee.

In order to remain in the Program, students must maintain a cumulative grade point average of at least 3.3 throughout their studies at UNH.

Advantages of the Honors Program

In addition to a challenging and exciting curriculum, the Honors Program offers several advantages:

Financial Aid: A student who has successfully completed four seminar courses and one additional semester of work on an honors thesis, all with a cumulative grade point average of 3.3 or higher, will be granted a 50 percent tuition reduction by UNH for the final semester in residence at UNH. In addition, students in the Honors Program with a cumulative grade point average of 3.5 or higher and who are either rising juniors or seniors are eligible to apply for one of six John Hatfield Scholar awards. These competitive awards are $1,000-per-semester tuition scholarships, given to Honors Program students with high grade point averages who are active in student life and community service. In addition to the financial award, John Hatfield Scholar recipients receive special parking privileges, a bronze medallion, and a certificate of recognition.

Small Classes: Honors Program classes provide an opportunity for participation and discussion in a setting where students know their instructors and their fellow students especially well.

Recognition: A student who successfully completes the Honors Program, including the honors thesis, will be designated as an Honors Scholar on the transcript and will receive an Honors Scholar medallion at graduation. Thus, prospective employers, graduate schools, and other institutions will be aware of this extra accomplishment in the student's pursuit of the undergraduate degree.

Developmental Studies Program

The Developmental Studies Program is designed to strengthen the basic skills of entering students. Courses within the Program are taught by members of the faculty of the Mathematics Department and the English Department.

The English Department offers two developmental courses: E 102 Academic Reading and Speaking and E 103 English Fundamentals. These courses offer students a comprehensive study of the basic reading, speaking, and writing skills necessary in using the English language effectively. M 103 Fundamental Mathematics is taught by the Mathematics Department.

Placement in these courses is determined by students' SAT scores, in the case of English, and by a placement examination, in the case of mathematics. Such placement becomes a first priority for affected students because the University believes that they can become successful college students only upon correction of skill deficiencies.

Please note that although E 102, E 103, and M 103 each carry three college credits, these cannot be applied toward degree programs. E 103 and M 103 usually meet for up to six hours per week to provide intensive help.

Complete descriptions of the developmental courses appear in this catalog as part of the course offerings of the Mathematics Department and the English Department.

Freshman Experience Seminar

In their first year, college students face a number of challenges. The Freshman Experience Seminar at UNH is designed to help students make the transition from high school to college.

This seminar incorporates the talents of more than thirty University personnel, both faculty and staff, and reflects the University of New Haven's commitment to high-quality student advising.

During their first semester, all freshmen are required to take the one-credit team-taught FE 001 Freshman Experience Seminar, which addresses topics such as academic standards, diversity, time and stress management, college life versus high school life, University relationships, responsible human sexuality, exploration of self, alcohol and substance abuse, and experiential learning. The goal of this seminar is to give students the tools to help them understand and succeed in what can be, and increasingly is, a very competitive environment. FE 001 is also a wonderful support system for students who may be away from home for the first time. FE 001 is mandatory for incoming first-time freshmen with no previous college experience and is a requirement for graduation.

A key component of the Freshman Experience Seminar involves introducing the student to his or her academic adviser, who will serve as the link between the student and the academic regulations of the University.

THE UNIVERSITY COMMUNITY

The University of New Haven provides an environment designed to foster the personal growth of its students. Through its programs, services, and facilities, it provides the opportunity for students to become involved in meaningful activities that can develop into lifelong interests. These activities include recreational, social, community outreach, professional and, of course, academic pursuits. In addition, the campus provides services to assure the comfort and well-being of its students.

Academic Support Systems

Academic services are provided to facilitate and enhance students' academic progress through the University by furnishing guided access to advisory sources and ancillary support systems. Many of the available services are described below.

Office of Academic Services

The Office of Academic Services provides a wide range of academic support to day and evening undergraduate students.

Academic skills counselors work with students individually or in small groups to strengthen abilities or make referrals to other qualified personnel on campus. They help students develop an individualized study strategy that focuses on textbook reading, lecture note-taking, time management, learning and memory strategies, and test-taking skills.

The Office provides monitoring services to enable counselors, mentors, and coaches to assess student progress in their courses. The Office also coordinates the efforts of mentors who work with students enrolled in developmental Math and English courses. In addition, the Office provides advisers for the activities of both the day and evening honor societies, and provides access to the student ombudsman, who can assist in resolving student complaints, perceived grievances, or concerns.

Center for Learning Resources

The Center for Learning Resources (CLR) offers free tutoring and writing assistance to students seeking extra help with their courses. The tutoring staff consists of experienced instructors who hold advanced degrees in their respective fields. Many are instructors at UNH; thus, they bring an intimate understanding of the classroom to each session. Our highly competent graduate and undergraduate student tutors are chosen based on the enthusiastic recommendations of their professors.

The CLR is located in the heart of the campus in Maxcy Hall, Rooms 106–110. It includes three labs: the Mathematics, Science and Business Lab; the Writing Lab; and Computer Lab. Tutoring is available six days a week throughout the semester. The Math Lab tutors offer drop-in help with freshman- and sophomore-level core courses in mathematics, science and business; the Writing Lab tutors offer drop-in and by-appointment assistance with all writing assignments. The graduate student tutors in the Computer Lab are available for assistance with the latest Microsoft software, math tutorials, and Internet access.

Developmental Studies Program

The Developmental Studies Program is designed to strengthen the basic skills of entering students. Courses within the Program are taught by members of the faculty of the Mathematics Department and the English Department. (See the University Curricula section of this catalog for additional information.)

Freshman Experience Seminar

The Freshman Experience Seminar at UNH is designed to smooth the transition of first-time students from high school into the substantially different environment of a university. (See the University Curricula section of this catalog for the course description of FE 001, the Freshman Experience Seminar.)

Student Services

The University of New Haven cares deeply about the well-being of its students. A variety of services is available on campus to meet needs ranging from career advising to health care. Every effort is made to accommodate special student needs, such as helping international students to adjust to a new culture or ensuring that classes and facilities are readily accessible to students with disabilities. Many of the available services are described in the following pages.

Campus Card Office and Parking Permits

The UNH ID card is a credit-card-sized, color photo identification card issued to all members of the University community. It is used as the official UNH library card and residential meal plan card. It is also used for security access identification and for a number of other services. All new students are required to obtain a UNH ID card.

ID card photos are taken in Echlin Hall on the Main Campus in the Campus Card Office. Hours are posted and emailed at the beginning of each term. In order to register for a parking permit a valid UNH ID card must be presented.

Resident freshmen are not permitted to have vehicles on campus, or to park on city streets in the neighborhoods adjacent to campus.

In the interest of maintaining good relations with our neighbors, it is important that resident students limit parking to the designated **on-campus parking areas**. Resident student parking on city streets in the neighborhoods adjacent to campus is prohibited by the University. Vehicles in violation are subject to University sanctions including, but not limited to, UNH parking tickets.

The University of New Haven is not responsible for damage to, or theft from, personal vehicles parked on University property.

New students may obtain a Main Campus parking permit for their cars or motorcycles at the Campus Card Office or at the Campus Police Office located in the lower level of the Campus Bookstore. All cars must display a UNH parking permit; vehicles parked in violation may be ticketed or towed. Detailed information on parking regulations, violations, and reporting of accidents is contained in the *Student Handbook.*

University Police Department

The University Police Department is located in the lower level of the Campus Bookstore building. The Department is staffed by certified police officers who patrol the campus 24 hours a day, year round, and have full arrest powers. They have been trained in first aid, CPR and AED. A defibrillator is carried by an officer on each shift.

The Police Department is always open and staffed by a trained and certified dispatcher. In addition to handling radio and telephone communications, dispatchers assist the public as needed, including issuing UNH parking permits.

Officers patrol campus on foot, mountain bicycles, golf carts and in fully marked cruisers. They work closely with local, state, and federal agencies to enforce the law. They also enforce the provisions of the UNH conduct code and other University rules and regulations.

The University maintains a network of emergency telephones, placed in strategic locations throughout campus, that can be used by anyone in case of emergency.

Our nationally certified instructors conduct self-defense training for women in the UNH community. The Rape Aggression Defense (R.A.D.) course is a free, 12-hour awareness and self-defense course that is offered each semester.

The UNH Police Department assists students and staff with car lock-outs, and has a battery jumper to

loan as needed. The Department also maintains a Lost and Found service.

The University has an ***Emergency Notification System***, "e2campus," by which students, faculty and staff can receive emergency notifications to cell phones, wireless PDAs, and email addresses. Be among the first to know about school closings, news and events, parking and traffic advisories, and more. This is currently an opt-in feature. For details, visit http://www.newhaven.edu/campustext.

To contact the UNH Police Department:

Emergency: 203.932.7070

Routine: 203.932.7014

To summon emergency police, fire or EMS service from the City of West Haven:

Dial 9-1-1

Career Services Center

The mission of the University of New Haven's Career Services Center (CSC) is to contribute to the lifelong development and career advancement of students and alumni, and to continue development of a vibrant network of alumni, students, faculty, and friends. The mission will be supported by the overarching goal of ***EMPOWERing*** the University's vested constituencies through **E**ducation, **M**otivation, **P**ersonal development, **O**pportunities, **W**isdom, **E**mployment, and **R**eporting.

The CSC provides services for students, alumni, faculty, and employers. These services include assisting with career planning and job searching, preparing and reviewing resumes, providing mentorship opportunities, and teaching interviewing skills. Individual appointments may be scheduled by phone at 203.932.7342 or stop by Kaplan Hall, Room 210, to speak with the Career Services Specialist. The CSC may also be contacted through e-mail at jobs@newhaven.edu.

Student Employment

During each academic year, employer representatives visit the campus to interview graduating University of New Haven students. While the CSC is not an employment service and does not guarantee jobs, it does maintain an extensive listing of full-time and part-time positions to provide a common meeting ground for employers and prospective employees. Students will find this useful in locating part-time and full time jobs while in school as well as employment following graduation. Alumni seeking positions are also encouraged to use the services of the CSC.

Employers wishing to list positions should call or email, giving a description of the position available and other pertinent details. There is no placement fee charged for these services.

Information

The CSC publishes updates of recruiter visits in *The Charger Bulletin* as well as information regarding CSC events, the employment outlook for graduates, and job-search hints. CSC information is also provided in *University of New Haven Alumni Magazine*, the UNH alumni publication.

Office of Internships and Employer Relations

University of New Haven students engage in a variety of work-related experiential learning encounters including internships and cooperative education. Co-ops are generally arranged on a student-by-student and company-by-company basis. Though similar, there are significant differences between internships and co-ops, including duration of assignment and time commitment of the student and the company. The vast majority of UNH students participate in internships.

An internship is a supervised pre-professional learning experience in which students apply their skills and knowledge in a professional setting. Through an investment of their time, talent, and enthusiasm, interns contribute to an organization's mission and goals while gaining valuable skills for the future and determining if a particular career is right for them. More than a regular summer or part-time job, an internship has certain goals.

Goals of an internship are as follows:

- To provide students with a full and realistic view of workplace culture and expectations.
- To integrate academic preparation with professional challenges.
- To build confidence and success through internship experiences.
- To help students build professional networks.

How does an internship work?

Internships contribute to the professional development of the student and are always supervised or mentored. Regular feedback sessions are part of the experience and the position may be either paid or unpaid, depending upon the level of work, and number of hours. Regardless of the experiential learning activity, both the experience and the learning are fundamental. Reflection is a key component of internships. The Office of Experiential Education will assist students in understanding how to make the most of their internship experiences.

Professionals in the Office of Internship and Employer Relations do not place students or guarantee jobs for students. They do, however, teach students the rudiments of researching industries and companies — even beyond those companies that already recruit UNH students — as well as how their individual skills can transfer to various fields. UNH students are encouraged to take advantage of the Career Services workshops geared to helping students learn the fine points of job searching, including resume preparation, interviewing skills, networking etiquette, and pitfalls to avoid. Individual appointments may be scheduled by phone 203.932.7342 or stop by Kaplan Hall, Room 210, to speak with the Career Services Specialist. The CSC may also be contacted through e-mail at jobs@newhaven.edu.

Counseling Center

The Counseling Center offers services to help students with problems that may interfere with their academic, social, or personal activities. Services provided include confidential counseling, vocational-interest testing, and educational assessment. For more information, please call 203.932.7332 or visit our office in lower Sheffield Hall.

Student Ombudsman

The student ombudsman serves as a neutral party to whom students (and parents) can appeal for resolution of complaints, perceived grievances, or concerns. The student ombudsman mediates disputes and attempts to develop an equitable resolution between the involved parties. For more information, please call 203.932.7213.

Disability Services and Resources

The Disability Services and Resources Office is responsible for and committed to providing services and support that promote educational equity for students with disabilities, either temporary or permanent. The Office provides assistance and information on issues of access and full participation for students with disabilities. Any UNH student with a disabling condition can benefit from these services. Referrals and inquiries concerning matters relating to students with disabilities and/or reasonable accommodations should be directed to this office.

The staff works with those who self-identify in the following categories:

- mobility/orthopedic disabilities
- specific learning disabilities
- attention-deficit disorders
- vision and hearing impairments
- head injuries
- psychological/emotional disorders
- chronic health-related disabilities
- speech impairments

Staff members serve as advocates, liaisons, and planners for ensuring access to academic, cultural, and recreational offerings of the campus, and are available to students whenever questions or problems arise. The director assists the University's 504/ADA Compliance Officer with oversight of the University's compliance with Section 504 of the Rehabilitation

Act of 1973, the Americans with Disabilities Act (ADA), and other government regulations. The director also handles student grievances, whether informal or formal, regarding allegations of discrimination based on disability.

In order to receive accommodations and/or services, a student is responsible for self-identifying as a student with a disability, submitting appropriate documentation, making a specific request for reasonable accommodations, and following established policies and procedures for arranging accommodations each semester/trimester.

The Disability Services and Resources Office is located on the ground level in the rear of Sheffield Hall. The director can be reached at 203.932.7331. The University's 504/ADA Compliance Officer can be reached at 203.932.7199.

Health Services Center

The University Health Services Center is open to all students without charge. Located on the ground level in the rear of Sheffield Hall, the Center is staffed with two registered nurses and part-time physicians. The Health Services Center provides initial care for minor illnesses and injuries, as well as diagnosis, referral, and follow-up care for more serious conditions. Also provided are care and counseling in health-related issues. The Health Services Center coordinates the health insurance program sponsored by the University.

A part of the health program is a weekly women's clinic, which takes place at the health center and covers gynecological problems, birth control, and sex-related issues.

One requirement of the Center is that students entering the Full-Time Division provide documentation of a physical exam from within the last year and a record of their immunizations. This can be done by completing the health form provided by the Undergraduate Admissions Office and returning it to the Health Services Center. The health form can also be found on the University's website under Health Services. Students entering the Part-Time Division must provide documentation of their immunizations. Students who plan to live in University housing and athletes must provide proof of having received a meningitis vaccine. These requirements are in compliance with the State of Connecticut Health Department's guidelines for immunization and disease control.

Measles and Rubella

To All Students (full-time undergraduate, part-time undergraduate day and evening, full- and part-time graduate): Students must provide documentation of two valid measles vaccinations. The first must have been given after 1/1/69, and that date must be after your first birthday. The second must have been given after 1/l/80. Also, a rubella vaccine must have been given after your first birthday. Blood tests (showing immunity) from a laboratory will also be accepted. It is the policy of the University to withhold registration each semester for non-compliance. Proper immunization information must be on file in the Health Services Center.

Office of Intercultural Relations

The Office of Intercultural Relations seeks to advance the mission of the University of New Haven by providing students with opportunities to gain intercultural understanding and to succeed in an inclusive academic and social environment that respects the uniqueness and contributions of all community members. Contact the Director of Intercultural Relations at 203.932.7427.

International Services

Each year the University of New Haven admits students from many nations. These students, representing more than fifty different countries, bring an international dimension to the campus.

The International Services Office provides for the special needs and concerns of international students. The staff assists students with U.S. Citizenship and Immigration Services regulations; provides information on travel to and from the United States; and advises students on academic, social, and cultural adjustment. The Office also serves as a liaison between international students and the University community.

A wide range of programs has been developed, including publication of an international newsletter, special orientation events, information seminars, and an international festival. For more information, call 203.932.7475 or email iso@newhaven.edu.

Residential Life

The character of residential living is often a good indication of the spirit and quality of life on campus. The goal of the University's Residential Life program is to provide a living/learning environment that promotes academic and personal growth and a sense of community among students. A student's on-campus living experience is an integral part of the educational process.

Students live in ten residence halls: three for freshmen and seven for upperclassmen, supervised by resident directors responsible for the administration of each hall. Resident assistants (RAs) live on each floor and serve as peer advisers, role models, and initiators of activities and programs.

University housing is occupied on an academic-year basis, and it is recommended that all freshmen and sophomores live on campus unless they live with a parent or an extended-family member. All resident students are required to purchase a University meal plan.

The Office of Residential Life refers those wishing to look for off-campus housing to a website that lists students looking for roommates, apartments, condos, and homes in the UNH area. Students are responsible for any contract undertaken for such housing and should consider carefully the nature of that contract and the responsibilities incurred.

University Dining Services

University Dining Services facilities on campus include the Marketplace Food Court and Jazzman's Café, which are located in Bartels Hall Campus Center and Marvin K. Peterson Library; the Quad Convenience Store and Sandella's, located in Botwinik Hall; and Pandini's and Sky Ranch Grill, located in New Hall.

Students may select from meal plans that include declining balance and board options. Purchasing a meal plan is highly recommended and is required for resident students. Detailed information on meal plans is available at the Dining Services Office.

Student Activities

Being a student at the University of New Haven means having the best of two worlds: an active on-campus community and the city of New Haven. Students interested in cultural, intellectual, or social pursuit have a wealth of opportunities from which to choose.

The Office of Student Activities, in conjunction with student clubs and organizations, provides a wide variety of events each week. With an increase in the quantity and quality of activities over past years, theme weekends such as Spring Weekend, Family Weekend, and Homecoming Weekend have been supplemented by an ongoing activities calendar of weekly events. There are plenty of opportunities to socialize and interact with fellow students, faculty, and staff—whether by enjoying a band, lecture, comedian, or magician; participating in volunteer opportunities; or taking a bus trip to a regional theater or recreation center.

Students are also encouraged to develop their cultural and intellectual interests by participating in literary, artistic, and dramatic events. Visiting artists, play and concert productions, invited lecturers, forums, and panel discussions are among the variety of programs available to students. UNH has more than eighty active student-run clubs and organizations.

Intercollegiate Athletics

Recognizing the importance of a broad range of physical and emotional outlets to a well-balanced college experience, the University of New Haven seeks to involve students in various levels of active participation in games and sports, as well as to provide an opportunity for community and student support for its varsity intercollegiate athletics program.

Varsity Sports

The University of New Haven athletics program is one of the most respected and successful NCAA Division II programs in the country. In Fall 2008, UNH began competing in the athletically and academically prestigious Northeast-10 Conference, one of the largest and most comprehensive conferences in the nation.

UNH teams have enjoyed national recognition throughout the years. UNH was the first school from the Northeast Region to capture the NCAA Division II Women's Basketball Championship (1987) and has been to the NCAA tournament seven times. Women's volleyball has been to the postseason 22 times, and the baseball program has made 31 postseason appearances, including 18 World Series berths. In 1997, the Charger football program competed for the national championship, and the men's soccer team has been to the Final Four twice. UNH has over 120 postseason appearances.

UNH offers 18 varsity sports: baseball, men's and women's basketball, men's and women's cross country, football, men's golf, women's lacrosse, men's and women's soccer, softball, women's tennis, men's and women's indoor and outdoor track and field, and men's and women's volleyball.

Students can also participate in a number of spirit groups including cheerleading, dance team and pep band. The Department of Athletics welcomes all interested candidates and invites active involvement in support of our programs.

For more information about varsity athletics, log on to www.newhaven.edu/athletics, or call 203.932.7016 or 203.932.7017.

Intercollegiate Athletic Facilities

North Campus

Charger Gymnasium is located on the North Campus and is home to the UNH men's and women's basketball and volleyball programs. It also serves as a practice facility for UNH's other varsity athletic teams and as a gathering place for large university-wide events, including commencement and musical concerts. Charger Gymnasium includes a full-size basketball court with seating for 1,200, as well as the varsity athletic weight room, equipment, administrative offices, and athletic training facilities. Adjacent to the gymnasium are outdoor basketball courts, tennis courts, a softball competition venue, Frank Vieira Field (baseball), and Ralph F. DellaCamera Stadium, a multi-purpose field which is home to the Charger football program and can host soccer and lacrosse games.

Main Campus

Kayo Field is located on the Main Campus, adjacent to the David A. Beckerman Recreation Center. The field underwent a $1.3 million transformation in the summer of 2007, which saw the installation of a synthetic turf surface, new scoreboard and fencing. The field is home to the men's and women's soccer and women's lacrosse programs, and serves as a practice facility for all of the Charger varsity athletic programs.

Campus Recreation (ChargerREC)

The goal of the Department of Campus Recreation is to provide students with a wide variety of programs and services in order to maximize student participation and involvement. Whether you're interested in working out on your own, or you want to take part in one of our programs or activities, you're sure to find something that fits your needs. For more information about ChargerREC, log on to www.newhaven.edu/ChargerREC.

David A. Beckerman Recreation Center

Located in the heart of campus and open up to 17 hours a day, the Beckerman Center is a 58,000-square-foot state-of-the-art facility and includes two activity courts (for basketball, volleyball, badminton), a multi-activity court (MAC court, ideal for indoor soccer and floor hockey), 6,000 square feet of fitness space, two group fitness studios, two racquetball courts, locker rooms, an indoor running track, and a juice bar.

RECSports (Intramurals)

RECSports is an integral part of campus life, giving students the opportunity to come together for competition and camaraderie. RECSports activities are free to UNH undergraduate students. RECSports offers a variety of individual and team sports/activities in three different divisions: Men's, Women's and Co-REC. RECSports offers two seasons of activities per academic semester, including a regular season and playoffs.

Some of our offerings include outdoor soccer, 4-on-4 volleyball, kickball, flag football, tennis, basketball, whiffleball, floor hockey, indoor soccer, volleyball, softball, and racquetball.

Fitness and Wellness

If you're interested in taking a class or learning about how to get healthy, then our Fitness and Wellness program is for you. From abs to Zumba, and everything in between, we pride ourselves on offering the best variety of classes and personal training programs to suit your needs.

Student Employment

Student-maintained and operated, Campus Recreation is the largest employer of students on the campus. Positions offer experiential learning opportunities and true leadership experience. Ranging from Welcome Center attendants to RECSports officials, Campus Recreation student employees are the backbone of the Department.

Clubs and Organizations

More than fifty University clubs and organizations serve interested students. Included are student chapters of professional societies, community-service organizations, social groups, and special-interest clubs. Every student club and organization has a mailbox located on the top floor of Bartels Hall.

Fraternities and Sororities

National and local service, social, and honorary fraternities and sororities are active on campus. They sponsor programs such as banquets, game shows, the semiannual blood drive, fundraisers to benefit charities, and numerous hours of community service.

Off-Campus Activities

For those who want a change of pace from the college scene, the University's proximity to the city of New Haven offers students many cultural opportunities. Musical entertainment includes year-round performances by the New Haven Symphony Orchestra, live concerts at a variety of nearby venues, and local and national bands at many downtown clubs. Professional theater thrives in New Haven, home to three nationally recognized theaters: the Long Wharf Theatre, the Yale Repertory Company, and the Shubert. Some of the region's outstanding art collections can be seen on the Yale University campus.

On weekends, the Connecticut shore, Cape Cod, the ski slopes of Vermont and New Hampshire, and New York City are just a short drive or train ride away.

Publications

Student publications include *The Charger Bulletin*, the student newspaper, and *The Chariot*, the yearbook. Students may volunteer their services to these student publications by emailing chargerbulletin@newhaven.edu or chariotyearbook@newhaven.edu.

Student Government

Separate undergraduate full-time, part-time, and graduate student councils have responsibility for initiating, organizing, and presenting extracurricular activities and acting as liaisons between students and University staff.

The Undergraduate Student Government Association (USGA) is a forum where undergraduate full-time students provide input to the administration to improve all aspects of undergraduate education at the University. Student-elected senators represent the voice of their constituencies at weekly USGA meetings.

Students are strongly encouraged to get involved in leadership positions within student government

and other clubs and organizations. The University believes that leadership development is an integral part of all students' education. The USGA offices are located on the top floor of Bartels Hall.

The Evening Student Council (ESC) is a board composed of students attending UNH evening classes. It has three primary objectives: (1) to promote the welfare of the evening student body, (2) to give counsel and encouragement to evening students as well as to develop and encourage school spirit, and (3) to convey evening students' opinions to the administration and work with the administration in accomplishing student objectives.

Membership in the Evening Student Council is open to all undergraduate evening students enrolled in courses for credit. The Council meets regularly, and all evening students are invited to participate. The ESC office is located in the Center for Graduate and Adult Student Services in Echlin Hall, Room 204. To contact ESC, email esc@newhaven.edu.

WNHU Radio

WNHU is the University of New Haven's noncommercial, FCC-licensed FM radio station located in the basement of Maxcy Hall. Daily operations are maintained by a general manager, student station managers, and a staff comprising undergraduate students, community volunteers, and faculty members. WNHU's signal emanates from the Main Campus, at a frequency of 88.7 and a power of 1,700 watts, and extends nearly thirty miles in every direction, reaching nearly all of southern Connecticut and even parts of eastern Long Island. WNHU's programming is also available as streaming audio online at www.wnhu.net.

WNHU has recently undergone state-of-the-art renovations to its on-air and production studios, procuring professional-level broadcast equipment utilized by staff members to produce shows. While production of more than twenty hours of programming a day is a vital aspect of WNHU, it is not the only work to be done. Recording speeches on campus, providing music for on-campus events, and putting on shows in the community are examples of what WNHU does besides on-air functions, and the station plans to expand these areas in the future.

With positions available for news, productions, sports, and promotions, WNHU isn't just about being a DJ, and there is a spot for anyone interested in a variety of concentrations. WNHU is open to full-time or part-time undergraduate students, graduate students, faculty, staff, and community volunteers with an interest in radio and its functions.

Campus Facilities

The University's 78-acre campus contains twenty-seven buildings that offer students modern laboratory and library facilities, smart classrooms, the latest in computer technology and equipment, an athletic complex, and residential facilities.

Located in West Haven, about ten minutes from downtown New Haven, the Main Campus includes administration, library, laboratory, computer, and classroom facilities as well as the admissions building, bookstore, student center, and residence halls. Recent additions to the Main Campus include a new residence hall and an outdoor plaza.

The South Campus includes Harugari Hall and South Campus Hall, the student records building. The North Campus is the site of the University's athletic fields and gymnasium.

Computer Facilities

The University of New Haven maintains numerous computer laboratories and teaching classrooms at various locations around the campus. Schedules are provided at the beginning of each academic term.

The labs provide students with Microsoft Office, Firefox and Internet Explorer, SPSS statistical software and other software that changes yearly. Printers are also available for student use in conjunction with the UNH ID card (charges may apply). The general access Internet labs are dedicated to providing students with access to email, web surfing, and other standard uses. The general access labs are staffed by graduate students, who are available to answer questions. The

hardware and software available in the labs are continuously upgraded as computer technology changes.

The University maintains, on behalf its colleges or departments, a number of computer labs and teaching classrooms. The hours that these labs are open and the resources available are at the discretion of the individual college or department.

Computer facilities provided by UNH as of Spring 2008 are as follows:

Tagliatela College of Engineering
Buckman Hall, 225 and 225a

Tagliatela College of Engineering Multimedia
Teaching Classroom, Buckman Hall 227

Hospitality and Tourism
Harugari Hall 114

College of Business Lab and Teaching Classroom
Dodds Hall 218

Department of Biology and Environmental Science
Dodds Hall 305

Department of Visual and Performing Arts/Philosophy
Dodds Hall 413

Center for Learning Resources Tutorial Lab
Maxcy Hall

New Hall Computer Laboratory
New Hall

Marvin K. Peterson Library
Ground Floor*

*The computers in the library do not comprise a computer lab, but do represent the largest collection of general-use computers on campus.

Marvin K. Peterson Library

The Marvin K. Peterson Library, named in honor of a former University president and dedicated in 1974, includes three floors of reading space, an Information Commons, Jazzman's Café, group-study rooms, stacks, and reference areas. Information is accessible through manual as well as electronic retrieval methods. Computers with Internet access, the Microsoft Office Suite and SPSS are available for research purposes. Students and faculty can plug in their laptop computers to connect to the campus network at more than 100 ports available throughout the library's three floors. Wireless networking is available in all areas of the library. Materials are stored in a variety of formats including online, print, audio, video, microform, and CD-ROM or DVD.

The library's home page is available at www.newhaven.edu/library. It serves as a gateway to information and library services and includes the library's online catalog, which allows for both basic and advanced searching of library holdings. To borrow library materials, a valid UNH ID card must be presented at the Circulation Desk. Books already borrowed can be renewed online. Recent additions to the collection are listed on the library's home page. Library Guides, prepared by professional librarians, are posted. Interlibrary Loan forms for students and faculty are available online. Electronic access to more than 17,044 full-text electronic journal holdings is accessible from a link on our home page. Faculty and students — in their offices or residence halls or at home — have access to a variety of online databases and library support from our website.

UNH subscribes to many online electronic databases in all subjects. Resources, including many full-text books and journal sources, are accessed in online databases such as LEXIS/NEXIS, ABI/INFORM, Criminal Justice Periodicals, CCH Online, Computing, Education Complete, BNA Human Resources Library, Literary Reference Center, Engineering Village, FirstSearch, CQ Researcher, Hein Online, Academic OneFile, ENGnetB.A.SE, IEEE Computer Science Digital Library, Hoover's Online, Reference USA, Country Watch, PsycARTICLES, FORENSICnetB.A.SE, and IRIS.

The UNH library's collection includes more than 249,238 volumes, 1,400 journal and newspaper subscriptions, electronic access to more than 17,044 full-text journal and newspaper titles, 555,374 pieces of microfiche, 15,237 volumes of microfilm, and 161,687 U.S. government paper documents.

The library is a U.S. Government Documents Depository Library, and selects approximately one-third of the U.S. government yearly output to support UNH programs.

UNH students may borrow materials from the

Albertus Magnus College Library. Students who obtain a borrowing card from a Connecticut public library may borrow from other public libraries statewide. As a member of OCLC, UNH has access through Interlibrary Loan to the holdings of the more than 7,500 member libraries' 96 million records. The library uses electronic means to transmit articles and information between itself and other libraries across the country whenever possible.

Students are assisted by professional reference librarians. One-on-one consultations are available to locate information for research papers and projects. Freshmen receive instruction in how to use a modern library. Subject-specific library orientations are available for upperclass and graduate students. Library instruction courses geared to international students are also provided.

Library Guides, as well as selected instructional support resource materials, are provided; and a reserve collection is in place to support courses taught at UNH. Online library tutorials are available to assist students in learning effective research techniques. Library Guides help facilitate access to information resources for effective research. Sample topics covered include forensic science, psychology, national security resources, criminal justice resources, dental hygiene resources, biology, a business information guide, how-to-find Connecticut law, how-to-find literary criticism, a style sheet for research papers, and an introductory research guide.

Campus Bookstore

The Campus Bookstore sells all textbooks, new and used, required for courses at the University. It also carries school supplies, greeting cards, imprinted clothing and gifts, candy, and a selection of magazines. A wide selection of software is available, priced at a substantial academic discount for currently enrolled students, at www.efollett.com.

The campus store buys back used texts throughout the year. It also handles class ring orders and places special orders for books.

Students who would like to order books online may do so on our website, www.unh.bkstr.com. Students may opt to have books held at the bookstore or to have them shipped directly to their home or office. If you have any questions, call 203.932.7030.

Bartels Hall

The renovated campus center provides a focal point for student activities. Offering lounges, student offices, a large cafeteria, Jazzman's Cafe, and multiple meeting rooms, the facility serves as a center for students' non-academic college interests. Live entertainment and films are often presented in the evenings. Bartels Hall houses the offices of the associate provost for student affairs and dean of students, International Services, Intercultural Relations, Student Activities, Community Service, and Dining Services, as well as the Undergraduate Student Government Association and its affiliated groups.

Office of University Advancement

The Office of University Advancement works with the University community to develop philanthropic support for enhancement of the University's programs, facilities, and endowment. Gifts to the University enhance student financial aid, faculty development, equipment, library resources, and other institutional opportunities for growth.

The generosity of corporations, foundations, parents, students, alumni, and friends contributes to the excellence of the University of New Haven.

Alumni Relations

The Alumni Relations staff invites you to stay connected to UNH by enjoying the many activities and benefits sponsored by the University's Alumni Association. Committed to a lifelong relationship among alumni, the Association fosters friendships and professional networking opportunities and promotes a host of educational, social, and athletic events.

Benefits include career development services, the chance to audit courses at a reduced fee, use of the University's library, low-interest credit card privileges, discounts on home and auto insurance, and much more. In 2003 we proudly introduced *UNH Online*, an online directory and interactive community, to help alumni stay in touch with friends and network with other alums. The service is free to UNH alumni and can be accessed through the alumni web page at www.newhaven.edu\alumni.

Each Fall, alumni are invited back to campus for Homecoming festivities. Throughout the year, events include Alumni Cocktails and Networking, the Holiday Party, and our Scholarship Ball, which raises significant funds for student scholarships. Information about current activities is available through the website, our e-newsletter, and special mailings, including *University of New Haven Alumni Magazine*. Please be sure to update your contact information so that we may keep you informed of the latest membership events and benefits.

The Alumni Board of Directors, a valued University advisory group, oversees the Association and works to strengthen University ties by promoting communication within the extended UNH community. If you have suggestions for your Alumni Association, please email alumni@newhaven.edu.

Research and Professional Facilities

Bureau for Business Research

The Bureau for Business Research offers access to databases for research on products, markets, competition, and international issues. In addition, the University's biannual, refereed academic journal, *American Business Review*, is published under the auspices of the Bureau.

UNH Center for Dispute Resolution

The Center for Dispute Resolution at the University of New Haven is a focal point for the interdisciplinary study and practice of conflict resolution. The Center offers conflict management services to individuals and to businesses, institutions, governmental agencies, and community organizations. Services include mediation, program evaluation, design of conflict management systems, consultation, and training. Through research and educational programs for students and the community at large, the Center also strives to advance the understanding and application of alternative means of dispute resolution, including mediation.

Center for Family Business

The Center for Family Business (CFB) was founded in 1994 as a unique learning environment for family business members. Its mission is to help ensure the future and continuity of family businesses, preserve the values held by family business members, and strengthen Connecticut's economy. The Center offers its members a variety of programs that deal with issues faced by family businesses, regardless of the nature of the business.

Eight major programs are presented each year for members, held in both New Haven and Fairfield Counties. These programs feature some of the most significant national and international speakers in the field of family business. Attendees have the opportunity to learn from one another as well as from the speakers.

CFB also features small-group forums, which consist of members in similar circumstances. These groups function as ad hoc advisory boards to their fellow members.

Periodically, breakfast meetings are held to address specific topics that appeal to the interests of our members. The CFB publishes a newsletter and is a source for family-business educational materials.

The Center for Family Business is sponsored by the accounting firm of Bailey, Shaefer and Errato, LLC; Daniel M. Smith and Associates; Sequence Financial Group; U.S. Trust, N.A.; and the law firm of Wiggin and Dana.

For further information, visit us on the web at www.newhaven.edu/cfb.

Center for the Study of Crime Victims' Rights, Remedies, and Resources

The UNH Center for the Study of Crime Victims' Rights, Remedies, and Resources is maintained under the auspices of The Henry C. Lee College of Criminal Justice and Forensic Sciences. The Center provides, and is in the process of developing, numerous initiatives to enhance the knowledge base on crime victims' rights and on services that assist crime victims through educational, training, and technical opportunities via the various academic disciplines and professional groups that study, advocate for, or serve victims.

These programs and services are statewide, regional, and national in scope. They include instructional programs; field and program evaluation research services; internships, fellowships, and visiting scholar programs; legal, legislative, and public policy analysis and advocacy; and publications, conferences, and symposia. Information is available through the director's office at the University.

ADMISSION TO THE UNIVERSITY

Kevin J. Phillips, B.S., B.A., Director
Office of Undergraduate Admissions
Phone: 203.932.7319
Toll-free: 1.800.DIAL.UNH, ext. 7319
(1.800.342.5864)
Email: adminfo@newhaven.edu

Undergraduate Admission Policy

Students are admitted full time (four or five courses, 12–15 credit enrollment and registration load) or part time (up to 11 credits). Acceptances are customized and students are placed according to their academic needs.

Placement

Incoming students are placed in courses in English and mathematics according to their individual abilities as demonstrated through SAT scores (in the case of English), the University placement testing program, or transfer credit from previous college records. Some students may be placed in courses designed to upgrade their skills in particular subject areas and prepare them for more advanced courses at the University. Students whose major requires chemistry may be required to take a chemistry placement test. Students planning to major in music, music industry, or music and sound recording are required to take a placement test for music theory.

English placement policy: a student who tests out of E 105 Composition must replace the course with E 220, E 225, E 230 or any course listed in the CC 1.2 competency in the University Core Curriculum. A student who tests out of E 110 Composition and Literature must replace E 105 as outlined above and E 110 with any literature course. A list of English courses designated as Literature courses can be found under the University Core Curriculum section.

Mathematics placement policy: a student who tests above the core mathematics level and has no other mathematics requirement in his/her program may replace the core requirement with a free elective. If a student tests above the core mathematics level and has other mathematics courses required in the program beyond the core level, such courses must be replaced with other mathematics courses.

Full-Time Admission

The University of New Haven is committed to equal access to educational opportunities and welcomes applicants regardless of race, creed, color, religion, gender, national or ethnic origin, age, sexual orientation, disability, economic level, or geographic area.

Students wishing to take any course at the University, regardless of whether they seek a degree, must first satisfy the admission procedures specified below. Students should note that some academic majors may have additional admission requirements. You become a student of the University of New Haven only after you have completed the requirements listed below, have been officially accepted, have registered for courses for your first semester, and have made the appropriate tuition and fee payments. The University requires accepted full-time students to submit a non-refundable/non-transferable enrollment commitment fee in order to hold their placement in the incoming class. The fee is due May 1 for the Fall semester and January 2 for the Spring semester.

Admission Procedure: Full-Time Freshman Students

- Complete the Undergraduate Application for Admission and submit it to the Office of Undergraduate Admissions with the non-refundable application fee. Applications are available on our website: www.newhaven.edu. We are also members of the Common Application and the Universal College Application. You can access their applications through their websites: www.commonapp.org and www.universalapp-.com, respectively. Equal consideration for admission is given to students who submit the UNH Application, Common Application, or Universal College Application.
- Submit an official copy of your secondary/high school transcript to the Office of Undergraduate Admissions. A satisfactory General Equivalency Diploma (GED) is acceptable in place of a high school diploma. If you are currently attending secondary/high school and will be sending us a transcript before completing your senior year, you must send us your final high school transcript with graduation date as soon as it becomes available.
- Submit official Scholastic Aptitude Test (SAT) or American College Testing (ACT) scores. Our SAT code is 3663 and our ACT code is 0576.
- Submit at least one letter of recommendation.
- Submit a personal essay. The essay is an opportunity for us to get to know you as a person, beyond your grades and test scores. It also gives us an example of how you express yourself and demonstrates your ability to organize your thoughts. The personal essay should be between 250 and 500 words on a topic of your choice.

Admission Procedure: Full-Time Transfer Students

- Complete the Undergraduate Application for Admission and submit it to the Office of Undergraduate Admissions with the non-refundable application fee. Applications are available on our website, www.newhaven.edu. We are also members of the Common Application and the Universal College Application. You can access their applications through their websites: www.commonapp.org and www.universalapp-.com, respectively. Equal consideration for admission is given to students who submit the UNH Application, Common Application, or Universal College Application.
- Submit official transcripts from all the colleges/universities that you have attended.
- If you have completed fewer than twenty-four credits from your previous college(s), you must submit an official copy of your secondary/high school transcript which includes your date of graduation. A satisfactory General Equivalency Diploma (GED) is acceptable in lieu of a high school diploma.
- If you have completed fewer than twenty-four credits from your previous college(s), you must submit official Scholastic Aptitude Test (SAT) or American College Testing (ACT) scores. Our SAT code is 3663 and our ACT code is 0576.
- Transfer students have the option to submit a personal essay and at least one letter of recommendation from an academic source.

  Transfer students, if accepted, will receive a transfer credit evaluation shortly after they are accepted.

Admission Procedure: International Students

- Complete the International Undergraduate Application for Admission and submit it to the International Undergraduate Admissions Office with the non-refundable application fee. Applications are available on our website at www.newhaven.edu. We are also members of the Common Application and the Universal College Application. You can access their applications through their websites: www.commonapp.org and www.universalapp.com, respectively. Equal consideration for admission is given to students who submit the UNH Application, Common Application, or Universal College Application.

- First-year applicants (students who just finished, or are in the process of finishing, secondary/high school) must submit official copies of their senior secondary/high school records to the International Undergraduate Admissions Office. This includes mark sheets, academic transcripts, final examination results, diplomas, and degree certificates such as Std. X (SSC), Std. XII (HSC), O Levels, A Levels, WAEC, CXC, IB, etc.
- In addition to the above, transfer applicants must submit official copies of all post-secondary (university/college) academic records from all institutions previously attended. This includes mark sheets, academic transcripts, examination results, diplomas, and degree certificates. Transfer applicants must also submit official course descriptions or syllabi, with exact course names and numbers, for all post-secondary (university/college) academic work attempted so that it may be evaluated for possible transfer of credit. Student-generated course descriptions are not acceptable.
- If post-secondary (university/college) studies were done outside the U.S., a course-by-course evaluation of all academic work is strongly recommended for possible transfer of credit. The preferred education credential evaluator is the World Education Service; please contact www.wes.org for more information.
- International applicants must submit word-for-word certified English translations in the same format as the official document if the official document is not in English. It is important that everything on the official document be translated. Translations should be done by a bona fide translating agency in your country or in the U.S.
- Submit at least one letter of recommendation from an academic source.
- Submit a personal essay, personal statement or a statement of purpose. The essay is an opportunity for us to get to know you as a person, beyond your grades and test scores. It also gives us an example of how you express yourself and demonstrates your ability to organize your thoughts. The personal essay should be between 250 and 500 words on a topic of your choice.
- All non-native English language speakers must demonstrate English language competency by providing a Test of English as a Foreign Language (TOEFL) score of 190 on the computer-based test (CBT) or 70 on the Internet Based test (IBT). The University of New Haven School Code for TOEFL is 3663. The International English Language Testing System (IELTS) with a minimum score of 5.5 is also acceptable. Students who have been educated in English-speaking systems may substitute the SAT or ACT for the TOEFL. Our SAT code is 3663 and our ACT code is 0576. Depending on their academic background, students transferring from accredited colleges/universities within the United States may also be required to submit TOEFL scores unless they have taken an English Composition 101 course and obtained a grade of C or better.
- Verification of financial support must also accompany the International Admission Application for I-20 or DS-2019 issuance.
- Submit a clear copy of your passport information page with your complete name, date of birth, and country of citizenship.
- Applicants currently in the U.S. must submit clear copies of their U.S. visa stamp, I-94 card, I-20 (if any), I-797 (if any), and all other immigration documents.
- Please note that as of Fall 2008, the ELS Language Center will open a new branch on the UNH campus. ELS/New Haven will offer Intensive English, Semi-intensive English and the America Explorer programs. UNH will offer conditional acceptance to those who are academically qualified and admissible but who need to improve their English language abilities before beginning their academic course work at UNH. This means that if you have no TOEFL or IELTS scores or a low TOEFL or IELTS score, you can still apply to the undergraduate degree program of your choice at UNH. If the International Undergraduate Admission Committee determines that your application meets the requirements for admission except for the English language requirement, you will be granted conditional acceptance. Conditional acceptance provides you with the

assurance that once you have met the English language requirement for admission into a degree program, you will be allowed to begin your academic course work at UNH.

Part-Time Admission

The University of New Haven has a rolling admissions process, which means that we do not have specific deadlines. Applications are accepted until the start of the specific academic term; however, we recommend that you submit your application as early as possible to allow time for processing to the following address:

University of New Haven
University College
Echlin Hall
300 Boston Post Road
West Haven, CT 06516

Degree-Seeking Students

- Complete the online Part-Time and Adult Undergraduate Application for Admission on our website at www.newhaven.edu and pay the $25 non-refundable application fee. (You can choose to submit the paper version of the application to University College along with the $50 non-refundable application fee). APPLY ONLINE AND SAVE 50 PERCENT ON THE APPLICATION FEE!
- Submit an official copy of your secondary/high school transcript to University College. A satisfactory General Equivalency Diploma (GED) is acceptable in place of a high school diploma.
- Submit official transcripts from all the colleges/universities that you have attended. Have them sent directly to University College. Upon receipt of your transcripts you will receive an academic worksheet for your intended major with a preliminary transfer credit evaluation (TCE). The TCE outlines how many transfer credits you can be awarded and details which courses at your previous college(s) are accepted as transfer credit for UNH courses in your major.
- Scholastic Aptitude Test (SAT) or American College Test (ACT) scores may be requested if the applicant has graduated from high school within 12 months of filing the admission application.
- The University recognizes both the College Entrance Examination Board's Advanced Placement Program (AP) and the College Level Examination Program (CLEP). Credit may be granted for AP grades of 3, 4 or 5; credit may be granted for CLEP passing percentile scores of 50 or better. Credit will be evaluated by the appropriate department chair. For further information or to have your scores sent to UNH, go to www.collegeboard.com and search for AP or CLEP.
- Information and instructions about registration are included in the acceptance packet for students who have been accepted to the University.

Non-Degree Students

- Complete the online Part-Time and Adult Undergraduate Application for Admission on our website at www.newhaven.edu and pay the $25 non-refundable application fee. (You can choose to submit the paper version of the application to University College along with the $50 non-refundable application fee). APPLY ONLINE AND SAVE 50 PERCENT ON THE APPLICATION FEE! Be sure to select "Non-Degree" as your intended major. College transcripts may be required from non-degree students if they wish to take courses that have prerequisites.
- Students may earn up to 12 credits as a non-degree student before they are required to matriculate into a degree or certificate program.
- Information and instructions about registration will be mailed to you when your application has been processed.

If you have questions please contact University College at 203.932.7180 or universitycollege@newhaven.edu.

REGISTRATION

Academic Advising and the Registration Process

Registration is the process of selecting classes each term in consultation with an academic adviser. All matriculated students have assigned faculty advisers who provide guidance on academic matters and assist with registration. Normally, the assigned adviser is the chair or coordinator of the student's major course of study or another faculty member designated by the chair.

Online registration is offered through the Matrix Student Information System. Matrix is also where final grades are posted for viewing at the end of each academic period. If you are a current student, you should have received a notification informing you of your student ID, login, password, and University email address. Newly accepted students receive this information once the acceptance process has been completed. This enables you to access your UNH email account, the Blackboard Learning System, and the Matrix Student Information System.

Full-Time Students

Registration dates for upcoming terms are published in advance and currently enrolled students will receive an email notification of the dates via their UNH email account. Once the dates are published, full-time students must pick up a copy of their academic worksheet from the Registrar's Office and schedule an appointment with their academic adviser. After the academic adviser has approved the selection of courses, students may register online on their designated day as outlined in the email notification of registration dates.

Students desiring to register for more than 18 credits in any one semester must obtain written consent from their adviser and department chair, and must have a cumulative grade point average (G.P.A.) of 3.20 or higher.

All undergraduate international students are required to enroll for a minimum of 12 credits each semester.

New students or former students returning to UNH as full-time students should contact the Undergraduate Admissions Office to obtain information and an application. You will receive registration information and instructions upon completion of the acceptance process.

Part-Time Students

Registration dates for upcoming terms are published in advance and currently enrolled students will receive an email notification of the dates via their UNH email account. Once the dates are published, part-time students are encouraged to contact their academic adviser to assist with course selection. After the academic adviser has approved the selection of courses, students may register online on their designated day as outlined in the email notification of registration dates.

Part-time students may register for up to 11 credits in any term, semester, or module. Students desiring to enroll for more than 11 credits must change their standing to full time and be charged full time tuition.

New students or former students returning to UNH as part-time students should contact University College to obtain information and an application. You will receive registration information and instructions upon completion of the acceptance process.

Alumni Auditors

Alumni who audit courses pay a reduced tuition but must be approved through the Alumni Office before registering for courses. Auditing at the reduced rate is limited to courses at or below the level of the degree earned while previously enrolled as a student at UNH. Alumni may be required to complete an application for admission if their current information is not available in the Matrix Student Information System. Please contact University College to obtain information and an application.

ACADEMIC REGULATIONS

Ways of Earning Credit

Academic Credit

Academic credit is granted on a credit-hour basis. In addition to successfully completing regular courses, students may earn credit by independent study, coordinated courses, crediting exams or CLEP exams, or transfer of previously awarded credit from other institutions. These methods are detailed in the following pages of this section.

Transfer of Credit to the University

Students may transfer to the University after completing academic work at other institutions. Normally, the University accepts credit from regionally accredited colleges on an equivalency basis. The regional institutional accreditation bodies in the U.S. are Middle States Association of Colleges and Schools (MSA), New England Association of Schools and Colleges (NEA.S.C), North Central Association of Colleges and Schools (NCA), Northwest Commission on Colleges and Universities (NWCCU), Southern Association of Colleges and Schools (SACS), and Western Association of Schools and Colleges (WA.S.C).

Students transferring from another institution must have at least a 2.0 grade point average based on a four-point scale. Credit is normally granted for undergraduate courses completed with at least a grade of C, or its equivalent. Credit is not awarded for pass/fail courses or pass/fail grades. Credit transferred from a two-year institution is generally limited to sixty credits and restricted to freshman- and sophomore-level courses, unless otherwise approved in writing by the dean of the school in which the student seeks to enroll. Credit will be considered only for transfer courses that are equivalent to UNH courses or electives; all accepted credit must pertain to UNH degree requirements.

Coordinated Courses

In order to maintain continuity in a degree program, students are encouraged to use UNH Summer Sessions and Winter Intersession; however, courses taken by matriculated UNH students at regionally accredited institutions may be designated as coordinated courses. Credit for such courses is accepted and posted to students' transcripts, and the grades are included in students' grade point averages.

Credit for courses taken at a two-year institution is restricted to equivalent UNH courses at the freshman and sophomore levels. (Students with junior or higher standing at UNH may not take coordinated courses at two-year institutions.)

Prior authorization for a coordinated course must be obtained from the department(s) housing the student's major and the related course at UNH. The appropriate form must be obtained at the Registrar's Office, approved by the academic department(s), and returned to the Registrar's Office before the course begins. Normally, approval is granted only for those courses that are equivalent to courses offered at UNH, and/or standard courses in a given discipline unavailable at UNH because of frequency of offerings, cancellation, etc., or courses that are inaccessible to the student because of temporary residency at a distant location. Complete detailed instructions can be found on the Coordinated Course form.

Students must be continuously matriculated at UNH while taking a coordinated course. Approval for a coordinated course will become void upon withdrawal from the University by the student or dismissal of the student from the University.

Students are responsible for securing an official transcript upon completion of their course work. Official transcripts must be mailed directly from the other institution to the attention of the Registrar's Office at UNH. Credit will not be posted to the student's UNH transcript until the official transcript from the other institution has been received by the Registrar's Office.

Advanced Placement

The University recognizes the program of advanced placement available to talented high school students through the College Entrance Examination Board. Students satisfactorily completing advanced placement courses in high school and the final examination prepared by the Educational Testing Service (ETS) may be given appropriate college credit if their courses are similar to those offered at the University of New Haven.

ETS advanced placement examinations are graded from 1 to 5. Credit may be allowed when the grade earned is 3, 4, or 5. Students desiring to submit advanced placement courses for college credit should have all results of these courses and tests sent in with their application for admission.

The University of New Haven accepts credit by examination from the College-Level Examination Program (CLEP), subject to academic department chair approval. The passing percentile for CLEP and subject examinations is 50. Credit will be evaluated by the appropriate department chair.

The University of New Haven awards credit for scores of 4 or greater on International Baccalaureate (IB) exams. To receive credit, students must request that the testing service forward official test results directly to the University of New Haven. Credit will be evaluated by the appropriate department chair.

Credit by Examination

A student who has at least a 2.0 cumulative G.P.A. and has independent knowledge of the content of an undergraduate course offered by the University may, with the approval of the appropriate department chair and dean, take a special crediting examination in lieu of taking the course.

Students are reminded that they must earn at least thirty credits through regular UNH course work if they are to meet the residency requirements for graduation. Credits by examination do not count toward the residency requirement.

Students may not take crediting examinations during the first term in which they are enrolled.

External Credit Examinations

Learning acquired through various traditional and nontraditional approaches can be measured and validated by objective procedures acceptable to the faculty of UNH. This learning must appropriately parallel the curriculum of the University in order to be awarded UNH credit. Sources of external credit that may be evaluated currently include the following:

- College-Level Examination Program (CLEP)
- Proficiency Examination Program (ACT PEP)
- Dantes Subject Standardized Tests (DSST)
- Modern Language Association Foreign Language Proficiency Tests (MLA)
- Military Service School Courses

Enrollees on active duty in the U.S. Armed Forces should arrange for DD Form 295 to be completed and forwarded from the duty station. Veterans of any period of active service should provide the University with a copy of DD Form 214 or other notice of separation for each period of service. This may assist in identifying possible sources of academic credit.

Independent Study

In all courses of independent study the student and adviser must jointly file a project outline with the registrar within four weeks of the beginning of the course. This outline shall serve as the basis for determining satisfactory completion of course requirements.

Normally, independent study is restricted to no more than six credits and open only to seniors, juniors, and exceptionally qualified sophomores. Students must have at least a 3.0 grade point average.

Regularly scheduled courses (that is, those offered at least once every four semesters) are not normally acceptable as independent study.

Field Experience

In all credit-bearing courses of field experience, including internships, practical theses, and work study, students will earn credit for the learning gained through the activity. The student and adviser must jointly file a project outline with the registrar

within four weeks of the beginning of the course. This outline shall serve as the basis for establishing the mechanism by which the adviser will evaluate the learning to occur and thus for determining completion of course requirements.

Academic Standing and Progress

Full-Time Students

Full-time student standing is attained by registering for a minimum of 12 credits per semester, or equivalent term, on either a matriculated or nonmatriculated basis. Such standing is continued to a succeeding term provided a minimum of 12 credits is completed in the current term. Completion is defined as receipt of a letter grade of A+ through D-, F, S, or U. Other letter grades do not signify course completion.

Full-time students are eligible for all daytime student activities and benefits and are subject to full-time tuition charges and other relevant fees. It is assumed that full-time students will select the great majority, if not all, of their courses from daytime course schedules, unless needed courses are unavailable during the day.

Part-Time Students

Students who register for 1 through 11 credits during a semester or equivalent term maintain part-time standing. Part-time standing may be held by students attending UNH during the day or in the evening.

Matriculation

Matriculation is the formal act of registering to study for a specific degree offered by the University. Matriculation is, therefore, not automatic. A student must request matriculation by seeking admission to a specific University degree program. Formal acceptance into a degree program shall constitute the granting of matriculation.

Students seeking credit to be transferred to another institution, or simply wishing to audit courses or to take them without working toward a degree, need not matriculate. Nonmatriculated students must register to take their chosen courses, however, and will be allowed to enroll in courses only as space permits. It is the student's responsibility to seek matriculation should he or she later decide to pursue a University of New Haven degree.

Academic Worksheets

Generally, matriculating students are subject to those requirements defined in the Undergraduate Catalog and listed on the academic worksheet in effect for the semester of initial enrollment.

If students change academic majors, they are subject to the requirements of the catalog and worksheet in effect at the time of the change.

If students withdraw or are dismissed from the University and decide to return at a later date, they are subject to the requirements of the catalog and worksheet in effect at the time of their return.

Part-time students are permitted a total of three semesters (consecutive or otherwise) of break in study during which they may continue on the original academic worksheet. After the three-semester limit has been reached, students are subject to the requirements of the new catalog and worksheet in effect at that time.

Students who initiate a leave of absence, will continue on the same academic worksheet upon their return to the University. However, students who fail to return after the designated leave of absence period will be considered withdrawn students and are subject to the catalog and worksheet requirements outlined above.

Students who begin their studies based on a catalog and worksheet that subsequently changes may request to use the latest worksheet for that major; however, those students are not required to change to the current worksheet unless they have been away from the University as described above.

Class

A student's year of study at the University of New Haven is defined at the undergraduate level using the following scale:

Freshman — 0 to 26 completed credits
Sophomore — 27 to 56 completed credits
Junior — 57 to 86 completed credits
Senior — 87 or more completed credits

It is important to note that a student's year of study does not transition to the next level until credits have been completed. Attempted credits, such as those not yet completed in a current term, or those for which a student is pre-registered in a future term, are not included in determining a student's year of study.

Change of Student Standing

Undergraduate students who wish to change their standing from full time to part time or from part time to full time must complete a Classification Package Change form available from the Registrar's Office.

Part-time students who wish to enroll in more than 11 credits in any term must change their standing to full time. Full-time students wishing to change to part-time standing may become part-time day or part-time evening students. To qualify for part-time evening standing, a student normally is restricted to enrolling in evening courses only.

Major

Each matriculated student must designate a specific degree program, called a major. Major program requirements are detailed in the Catalog under the relevant department listing. A minimum cumulative 2.0 G.P.A. in major courses is required for graduation in addition to a minimum cumulative 2.0 G.P.A. in all courses. See program requirements for further clarification of specific courses/requirements.

Minor

Many baccalaureate programs can be supplemented by an associated minor program, which normally includes five or six courses. The University encourages students to augment their major program with an associated minor. Details, requirements, and a minor worksheet can be obtained from the academic department that offers the minor.

The minor worksheet, developed by the appropriate department, must be submitted to the Registrar's Office in order for a student to receive credit for the minor. A minimum of one-half of the courses required for any minor must be completed in residence at UNH.

Minors are recorded on the student's transcript in conjunction with the degree and major awarded. Minors cannot be awarded without completion of a baccalaureate degree.

Grading System

The following grading system applies except where otherwise specified, both to examinations and to term work. The weight of a final examination grade is a matter individually determined by each instructor. (See the Grade Point Average section for additional information.)

A+	Excellent	4.0 quality points
A	Excellent	4.0 quality points
A-	Excellent	3.7 quality points
B+	Good	3.3 quality points
B	Good	3.0 quality points
B-	Good	2.7 quality points
C+	Fair	2.3 quality points
C	Fair	2.0 quality points
C-	Fair	1.7 quality points
D+	Poor	1.3 quality points
D	Poor	1.0 quality point
D-	Poor, lowest passing grade	0.7 quality points
F	Failure	0 quality points

AU Audit. Indicates course was attended without expectation of credit or grade (0 quality points).

INC Incomplete. Indicates one of the following two possibilities:

1. Some work remains to be completed to gain academic credit for the course. An INC is assigned in this instance at the discretion of the instructor. This assignment shall not be automatic but shall be based upon an evaluation of the student's work completed up to that point and an assessment of the student's

ability to complete course requirements within the allowed time limit. Work to remove an INC must be performed as soon as possible but in no case later than 12 months following the last day of the semester in which the INC is incurred, or earlier if the instructor so requires. When such work is completed, the instructor will assign a final grade for the course.

2. The student has failed to complete unfulfilled academic assignments within the specified 12 months, and the grade of INC has been entered on the student's transcript. No further opportunity to complete the course will be available to the student after this time (0 quality points).

DNA Did Not Attend. Indicates nonattendance in a course for which a student had previously registered but not officially dropped (0 quality points).

W Withdrawal. Indicates unofficial withdrawal (i.e., non-attendance) from a course after the first half of the semester, or withdrawal from the University at any time after the last date to drop a course as published in the academic calendar. The grade of W will not be assigned to a student who has taken the final examination in the course (0 quality points).

S Satisfactory. Given only in noncredit courses (0 quality points).

U Unsatisfactory. Given only in noncredit courses (0 quality points).

Grade Point Average

The academic standing of each student is determined on the basis of the grade point average (G.P.A.) earned each term. Each letter grade is assigned a quality point value. (See the Grading System section.)

The grade point average is obtained by multiplying the quality point value of each grade by the number of credits assigned to each course as listed in the Catalog, then dividing the sum of the quality points earned by the number of credits attempted in courses for which a grade of A+ through F is awarded. Course grades of AU, DNA, INC, S, U, and W are not calculated in the grade point average since they carry no quality points. A cumulative grade point average is obtained by calculating the grade point average for all courses attempted at the University of New Haven.

Satisfactory Progress

For full-time matriculated students, satisfactory progress toward a degree is defined as successful completion of 24 credits applicable to that degree program during an academic year. This should include registration for at least 12 credits per semester and successful completion of at least nine credits per semester. Completion is defined as the receipt of a final letter grade (A+ to F), but not the receipt of a Withdrawal (W), Did Not Attend (DNA), or an Incomplete (INC). Successful completion is defined as the receipt of a passing letter grade (A+ to D-).

Students are required to maintain a minimum cumulative grade point average in accordance with the following scale:

Cumulative grade point average of 1.75 for 3 to 27 credits attempted;

Cumulative grade point average of 1.85 for 28 to 57 credits attempted;

Cumulative grade point average of 2.0 for 58 or more credits attempted.

A minimum G.P.A. of 2.0 is required in the major, in a minor, or in any undergraduate certificate program in order to graduate with that credential.

In addition, financial aid eligibility is limited to accumulated attempted credits totaling no more than 150 percent of the published credits required to receive an undergraduate degree. For example, a program that requires 120 credits x 1.5 = 180 maximum allowable credits attempted for financial aid eligibility. Every semester that you are enrolled in school is counted, even the semesters when you do not receive financial aid. Transfer credits accepted by the University from other institutions count toward the maximum credit limit.

Dean's List

The dean's list honors undergraduate students who demonstrate excellence in their academic performance. Full-time undergraduate students who earn a grade point average (G.P.A.) of 3.50 or better in any one semester will be appointed to the dean's list for that semester.

Part-time undergraduate students who have accumulated a minimum of 14 credits of course work at the University will automatically be considered for the dean's list at the end of each semester. A cumulative G.P.A. of 3.50 or better is required.

Academic Probation

Students are placed on academic probation when they fail to maintain a minimum cumulative grade point average in accordance with the following satisfactory progress scale:

Cumulative grade point average of 1.75 for 3 to 27 credits attempted;
Cumulative grade point average of 1.85 for 28 to 57 credits attempted;
Cumulative grade point average of 2.0 for 58 or more credits attempted.

Academic probation of transfer students is determined in accordance with the same graduated, minimum cumulative grade point average scale as for non-transfer students, as detailed above. In determining a transfer student's academic standing, the student's total semester hours completed — those transferred from other institutions plus those attempted at the University of New Haven — are applied to the minimum cumulative grade point average scale.

Students who are on academic probation are limited to a course load not to exceed four courses (13 credits). Any course above the four-course limit taken by a student at another institution during a period of academic probation is not accepted for credit by the University.

The counting of the number of academic probations for any student shall not change as the result of an academic dismissal. A student shall be dismissed automatically as a result of the third or, if readmitted, any subsequent probation.

Academic probation(s) are recorded on the student's transcript.

Academic Dismissal

Students are dismissed from the University (1) upon qualification for a third probation, (2) upon qualification for any subsequent probation after readmission from an academic dismissal, or (3) when the student's grade point average for any individual semester is less than 1.0 and the student's cumulative grade point average does not indicate satisfactory progress as described in the Satisfactory Progress section. If the cumulative grade point average indicates Satisfactory Progress as described in the satisfactory progress section, an academic warning is issued instead of an academic dismissal.

First-semester freshmen earning a grade point average of less than 1.0 for the first semester are not dismissed, but are automatically placed on academic probation.

Academic dismissals are recorded on the student's transcript.

Dismissal/Readmission Procedure

Notification of academic dismissal is made by the Registrar via certified letter. This letter specifies the time span and criteria for appeal.

Upon written submission by the student, an appeal will be heard by the Academic Standing and Readmissions Committee (A.S.RC). If the appeal has merit and is granted, the student will be so notified by the chair of the Committee. The Committee may require special arrangements or conditions to allow the student to continue. Satisfaction of such conditions is an obligation of the student.

If there is no appeal or if an appeal is denied, the student will be removed from any courses for which he or she is registered that have not yet begun. The student may continue in any intersession or summer course that began before the date of the dismissal, but may not begin any courses after the dismissal is effective.

Notations of readmission by successful appeal and/or denial of appeal appear on the student's transcript.

Application for readmission of students who have been dismissed and who either did not appeal or whose appeal was denied normally will be considered only after the lapse of one semester and only when students provide evidence that indicates probable success if readmitted. Requests for readmission should be submitted in writing to the chair of the ASRC at least three weeks before the opening of the semester and should include evidence supporting the student's belief that he or she will succeed if readmitted. If the student has attended another college or in the interim, an official academic transcript is required from that institution. Because the student is not matriculated at UNH during this period, no coordinated courses will be accepted.

Readmission is not automatic. The committee reviews each application and makes a decision on acceptance, rejection, or conditional acceptance of students. A student who is readmitted may be prohibited from continuing with the academic program in which he or she was enrolled at the time of dismissal as a condition of readmission.

Upon successful readmission, a student may enroll in the normal manner as a continuing student and does not need to submit a new application unless he or she does not return to UNH in the semester immediately following the date of readmission. Students who decide not to return until a later date must submit a new application and pay another application fee to the Undergraduate Admissions Office (for full-time students) or to University College (for part-time students).

Repetition of Work

A course that a student has completed may be repeated only with the consent of the chair of the department that offers the course or if a minimum grade is required to enroll in a subsequent course in a series. If a student achieves a higher grade in the second attempt, that grade rather than the first is used to compute the cumulative grade point average. However, both the higher and lower grades in the course remain on the student's transcript.

When credit for a graded course previously attempted at UNH is earned through a method that does not carry a grade with a quality point value, the previous instance of that course is removed from the cumulative G.P.A. calculation. However, both instances are recorded on the student's transcript.

Changes

Dropping/Adding a Class

A student who wishes to add or drop a course must refer to the deadline dates as published in the undergraduate academic calendar. Drop/Add forms are available online and from the Undergraduate Records Office. For full-time students, all adds and drops require the signature of the instructor and the student's adviser. In the case of part-time students, adds and drops require the signature of the instructor only, although it is strongly recommended that part-time students consult with their advisers.

Withdrawal from a Class

Submitting a properly signed Drop form to the Registrar's Office before the last day to drop as published in the academic calendar removes the student's name from the class roster and removes the enrollment from the student's transcript. After the last day to drop a course, student names remain on class rosters and on transcripts, even if a student decides to stop attending a class. In this case, the student should request a final grade of W (withdrawal) from the instructor of the course. Because full-time students are assessed full-time tuition based upon a credit range, dropping a course does not qualify full-time students for cancellation of tuition or fees. Because part-time students are assessed tuition on a per-credit basis, the tuition refund policy is applied when a course is dropped.

Changing a Major

Students wishing to change their major must meet with the chair of the department into which they

wish to transfer. In consultation with the student, the chair completes an Academic Program Change Request (available online and in the Registrar's Office) and forwards it to the Registrar's Office.

Students who wish to declare an additional major must meet with the chair of the department that houses the additional major. In consultation with the student, the chair completes an Additional Major Request (available online and in the Registrar's Office) and forwards it to the Registrar's Office.

Leave of Absence

Undergraduate matriculated students may interrupt continuous enrollment by electing to take a leave of absence from the University for medical or personal reasons, to pursue a program of study at another institution, or to engage in other off-campus educational experiences without severing their connection with the University of New Haven. Before taking a leave of absence, students are encouraged to discuss their particular situation with an academic adviser, the dean of their school, an academic skills counselor in the Office of Academic Services, or a counselor in the Counseling Center.

The policies regarding leaves of absence are as follows:

- Noninternational students must file for a leave of absence through the Registrar's Office or the Office of Academic Services; international students must initiate the leave of absence through the International Student Services Office.
- Students who are on University disciplinary probation are not eligible for a leave of absence.
- A student who has been dropped or dismissed from the University for disciplinary or academic reasons is not eligible for a leave of absence until properly reinstated.
- A student who has withdrawn as a degree candidate is not eligible for a leave of absence. If a student withdraws while on leave of absence, the leave is invalidated.
- Leaves of absence are not required or granted for intersession or summer terms.
- Normally, leaves are not approved for a period longer than two semesters. Under special extraordinary circumstances, usually medical in nature, a leave of absence may be approved for a maximum of four semesters or two years.
- A student who wishes to return later than the semester originally stated on the leave of absence form must apply through the Registrar's Office for an extension of the leave of absence, not to exceed the maximum period as outlined above.
- A student who plans to enroll in course work at another accredited institution during a leave of absence should review program plans with his or her academic adviser to verify eligibility for receiving credit at the University of New Haven.
- Taking a leave of absence may affect a student's financial aid. Students receiving financial aid are encouraged to contact the Financial Aid Office before taking a leave of absence.
- A student who fulfills the conditions of an approved leave of absence may return to the University and register for classes without applying for readmission; such students may preregister for the semester in which they plan to return.
- A student who does not apply for an extension or who exceeds the maximum period but wishes to return to the University must be formally readmitted by the Undergraduate Admissions Office (full-time students) or by University College (part-time students). Upon successful readmission, the student may register for classes for the first term of their return through the Undergraduate Admissions Office or University College.
- For leaves of absence completed during the first twelve weeks of the semester, the student's transcript will contain no record of courses attempted or grades received during that semester.
- Leaves of absence completed after the twelfth week but before the end of the semester may result in receipt of grades such as INC, W, or F for courses in which the student is registered at the time of the declaration of the leave of absence.

Withdrawal from the University

Undergraduate students desiring to withdraw from the University must complete a Withdrawal form (available online, in the Office of Academic

Services, and in the Registrar's Office), submit it to the Office of Academic Services or the Registrar's Office, and notify each of their instructors. It is the student's obligation to complete this formal procedure. Failure to do so leaves the student liable for all of the current semester's tuition and fees and may result in grades of F being assigned in courses.

Formal withdrawal must be completed during the first four weeks of the semester in order to obtain any cancellation of tuition and fees according to the tuition refund policy. Formal withdrawal completed during the first twelve weeks of the semester will ensure that the student's transcript contains no record of courses attempted or grades received during that semester. Formal withdrawal completed after the twelfth week but before the end of the semester may result in receipt of grades such as INC, W, or F for courses in which the student is registered at the time of the declaration of the withdrawal.

Because of the serious ramifications of formal withdrawal from the University, students contemplating this action should discuss the matter with their academic adviser, an academic skills counselor in the Office of Academic Services, or a counselor in the Counseling Center as soon as problems are perceived.

If a student wishes to return to the University after having withdrawn and at least one semester has elapsed, or if the student has failed to register, thereby reverting to an inactive standing, the student must reapply to the University through the Undergraduate Admissions Office (full-time students) or University College (part-time students). The degree requirements in place at the time of readmission will apply.

General Policies

Academic Honesty

The University of New Haven expects its students to maintain the highest standards of academic conduct. Academic dishonesty is not tolerated at the University. To know what it is expected of them, students are responsible for reading and understanding the statement on academic honesty in the *Student Handbook.*

One of the most common forms of academic dishonesty is plagiarism, defined as the failure to cite properly the words and/or the ideas of another. Students are expected to adhere strictly to accepted academic standards of attribution in their work and should seek the guidance of their instructors if they have any questions in this regard.

Violation of University standards on academic honesty, including those on plagiarism, will be sufficient reason for an F in a course and may be reported to the dean of students. A second violation may be cause for suspension or expulsion from the University.

Attendance Regulations

Students are expected to attend regularly and promptly all their classes, appointments, and exercises. While the University recognizes that some absences may occasionally be necessary, these should be held to a minimum. A maximum of two weeks of absences will be permitted for illness and emergencies. The instructor has the right to dismiss from class any student who has been absent more than the maximum allowed. After the last date to drop as published in the academic calendar, a student will receive a failure (F), if failing at that point, or a withdrawal (W), if passing at the time of dismissal.

A student who is not properly registered with the University is not permitted to attend classes regularly or take part in the course.

Excuses from classes for participation in extracurricular activities must be arranged in advance by the faculty or staff adviser of the group, with the consent of the instructor.

Students absent from any class are responsible for making up missed assignments and examinations at the convenience of the instructor.

Course Work Expectations

All undergraduate full-time and part-time students are expected to spend at least two hours on academic studies outside and in addition to each hour of class time. This expectation should be used by the student as a guide in determining how much time to spend on academic studies outside class. It should also be

used by the student, in consultation with the academic adviser, to help determine the student's course load each semester so that the course load matches the amount of time available for academic studies.

The Office of Academic Services works with students individually or in small groups to assist them to become academically successful. The mission of the Office of Academic Services is to facilitate and enhance students' academic progress through the University by providing guided access to advisory sources and relevant support systems. One of their objectives is to focus on strengthening study and time-management skills. Workshops to accomplish this objective are offered throughout the academic year.

Make-Up Policy

Make-up examinations are a privilege extended to students at the discretion of the instructor, who may grant consent for make-up examinations to those students who miss an exam as a result of a medical problem, personal emergency, or previously announced absence. On the other hand, instructors may choose to adopt a "no make-up" policy. Students should refer to the instructor's make-up policy in the course syllabus and, if no mention is made therein, should inquire directly of the instructor.

If an instructor does choose to offer a make-up test, there are two options for them to choose from: 1) to use University proctors; 2) to make private arrangements to offer the examination. If a University proctor is used, the student must pay a make-up exam fee for regular examinations and final examinations. If private arrangements are made, the make-up exam fee is charged at the instructor's discretion. In either case, the make-up examination fee will be paid by the student through the Bursar's Office.

Graduation

Graduation Criteria

Graduation is not automatic. Graduation petitions, once filed, ensure that a student's record will be formally assessed in terms of degree requirements. A petition may be denied if graduation requirements are not met. If a petition is approved, a degree will be awarded for the appropriate commencement.

A degree will be conferred when a student has satisfied all program requirements and met all University requirements by having done the following:

- successfully petitioned and paid all graduation fees;
- earned a cumulative grade point average (G.P.A.) of no less than 2.00 in all courses applicable toward the undergraduate degree;
- earned a cumulative grade point average (G.P.A.) of no less than 2.00 (or higher if required by an individual department) in all courses in the student's major field of study;
- passed the University's Writing Proficiency Examination (for bachelor's degree candidates);
- been recommended by the faculty (via department chair approval of the petition);
- met all financial and other obligations and conformed to any local, state, or federal law concerning graduation; and
- met the residency requirement of the University.

If a student does not meet all the requirements as outlined above prior to the commencement date, a diploma with the requested commencement date will not be issued. It is the student's responsibility to refile and make payment for a new petition for a future commencement date.

Residency Requirement

The residency requirement for undergraduate degrees is 30 undergraduate credits taken at the Main Campus or at one of the University's off-campus centers. This requirement applies to all associate and bachelor's degrees. Transfer credit, coordinated courses, credit by examination, AP, CLEP, DANTES, or other proficiency examinations do not fulfill the residency requirement.

To ensure depth of study, the residency requirement must include 12 credits of work in the declared major for an associate degree and 18 such credits for a bachelor's degree. Exceptions may be granted only by the dean who administers the major.

Writing Proficiency Examination

Because the University of New Haven believes that good writing skills are essential for success, it requires undergraduate students to demonstrate such skills before it will confer a bachelor degree. Thus, during the first semester after achieving 57 credits, all students must take an examination in writing skills. No student will be eligible to receive the B.A. or B.S. degree unless the examination is passed.

The examination consists of writing an impromptu theme on one of several topics of interest. If syntax, punctuation, and diction are in accord with the conventions of standard English and if the argument or exposition is clear and coherent, the student will pass. If a student's writing is found to be deficient in these respects, notice of the unsatisfactory performance on the examination will be sent to the student, to the student's academic adviser, and to the Registrar.

A student who fails the examination must take specific steps to improve skills in written English. These steps may be systematic tutoring at the Center for Learning Resources, enrollment in E 103 Fundamentals, or the formulation of a program of self-study. The student must retake the examination each subsequent semester until the examination is passed. In no case shall the requirements for a four-year degree be completed without satisfactory performance on the Writing Proficiency Examination.

Honors

Academic honors are posted on the student's final transcript along with the name of the degree earned and the date the degree was conferred.

Honors are conferred upon candidates for graduation according to the following standards:

- An associate degree *With Honors* is awarded to students who have a grade point average of 3.25 for the credits specifically required for the degree program from which they are graduating and who have taken 30 or more hours of required work at this University.
- An associate degree *With High Honors* is awarded to students who have a grade point average of 3.50 for the credits specifically required for the degree program from which they are graduating and who have taken 30 or more hours of required work at this University.
- The bachelor degree *Cum Laude* is awarded to students graduating with a cumulative grade point average of at least 3.50 who have taken 60 or more credits of required work at UNH and completed all the suggested courses within their curriculum.
- The bachelor degree *Magna Cum Laude* is awarded to students graduating with a cumulative grade point average of at least 3.70, whose grade point average in all courses counting toward their major is at least 3.70, and who have taken 60 or more credits of required work at UNH and completed all the suggested courses within their curriculum.
- The bachelor degree *Summa Cum Laude* is awarded to students graduating with a cumulative grade point average of at least 3.90, whose grade point average in all courses counting toward their major is at least 3.90, and who have taken 60 or more credits of required work at UNH and completed all the suggested courses within their curriculum.

In determining eligibility for degrees with honors, transfer credit and credits earned by crediting examination will not be considered. Only the cumulative grade point average for courses completed at the University of New Haven is considered in determining a student's eligibility for honors.

TUITION, FEES, AND EXPENSES

The tuition and other expenses listed in this section reflect the charges for the 2007–08 academic year.

Full-time students taking courses offered during the day or the evening will pay the full-time tuition rate for the first 17 credits per semester.

Any student who is registered as a full-time Day Division student on the first day of the semester will be responsible for payment of full-time Day Division tuition for the entire semester, regardless of any subsequent dropping of credits or withdrawal from a course. Full-time Day Division students who plan to enroll for fewer than 12 credits in any given term must change their enrollment standing to part time prior to the first day of the term.

Students enrolled as full-time Day Division students who take 18 or more credits in a single term will be charged additional tuition for each credit over 17, unless the additional credits are required for that semester on the student's major worksheet.

International Student Acceptance Fee

The international student fee is required of international undergraduate and graduate students when they first enroll. It supports a variety of services and programs, cross-cultural workshops, community activities, international alumni programs, library subscriptions to international newspapers and magazines, and the International Services Office.

Engineering Tuition Differential

Courses with the designations CE, CEN, CH, CM, CS, EE, EA.S., IE, ME, or SE offered by the Tagliatela College of Engineering are charged an $80 per credit tuition differential.

Student Activity Fee

The student activity fee is distributed to various student groups by the Undergraduate Student Government Association. It covers the cost of student-supported services such as the newspaper and radio station and helps defray the expenses of clubs, organizations, social activities, and so on.

Tuition and Fees 2008–2009

Undergraduate

	Per Occurrence	Per Term	Yearly Total
Pre-Enrollment Fees			
Paper Application Fee	$50	n/a	n/a
Online Application Fee	$25	n/a	n/a
Enrollment Fee — Commuter Students	$200	n/a	n/a
Enrollment Fee — Residential Students	$400	n/a	n/a
Acceptance Fee for New International Students	$200	n/a	n/a
Tuition: Full-Time Day			
Tuition (12–17 Credit Hours)	n/a	$13,500	$27,000
Additional Charge for Credits Over 17 (Per Credit)	$900	n/a	n/a
General Student Fee	n/a	$595	$1,190
General Student Fee International	n/a	$845	$1,690

	Per Occurrence	Per Credit	Yearly Total
Tuition: Part-Time Day			
Part-Time Tuition (1–11 Credits)	n/a	$900	n/a
Mandatory Activity Fee for 3–5 Credits	$20	n/a	$40
Mandatory Activity Fee for 6–8 Credits	$38	n/a	$76
Mandatory Activity Fee for 9–11 Credits	$56	n/a	$112
Mandatory Technology Fee	$45	n/a	$90
Tuition: Evening			
Part-Time Tuition	n/a	$450	n/a
Mandatory Activity Fee (For Students in Modules A and C Only)	$18	n/a	$36
Mandatory Technology Fee (Non-Module)	$45	n/a	$90

	Per Occurrence	Per Credit	Yearly Total
Summer I and Summer II (starting May 2009)			
Part-Time Tuition	n/a	$450	n/a

	Per Occurrence	Per Term	Yearly Total
Auditing			
Alumni	n/a	$70	n/a
Non-Alumni	n/a	$120	n/a
Differentials			
Engineering Courses	n/a	$80	n/a
Computer Science Courses	n/a	$80	n/a
Chemistry Courses	n/a	$80	n/a

	Per Occurrence	Per Term	Yearly Total
Residential Life Charges			
Room — Double Occupancy	n/a	$3,500	$7,000
Room — Freshman Triple Occupancy	n/a	$3,000	$6,000
Room — New Residence Hall	n/a	$3,500	$7,000
Room — Forest Hills	n/a	$3,500	$7,000
Room — Regency	n/a	$3,500	$7,000
Interim Housing (Per Week)	$200	n/a	n/a
Housing Activity Fee	n/a	$50	$100
Room Selection Deposit for Returning Students	$200	n/a	$200
Parking Fee (Residential Students Only)	$200	n/a	$200
Meal Plan A	n/a	$2,283	$4,566
Meal Plan B	n/a	$2,203	$4,406
Meal Plan C	n/a	$1,881	$3,762
Meal Plan D	n/a	$1,881	$3,762
Meal Plan E	n/a	$2,203	$4,406

	Per Occurrence	Per Credit
Additional Fees		
Co-op Registration — Full-Time	$150	n/a
Co-op Registration — Part-Time	$75	n/a
Late Registration Fee	$25	n/a
Late Payment Fee	$50	n/a
Lab Fees	$32–700	n/a
Study Away Fees	$500–1,500	n/a
Crediting Exams	n/a	$100
Graduation Fee	$110	n/a
Graduation Refiling	$50	n/a
Diploma Replacement Fee	$50	n/a

The University reserves the right to make, at any time, whatever changes it deems necessary in admission requirements, fees, charges, tuition, faculty, instructors, policies, regulations, and academic programs prior to the start of any class, term, semester, trimester, or session. The University reserves the right to divide, cancel, or reschedule classes or programs if enrollment or other factors so require. All such changes are effective at such times as the proper authorities determine and may apply not only to prospective students but also to those who are already enrolled in the University.

General Fee

The general fee provides a partial contribution supporting essential infrastructure, facilities and institutional services necessary to promote student learning. This fee covers access to infirmary and counseling services and it supports student initiatives including, but not limited to, networks, electronic information resources, computer laboratories and smart technology classrooms. This fee also covers facility enhancements and other administrative services such as providing academic transcripts. The general fee is charged for each semester in which a student enrolls.

Payments

Tuition, fees, and other charges are payable no later than the University's posted due date. Checks or money orders should be made payable to University of New Haven. There is a penalty charge of $20 per check for all checks returned by the payer's bank.

The University withholds issuance of grades, awarding of diplomas, issuance of transcripts, and granting of honorable dismissal to any student whose account is in arrears. The University employs external collection agencies to assist with the collection of delinquent tuition accounts. Students are responsible for paying any collection costs and attorney's fees associated with the collection of their tuition account.

The University offers a deferred payment option to assist families with meeting the costs of higher education. In partnership with Tuition Management Systems (TM.S.), the nation's top-rated education payment plan provider, UNH offers an interest-free monthly payment plan that allows a family to spread education expenses over ten monthly payments per year.

There is an annual enrollment fee of $70, which includes toll-free and Internet access to education payment counselors and account information. In addition, this fee includes a life insurance policy for the person responsible for paying the bill. Information and enrollment forms for TM.S. are available by calling 1.800.722.4867, or online at www.afford.com. Application for this plan must be made at least 10 days prior to the first day of each semester.

Tuition Refund Policy

After a formal withdrawal request is initiated by undergraduate students, tuition is refunded or canceled according to the following scale:

Date of Receipt of Withdrawal Request	Percentage Canceled
1st week of semester	80 percent
2nd week of semester	60 percent
3rd week of semester	40 percent
4th week of semester	20 percent
After the 4th week	0 percent

A prorated refund, rather than a refund based on the above-mentioned scale, may be made in situations involving clearly extenuating circumstances such as protracted illness of a student. All appeals based on such circumstances must be made in writing and include documentation of the extenuating circumstances. Appeals are to be sent to the directors of Counseling and Health Services; prorated refunds will be determined by the Committee on Withdrawals. All requests for refunds should be initiated before the close of the semester of withdrawal. Any student

under the age of 18 must have the written consent of a parent or guardian indicating to whom any refund, if applicable, is to be paid in order to withdraw from the University.

The University offers tuition insurance through AWG Dewar, Inc. Tuition insurance may protect any monies paid or loans obtained in the event that a student withdraws from the University due to a documented medical condition. Additional information about this service may be obtained directly from AWG Dewar by calling 617.774.1555.

Summer Sessions and Intersession

In cases of withdrawal from a course or courses within the first week of each term, a refund of 50 percent of tuition is made. There is no refund of summer or intersession tuition after the first week.

The foregoing policy is intended to protect the University, which plans its expenses and bases its budget on full collection of tuition and fees from all registered students and assumes the obligation of supplying instruction and other services throughout the year.

Residence Hall Fee and Withdrawal Policies

- A $400 nonrefundable enrollment fee is required of new students requesting on-campus housing. A $200 nonrefundable room selection fee, which is applied to the Fall semester housing fees, is required of returning students.
- Housing and meal plan fees are billed on a semester basis in June and December.
- An activity fee of **$50** is billed each semester.
- All resident students are required to purchase a University meal plan.
- The housing agreement is binding for the 2008–09 academic year.
  - Students who cancel their housing agreement for the 2009 Spring semester and remain enrolled as full-time students for the Spring semester will be billed for the Spring semester housing fees.
  - Students who are leaving the University must withdraw from housing by January 9, 2009. Failure to meet the withdrawal deadline of January 9, 2009 will result in a charge of $100, which will be deducted from the student's damage deposit.
- Proper withdrawal includes
  - notifying the Office of Residential Life in writing that the student is leaving University housing,
  - checking out with a resident director, and
  - returning all keys to the Office of Residential Life.
- Housing fees are nonrefundable after August 30, 2008 and January 16, 2009.

FINANCIAL AID

Karen M. Flynn, B.A., M.A., Director

Christopher Maclean, B.A., M.A., Associate Director

The University of New Haven offers a comprehensive financial aid program, with students receiving assistance in the form of grants, scholarships, loans, and part-time employment. Funds are available from federal and state governments, private sponsors, and University resources. More than 80 percent of the University's full-time undergraduate students receive some form of financial assistance.

Most financial aid awards are based on an individual applicant's demonstration of need. Some funds are available on a merit basis for students who have exceptional academic records or athletic ability. Need-based awards are available only to U.S. citizens or eligible non-citizens.

Financial aid award decisions are made after careful consideration of a student's application for assistance. Eligibility for financial aid is based on financial need. Need is determined by subtracting the Expected Family Contribution (EFC), as determined by the federal "needs analysis" formula using the financial information provided on the Free Application for Federal Student Aid (FAFSA), from the Cost of Attendance. In calculating need, the Financial Aid Office attempts to consider all aspects of a student's financial circumstances and to meet the need of aid applicants through a "package" of assistance, generally including a combination of grants, loans, and employment.

Students interested in applying for financial aid are encouraged to do so as early as possible. New students must apply by March 1 for the Fall semester and December 1 for the Spring semester. Returning students must submit application materials no later than March 1. All students are encouraged to apply for aid as early as possible to ensure full consideration for available funds.

Applications completed after the deadline will be considered on a rolling basis depending upon the availability of funds.

The following application materials must be completed and submitted by each financial aid applicant:

- **Free Application for Federal Student Aid (FAFSA).** The FAFSA is required to be considered for financial aid from federal, state, and institutional student financial aid programs. Students should list the University of New Haven on the form as one of the colleges authorized to receive this information. The UNH Title IV School Code is 001397. Students should apply online at www.fafsa.ed.gov.
- **Tax Documentation.** Applicants must submit signed copies of both the student's and parents' completed federal income tax returns, with W-2 forms, from the most recent tax year prior to the academic year. Students filing as independents on the FAFSA are not required to submit their parents' tax documentation.
- **Verification.** Federal regulations require that our office verify the accuracy of the information provided on the FAFSA by an applicant for federal financial aid. This process is called verification.

Other forms and documents may be requested from applicants as their aid applications are reviewed. Upon completion of the review of an application, the Financial Aid Office will notify an applicant of his or her eligibility for financial aid.

Financial Aid Refund Policy

When students are entitled to a refund as a result of withdrawal from courses, refunds of charges and financial aid will be based on the institutional refund policy, as described in the academic policies section of the Undergraduate Catalog, and on the Return of Title IV Funds calculation, as required by Section 484B of the Higher Education Act. Federal regulations require that any unearned Title IV aid be returned to the program(s) that provided the funds.

Return of Title IV Funds

A withdrawal requires that the University calculate the amount of unearned aid a student has received. The University must determine the student's official withdrawal date as documented in the Registrar's Office. The withdrawal date is used to determine the percentage of the payment period completed and, therefore, the amount of aid a student earned. Students who have completed more than 60 percent of the term are not subject to the federal calculation.

The University must then calculate earned aid by multiplying the total aid disbursed or which could have been disbursed (excluding Federal Work Study) by the percentage of the payment period the student completed.

If less aid has been disbursed than a student has earned, then a post-withdrawal disbursement must be made. The University will notify the student or parent in writing within 30 days of the withdrawal date that a post-withdrawal disbursement is available. The student/parent must respond within 14 days of notification in order to receive the funds. The student/parent may accept all or part of the post-withdrawal disbursement.

If more aid was disbursed than earned, then the University, the student, or both must return all unearned aid in a specific order:

1) Unsubsidized Stafford Loans
2) Subsidized Stafford Loans
3) Federal Perkins Loans
4) Federal PLUS Loans
5) Federal Pell Grants
6) Federal Academic Competitiveness Grant
7) Federal Smart Grant
8) Federal SEOG
9) Other Title IV assistance for which return of funds is required

Students are responsible for repaying all unearned aid a school is not required to return, as well as any balance created on their Bursar account by the application of the Title IV return of funds formula. The University will notify the student in writing within 30 days of determining an overpayment. Students must repay as follows:

Loans: repayment according to terms of the loan

Grants: repayment is 50 percent of unearned grant

Students who owe Title IV grant repayments have 45 days to repay in full, arrange to repay the University, and arrange to repay the U.S. Department of Education.

Students who fail to take action to repay will be reported to the Department of Education and National Student Loan Data System (NSLDS) immediately after the 45-day period has elapsed.

Additional information is available from the Financial Aid Office.

Academic Requirements for the Retention of Financial Aid Eligibility

Students must be making satisfactory academic progress *and* be in good academic standing in order to be eligible to receive financial aid.

Students receiving financial aid as full-time undergraduates must successfully complete a minimum of 24 credits during the academic year in order to maintain satisfactory progress; full-time students who attend for only one semester during the academic year must complete a minimum of 12 credits. Satisfactory academic progress for part-time students is defined as successful completion of all the credits for which financial aid was awarded.

"Successful completion" is defined as the receipt of a passing letter grade (A+ to D-), and does not include the receipt of an F (Failure), INC (Incomplete), DNA (Did Not Attend), or W (Withdrawal). The requirements for good academic standing are described in the Academic Regulations section of the Catalog.

In addition, financial aid eligibility is limited to accumulated attempted hours totaling no more than 150 percent of the published credits required to receive an undergraduate degree. For example, a program that requires 120 credits x 1.5 = 180 maximum allowable credits attempted for financial aid eligibility. Every semester in which you are enrolled in school will be counted, even the semesters when you do not receive financial aid. Transfer hours from other institutions accepted by the University will also count toward the maximum credit limit.

Major Aid Programs

Grants

Federal Pell Grants — The Pell Grant is a federal program providing grant assistance to low-income students. Grants for the 2007–08 academic year ranged from $400 to $4,310, with the student's eligibility being determined by the U.S. Department of Education.

Federal Supplemental Educational Opportunity Grants — (SEOG) is a federal program to provide grant assistance to exceptionally needy students. Students are selected by the University to receive the grants.

Connecticut Independent College Student Grant Program — Funds provided by the Connecticut General Assembly are awarded to needy Connecticut residents attending the University.

Capitol Scholarship Program — Connecticut students who have finished in the top 20 percent of their high school class or who have scored 1800 or higher on their combined Scholastic Aptitude Test (SAT) may be eligible for the Capitol Scholarship. Students must obtain an application from their high school guidance office.

University Grants-in-Aid — University grants are made on the basis of need.

Presidential Scholarship — Awarded to incoming full-time freshmen who have a combined SAT score of 1200 or above on their Critical Reading and Math Combined Score or 26 ACT Composite Score, and have maintained a minimum 3.0 G.P.A. on a 4.0 scale. Awards will be renewed for up to three additional years provided the student maintains a B (3.0) cumulative average, remains a full-time student, and makes satisfactory academic progress. The deadline for consideration is May 1.

Distinguished Scholar Awards — The Distinguished Scholar Award is awarded to incoming freshmen based on a combination of high school G.P.A. and SAT/ACT scores achieved by the student. The minimum criteria are a 3.0 on a 4.0 scale and a combined SAT Critical Reading and Math score of 1050 or a Composite Score of 23 on the ACT. Awards will be renewed for up to three additional years provided the student maintains a B (3.0) cumulative average, remains a full-time student, and makes satisfactory academic progress.

Academic Achievement Award — An Academic Achievement Award is presented to students who have shown strong academic performance in high school, while maintaining active participation and leadership in community and civic organizations as well as in high school clubs and sports. Recipients of this scholarship may be awarded up to $7000 annually provided they maintain a B (3.0) cumulative average, remain a full-time student, and make satisfactory academic progress.

Presidential Scholarship for Transfer Students — Incoming transfer students who have completed a minimum of 12 credits at their previous institution and have a minimum G.P.A. of 3.0 may qualify for an academic scholarship. The award amounts vary depending on the student's G.P.A. Students may receive the award for a maximum of seven semesters provided they maintain a B (3.0) cumulative average, remain full-time students, and make satisfactory academic progress. The deadline for consideration is May 1.

If a transfer student demonstrates academic success but has completed fewer than 12 credits, the student will be evaluated for a scholarship based on the freshman academic scholarship criteria.

Phi Theta Kappa Scholarships — A transfer student who has been inducted into the Phi Theta Kappa Honor Society may be considered for an additional $2000 scholarship. This award is in addition to being considered for the Transfer Presidential Scholarship and is renewable each academic year.

Departmental Scholarships — A limited number of awards are available from the individual colleges at the University to incoming full-time freshmen.

Athletic Grants-in-Aid — Athletic grants are provided to students for participation in sports. Selection for the awards is made by the athletic department based on students' athletic abilities. Awards can range up to full tuition, room, and board. Athletic grants are available in the following sports:

Men	Women
Baseball	Basketball
Basketball	Cross Country
Cross Country	Lacrosse
Football	Soccer
Golf	Softball
Soccer	Tennis
Track and Field	Track and Field
	Volleyball

Miscellaneous State Scholarships — Students from other states may be eligible to apply for state scholarships that can be brought to Connecticut for attendance at the University of New Haven. Students should contact their state scholarship agencies for information.

Donor Scholarships — Many scholarship awards are available each year through the generosity of businesses, charitable organizations, and friends of the University. Scholarship funds are awarded from annual gifts from sponsors and from income from the University's endowments.

Loans

Federal Perkins Loan Program — Repayment on Perkins Loans begins nine months after a recipient leaves school or drops below half-time attendance, and carries a 5 percent rate of interest commencing with the start of repayment. Students are selected by the University to receive Perkins Loans.

Federal Stafford Student Loan (SSL) — The Stafford Student Loan is a federally subsidized loan program available on the basis of financial need to students enrolled at least half-time. The annual loan limits are as follows:

First year undergraduate	$3,500
Second year undergraduate	$4,500
Third year through completion	$5,500
Graduate students	$8,500

The interest is subsidized by the federal government while the student is enrolled on at least a half-time basis. Repayment begins six months after graduation or withdrawal from college. Entrance and exit counseling sessions must be conducted with all borrowers. The entrance session must be completed prior to the student's receiving the first loan check. Exit counseling must be conducted prior to a student's graduation or withdrawal. Applicants must submit a complete financial aid application.

Unsubsidized Federal Stafford Student Loan — The Unsubsidized Stafford Loan is similar to the SSL above except that it is not based on financial need and there is no in-school interest subsidy. Combined Subsidized and Unsubsidized loans cannot exceed the annual loan limits stated above.

Federal Parent Loans for Undergraduate Students (PLUS) — The PLUS Loan Program is a federal program in which parents of dependent students are permitted to apply for up to the cost of attendance minus any financial aid. Information on this program is available from the Financial Aid Office.

Student Employment

Federal Work Study Program (FWS) — This is a federal financial aid program that provides employment opportunities for needy students.

Alternative Financing Options

Tuition Management Services (TMS) — The TMS Plan offers a monthly system to pay for educational expenses through regularly scheduled payments over a ten-month contract. This plan carries an enrollment fee, but there are no interest or finance charges. Applications are available at the Bursar's Office. For further information, contact Tuition Management Services at 1.800.722.4867 or www.afford.com.

Donor Scholarships

The following scholarships are awarded at the discretion of the University and, unless otherwise noted, require no special application form.

Alumni Association Scholarships — These merit-based awards support full-time day students with exemplary academic records.

Alvine Legacy Scholarship — Established to carry on the legacy of Carol Alvine by providing educational opportunities for students unable to afford higher education, this endowed fund provides an annual award to a worthy, needy student.

Amity Charitable Trust Fund — An annual award is given from the income of this fund to a worthy, needy student. Preference is given to students from the greater New Haven area. The fund was made possible through the generosity of the Amity Club.

John J. Armstrong Scholarship — This award was established by the Connecticut Department of Corrections in honor of UNH alumni John Armstrong's retirement, and provides an annual scholarship with priority to family members of current, retired, or deceased employees of the Department of Corrections.

Edmund M. Autuori Scholarship — This is an endowed scholarship for accounting majors who demonstrate both financial need and scholastic ability.

The Barn Sale Scholarship — A scholarship is available each year for a deserving, junior or senior disabled student. The award is made possible by an endowment established by the Barn Sale, Inc.

Angela Zappia and Philip Batchelor Scholarship — Angela Zappia and Philip Batchelor created this scholarship upon their graduation from the University's Executive M.B.A. program. The annual award is made to an undergraduate or graduate student who is in good academic standing and has financial need, with preference to students enrolled in the College of Business.

Carmel Benevento Memorial Scholarship — This award is made annually to a woman entering the University as a freshman. The award was established in memory of Carmel Benevento and is based on need and academic and creative ability.

Roland and Margaret Bixler Scholarship — This endowed scholarship is awarded annually. The scholarship was established by Mr. Bixler, who is a member of the UNH Emeritus Board, and his wife, who is cofounder of Friends of the UNH Library.

Norman Botwinik Fund for Academic Excellence — This endowed scholarship is awarded annually to an undergraduate who, over a period of four years at the University, has demonstrated marked academic achievement. Mr. Botwinik is the former Chairman of the UNH Board of Governors.

Bozzuto Charity Sports Classic Scholarship — Income from this endowment provides an annual award to a needy student.

Clarice L. Buckman Scholarship Fund for Chemistry and Chemical Engineering — An annual award is given to a junior majoring in chemical engineering or chemistry in recognition of achievement and demonstration of incentive.

Coca-Cola Scholarship — Established by the Coca-Cola Foundation, an award is made annually to an incoming student who attended the Connecticut Pre-Engineering Program (CPEP) at any established Connecticut college or University for at least two years. The scholarship is renewable over a five-year period.

Connecticut Student Loan Foundation Scholarship — The Connecticut Student Loan Foundation provides an annual scholarship to a needy student.

C. Cowles and Co. Scholarship — This award is made annually to a Connecticut resident with financial need who aspires to a career in manufacturing.

Aldo DeDominicis Foundation — Scholarships are awarded annually to students majoring in the field of

communication. Awards are based on financial need and academic achievement.

Dr. Lawrence and MaryLou DeNardis Scholarship — This award is made annually to a full-time undergraduate with financial need and academic achievement. The student selected may not also be a recipient of the Presidential Scholarship.

William DeSenti Scholarship — An annual award is made to a needy student in the Tagliatela College of Engineering.

Robert B. Dodds Scholarship — This endowed scholarship is awarded annually to an engineering student. The fund was established by Mr. Dodds as his gift to the Fund for Engineering.

Clarence Dunham Scholarship — A merit-based award is made each year to a deserving student majoring in civil engineering. Selection is made by the Civil Engineering faculty.

Rick Eaton Memorial Scholarship — This scholarship was established in memory of Rick Eaton, Sr., who served as director of public affairs at the University. It is awarded to students who demonstrate financial need, and who are motivated and determined. Preference is given to those majoring in communication.

Echlin Family Scholarships — Several annual awards of $2000 are made to needy business or engineering students. The awards are made possible through an endowment established through the generosity of John and Beryl Echlin.

Lynn Ellis Endowed Scholarship — Established in honor of Lynn Ellis, a former professor at the University, an award is made annually to a student in the College of Business with academic promise and financial need.

Ernst and Young Scholarship — An award is made each year from this endowment to a student majoring in accounting.

Murray and Shirley Gerber Scholarship — This award is made to students in the College of Business or Engineering based on their entrepreneurship and leadership abilities.

James Jacob Gerowin Memorial Scholarship — An award is made to a needy engineering student showing academic promise. The award is in memory of James Gerowin of the Class of 1985.

Anthony Giusto Scholarship — This award, given annually to a Connecticut resident studying criminal justice, is based on academic merit and financial need.

Wilfred Harricharan Scholarship — This award was established by Dr. Harricharan, former professor of management at the University, to provide financial support for students in the College of Business with a preference for those majoring in business administration.

Dr. John D. Hatfield Memorial Scholarship — An annual award is made in memory of Dr. John D. Hatfield, who served as executive vice president and provost at UNH. The scholarship supports an undergraduate or graduate student with financial need and good academic standing, with preference to recipients who demonstrate care and concern by helping others bring out the best in themselves.

William Randolph Hearst Scholarship — This endowed scholarship is made possible through the generosity of the William Randolph Hearst Foundation. It is awarded annually to first-generation and minority students.

The Robert Hendrickson Scholarship — Mr. Hendrickson, an alumnus of UNH, established this award in 2006 in order to give back to the University that gave him the chance to obtain an education. It is awarded to students who demonstrate motivation, determination, and financial need.

David Hennessey Memorial Scholarship — David Hennessey was a highly respected member of the University community, having received two master degrees from UNH, as well as serving as director of

human resources and adjunct faculty. This memorial scholarship will be awarded annually to an undergraduate or graduate student in good academic standing and demonstrating financial need, with preference to those residing in the Lower Naugatuck Valley region, including Seymour, Ansonia, and Derby, and who are enrolled in the University's industrial/organizational psychology or communication programs.

Hershey-Frey Scholarship — This endowed scholarship is available to students residing in the Naugatuck Valley. Preference is given to students enrolled in the Tagliatela College of Engineering. The award is funded through the generosity of the Paul H. Hershey Foundation and Mildred and John Frey.

Paul Kane Memorial Scholarship — An award is available each year to an active scholar-athlete, with preference given to a Hamden, Connecticut, resident. The award is made in memory of Paul Kane, a University alumnus who was killed in the service of his country.

Nathanial Kaplan Memorial Scholarship — An award in memory of Nathanial Kaplan, a former English professor, is made each year to a student who has been enrolled in the College of Arts and Sciences for at least two years. Student must demonstrate financial need.

An Fu Wang Lee Scholarship — This endowed fund was established by Dr. Henry Lee in memory of his mother and her heartfelt interest in providing opportunities to students unable to afford tuition on their own. An annual scholarship is awarded to needy students who are of Chinese ancestry and/or are pursuing a degree in the Henry C. Lee College of Criminal Justice and Forensic Sciences.

Peggy Leuzzi Memorial Scholarship — An annual award is made in memory of Mrs. Leuzzi, a former employee of the University. The scholarship is made possible through the generosity of Joseph Macionus.

Martin Luther King, Jr., Memorial Scholarship — An annual award in honor of Dr. King is made to a deserving, needy student. Preference is given to minority students.

Ahmed Mandour Memorial Scholarship — An award is available each year to a junior or senior student majoring in economics enrolled as a part-time/evening student. The award is made in memory of Dr. Mandour, a former dean at the university.

Arnold Markle Scholarship — An annual award is made to a criminal justice major in memory of Arnold Markle, former State's Attorney for the Judicial District of New Haven.

Ellis C. Maxcy Scholarship — This scholarship was established in memory of UNH founder and former president and chairman of the board Ellis C. Maxcy, in recognition of the seminal role he played in the development of the University. The award is presented annually to a "nontraditional" undergraduate or graduate student who comes to UNH from the workplace and demonstrates high achievement, exemplary character, and leadership within his or her community.

Edward J. McCormack Memorial Scholarship — The intent of this memorial scholarship is to reflect the interest and life of Edward J. McCormack by making an annual award to a student majoring in sports management. The scholarship is renewable based on the recipient maintaining good academic standing.

James R. McCormack Memorial Scholarship — Established by Nancy and Kevin McCormack in memory of their son James, a student in the fire science program at the University, this full-tuition scholarship is awarded annually to a student enrolled in the fire science program who demonstrates financial need. Applications for this scholarship are available in the Financial Aid Office.

William J. and Virginia S. McCurdy Scholarship — This endowed scholarship is supported through the McCurdy Family Charitable Trust and is awarded annually to a student with demonstrated financial need.

Arthur Moulton Memorial Scholarship — Established by Evelyn and David Moulton in honor of Arthur Moulton, former president of the George

Ellis Company, this full-tuition scholarship is awarded to a student in the Tagliatela College of Engineering who demonstrates excellent academic promise and financial need. Applications for this scholarship are available in the Financial Aid Office.

Joseph O'Dowd Memorial Scholarship — This scholarship is granted to a student in the Department of Fire Science who best exemplifies the personal qualities of Fire Specialist Joseph O'Dowd and who has completed his or her freshman year with a 3.0 G.P.A. or higher.

Parents Association Scholarship — This is an endowed scholarship funded by the UNH Parents Association.

Virginia M. Parker Scholarship — Each year Chi Kappa Rho sorority makes an award from this endowed scholarship to an undergraduate woman.

H. Pearce Family and Friends Scholarship — This endowed scholarship was made possible through the Pearce Family, longtime friends and supporters of the University. It is awarded to a resident of the state of Connecticut who demonstrates financial need and academic ability.

Marvin K. Peterson Evening Student Council Scholarship — This scholarship was established in 1969 by the Evening Student Council of the University of New Haven to honor past president Marvin K. Peterson (1953–1973). The scholarship, awarded to undergraduate part-time/evening students, is entirely funded by the Evening Student Council.

Reid Achievement Scholarship — Distinguished UNH alumnus and Board of Governors member Laura Reid established this scholarship to provide tuition support to students with demonstrated financial need, academic promise, and/or achievement in a club, sport, or activity.

Rosazza Scholarship — This fund was established in memory of Eugene Rosazza, an alumnus of the University, and is made annually to a needy student with an exemplary academic record.

New Haven Wives of Rotarians — An annual award from this endowment is made to a female student from the Greater New Haven area on the basis of academic achievement and financial need.

Douglas D. Schumann Scholarship — This endowed scholarship is awarded annually, on the basis of personal and academic integrity, to an engineering student who has completed his/her freshman year.

Donald R. Scott Scholarship — This scholarship is in memory of Donald R. Scott, former Chief of Campus Police at UNH, and is awarded jointly by the University of New Haven and the West Haven Black Coalition.

William A. Simons Scholarship — This scholarship fund, created by William A. Simons, an alumnus of the University's M.B.A. program, makes an annual award to an undergraduate or graduate student in good academic standing and in financial need, with preference to students enrolled in the Tagliatela College of Engineering, particularly those intending to major in chemical engineering.

Helen Jackson Sneed Scholarship Fund — This scholarship was established by Helen Sneed in appreciation of her excellent education at UNH and is awarded to female or minority students sharing a similar background to the donor.

Louis and Mary Tagliatela Endowed Scholarship — This award is made annually to a junior or senior majoring in a field related to either the construction or the hotel industry and demonstrating financial need and academic merit.

Edward Tichy Memorial Scholarship — Established by Karen Tichy in memory of her father, who graduated from UNH in 1951 with an engineering degree. Mr. Tichy was a strong believer in the power of education. The scholarship is designated to assist a part-time student, preferably from a family of three or more children, who exhibits passion, commitment to learning, and promise in his or her chosen field.

Eat Healthy Promote Wellness, The Tichy Legacy Scholarship for Nutrition — Established by Karen Tichy, this scholarship honors the importance of nutrition in our general health. It is awarded annually to a student demonstrating financial need who shows promise in the field of nutrition and dietetics. The recipient shall provide community outreach under the guidance of the nutrition faculty.

Betty Lorello Treadwell Scholarship — This award was established by Charles and Lawrence Treadwell in memory of their mother. The scholarship is awarded to a full-time, non-traditional student in need of financial assistance.

Dany J. Washington Scholarship — This scholarship is in memory of Dany Washington, former dean of continuing education at UNH, and is awarded to nontraditional adult students based on scholarship and leadership displayed in the University or community environment.

Robert Wilson Scholarship — Awarded annually to a freshman and renewable for up to three years, providing a 3.0 G.P.A. is maintained, this award is based on the following criteria: an African-American from New Haven County demonstrating financial need and high achievement in academics and other activities.

Mrs. Yeh Ko Hsien-Tao Scholarship — Created by Dr. Poe-Len Ye in memory of his mother, this scholarship supports students from Taiwan and the People's Republic of China, as well as students of Chinese/Asian ancestry, who are majoring in criminal justice or forensic science and demonstrate academic achievement and financial need.

Rubin W. Vine Veterans Scholarship — UNH Board member and World War II veteran Rubin Vine established this award to provide scholarships to veterans and/or family members of veterans in financial need.

UHY Scholarship — This award is made to accounting majors with high grade point averages and demonstrated financial need. The scholarship was made possible through the generosity of the Simione, Scillia, Larrow and Dowling Charitable Foundation.

Dorothy S. Weiss Scholarship — This scholarship, established by UNH alumnus Frank Warner in honor of his friend Dorothy Weiss, is awarded annually to a student who is in good academic standing and demonstrates financial need.

***World Journal* Scholarship —** This scholarship was established in 2001 by Howard Lee, president of the *World Journal,* and the Henry C. Lee Institute of Forensic Science, in honor of the victims whose lives were sacrificed on September 11, 2001. An award is made annually to an undergraduate or graduate student attending the University's Henry C. Lee College of Criminal Justice and Forensic Sciences, with priority given to family members of police officers or firefighters who sacrificed their lives or were injured during the September 11, 2001 attacks, and secondary preference to family members of any victim who perished in the attacks.

Dr. Frank R. Yulo Memorial Scholarship — This fund was created by Lori A. and Robert F. Polito, Jr., E.M.B.A. '98, in memory of Robert's uncle, Dr. Frank R. Yulo, a distinguished state educator. Recognizing Dr. Yulo's commitment to educational opportunities for all, this scholarship is awarded to a minority student or student of color who is majoring in education and has demonstrated financial need.


UNIVERSITY OF NEW HAVEN
CONNECTICUT

COLLEGE OF ARTS AND SCIENCES

Dr. Ronald H. Nowaczyk, Ph.D., Dean

The College of Arts and Sciences prepares students for lifelong learning. Through its varied academic disciplines, the College provides the foundation for success as a global citizen. The College's degree programs prepare students for meaningful careers or for continued study in graduate or professional schools. The College offers the bachelor of arts, the bachelor of science, a number of associate degrees and undergraduate certificates. The College's graduate programs lead to the master of arts and master of science degrees, and to a number of graduate certificates. The College also complements programs in other Colleges at UNH and offers many of the essential courses in the University Core Curriculum. Those undecided about a major will find a welcoming home in the undeclared major program that allows ample flexibility to sample courses from a variety of disciplines.

The dynamic nature of the world today requires students to be open-minded, critical thinkers who can approach society's issues and problems from a variety of perspectives. Your education in the College of Arts and Sciences is designed to provide that background. We offer you the opportunity to study and learn historical, cultural, social, individual, and political perspectives on your world. Our goal is to challenge you to take advantage of the many resources and talents within the College to help you prepare for your future.

The professors in the College of Arts and Sciences are committed to the student learning experience. The commitment goes beyond classroom instruction to include student opportunities to work with faculty on their scholarship and research, study abroad, and to apply knowledge and skills through internships or in the community working on real-life projects. We also expect students to expand their knowledge and understanding of the world to a global level. Graduates of the College of Arts and Sciences are prepared to make an impact in tomorrow's world.

The College of Arts and Sciences also offers a host of extracurricular activities to supplement the learning experience. These events include campus-wide debates, symposia, and faculty forums. The College adds to New Haven's vibrant cultural environment. It supports the UNH Theater through its student productions. The Seton Gallery is a well-established University art gallery featuring, in addition to a permanent collection, a wide variety of work by students, renowned artists, and sculptors at shows throughout the academic year.

For students, staff and faculty, the College has developed Arts@Noon events that feature UNH talent in poetry, theatre, music, dance, and film. Through Arts@Night, the College presents entertainment events on campus for UNH and public attendance, with performances in various musical styles, comedy, and dance.

Programs and Concentrations

Undergraduate Programs

Bachelor of Arts

Art
Chemistry
Communication
English
  Literature
  Writing
Global Studies
Graphic Design
History
Interior Design
  Pre-architecture
Liberal Studies
Mathematics
  Education
Music
Music Industry
Music and Sound Recording
Political Science
Psychology
  Community/Clinical
  Forensic Psychology*
  General Psychology
Undeclared

*Permission for approval of this concentration is being sought from the Connecticut Department of Higher Education.

Bachelor of Science

Biology
  Biochemistry
  General Biology
  Pre-medical/Pre-dental/Pre-veterinary
Biotechnology
Communication
Dental Hygiene
Environmental Science
Marine Biology
Mathematics
  Computer Science
  Applied Mathematics
  Statistics
Music and Sound Recording
Nutrition and Dietetics

Associate in Science

Communication
Dental Hygiene
General Studies
Graphic Design
Interior Design

Graduate Programs

Master of Arts

Community Psychology
Industrial/Organizational Psychology

Master of Science

Cellular and Molecular Biology
Education
Environmental Science
Human Nutrition

Graduate Certificates

Applications of Psychology
Geographic Information Systems
International Relations
Legal Studies
Mental Retardation Services
Psychology of Conflict Management

Teaching as a Career

Students interested in earning a teaching certificate to qualify to teach at the elementary or secondary level may do so by entering the graduate program in education at UNH. This Bachelors Plus program enables students in any undergraduate major to complete both the B.A. and an M.S. degrees in Education in five years.

Minors

It is highly recommended that students working toward a degree in one area of study give serious thought to organizing their elective courses so as to receive a minor in a second discipline. A minor usually consists of 18 credits devoted to the study of

either a group of courses on related subjects or a series of courses offered by one department.

Students interested in studying for a minor should consult with the chair of the department offering the minor. Possible minors are listed below:

Art
Bioengineering
Biology
Black Studies
Chemistry
Communication
English
Environmental Science
History
Mathematics
Multimedia
Music
Nutrition
Philosophy
Physics
Political Science
Psychology
Sociology
Theatre Arts

Certificates

Students can take their first step toward an undergraduate degree by registering for one of the certificates offered by the College of Arts and Sciences. Each certificate is carefully designed as a concentrated introduction to a particular subject area and generally consists of courses totaling 15 to 18 credits. Later, students may choose to apply the certificate credits they have earned toward their undergraduate degree at the University. The following certificates are offered:

Journalism
Mass Communication
Public Policy

University Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the University Core Curriculum.

General Policies in the College of Arts and Sciences

- Each student is assigned an academic adviser. Normally, the adviser is a member of the faculty in the major department for the student's degree program.
- A student may select a minor in a department other than the major department after consultation with the adviser or the appropriate department chair.
- To receive a degree from the College of Arts and Sciences, the student must be awarded his/her last 30 credits by the University of New Haven.
- A minimum of 120 credits is required for graduation.

Coordinated Course Policy

To implement the University's coordinated course policy, the College of Arts and Sciences has adopted the following additional guidelines:

- A student may take a maximum of two Arts and Sciences courses on a coordinated basis. The courses must be either (a) upper-division courses; that is, equivalent to 300- or 400-level courses at UNH, or (b) courses required by the student's major program; that is, non Arts and Sciences elective courses.
- Coordinated courses from two-year colleges will be accepted only for students who have freshman or sophomore standing at UNH. A student who has completed a total of 57 credits cannot obtain consent for a coordinated course taken at a two-year college.
- Any exceptions to the previously stated guidelines must be approved by the dean of the College of Arts and Sciences.
- Students should note that in all cases they must seek approval before taking a coordinated course.

B.A., Liberal Studies

The B.A. degree in liberal studies serves students whose needs are addressed by an interdisciplinary program of study. The flexible nature of this program permits students to integrate courses from across the

University for the achievement of personalized educational goals. Those goals may be directed toward the realization of specific career objectives not met by other programs.

All students earning a bachelor's degree in liberal studies must complete the University Core Curriculum as part of the 121 credits required for the degree.

Students will also select a minimum of eight courses from two of the focus areas listed below, for a minimum of 48 credits. Students should choose a minimum of three and a maximum of six courses from any one of the disciplines within each of the four focus areas, which ensures a breadth of study within this program. Students must choose at least ten focus-area courses from the 300 level or above that they have not taken to satisfy Core Curriculum requirements.

Focus Areas

Focus Area 1: Humanities

Disciplines: Communication, English, Modern Languages, History, Philosophy

Focus Area 2: Mathematics and the Natural Sciences

Disciplines: General Biology, Chemistry, Environmental Science, Marine Biology, Mathematics, Physics

Focus Area 3: Social/Behavioral Sciences

Disciplines: Economics, Political Science, Psychology, Sociology, Legal Studies

Focus Area 4: Visual and Performing Arts

Disciplines: Art, Graphic Design, Interior Design, Music, Theater

In consultation with the Arts and Sciences adviser, students develop a personal plan of study. This plan includes an elective sequence of credits to support the student's academic/professional goals. Students may choose their elective sequence from the areas of arts and sciences, business, engineering, or public safety/professional studies.

A.S., General Studies

The College of Arts and Sciences offers the A.S. degree in general studies to serve students who seek a general liberal arts education for purposes of personal enrichment. Nearly half of the 61 credits required for the degree are free electives. This flexibility permits students to take courses in a number of different fields prior to choosing a major. By judicious choice of electives, it is possible to transfer into majors in any of the Colleges in the University.

Students planning to transfer to four-year programs in the College of Arts and Sciences should note additional core requirements in science and mathematics, English literature, art, and social science, as well as special requirements in particular major programs.

Required Courses

Students must complete 61 credits of courses to earn the associate degree with a general studies major, including the courses listed below.

E 105 Composition (cc)
E 110 Composition and Literature (cc)
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times (cc)
Plus 1 mathematics course: M 109
or M 127
or higher (cc)
1 literature or philosophy course* (cc)
1 art or music or theatre course* (cc)
1 computer course* (cc)
1 science course with laboratory* (cc)

4 social science courses: EC 133, P 111, PS 121, and SO 113 (cc)
cc — Course which satisfies the University Core Curriculum requirements
* — Courses chosen from the University Core Curriculum listing

Undeclared Major

UNH recognizes that students may enter college wanting to explore several options before declaring an academic major. The undeclared major is designed

for those students. The program is designed to help students select a major that best suits their life and career objectives. This program is also open to first-year and second-year students at UNH who are contemplating a change in majors. It is estimated that nationally over 40 percent of undergraduates change majors in college.

Features

Upon enrollment at UNH, a student choosing the undeclared major is assigned a faculty adviser. The adviser has the responsibility to guide the student in course selection and exploration of academic disciplines and majors. We believe quality advising is critical to the success of undeclared major students. Faculty advisers work with students to select courses in disciplines of interest so that students can explore their options.

The faculty adviser works with students and the Office of Student Life to learn more about the students' interests through personality and career inventories.

At any point during the first two years of study, students have the opportunity to declare a major once they decide on a course of study.

Many of the courses in the undeclared major are selected to meet the University Core Curriculum requirements so that once a major is declared the student is able to smoothly transition into that curriculum. The core education requirement (40 credits) is a University requirement for all UNH programs. The focus of the core is to ensure that graduates are

- Good thinkers, speakers, and writers
- Skilled at analysis and problem solving
- Skilled at using today's technology
- Effective and responsible citizens
- Aware of cultural similarities and differences globally
- Sensitive to artistic and cultural accomplishments

Other courses are selected to enable students to learn more about specific majors and decide if the major is a good match for them.

Students transferring from another institution may select the undeclared major while they consider a major from among the many offered at UNH.

While the undeclared major is part of the College of Arts and Sciences, the College works closely with the other Colleges — the College of Business, the Tagliatela College of Engineering, and the Henry C. Lee College of Criminal Justice and Forensic Sciences — to best meet the needs of students with an undeclared major.

Art

See VISUAL AND PERFORMING ARTS > Visual Arts.

Biology and Environmental Science

Chair: Roman N. Zajac, Ph.D.

Professors Emeriti: Burton C. Staugaard, Ph.D., University of Connecticut; H. Fessenden Wright, Ph.D., Cornell University

Professors: R. Laurence Davis, Ph.D., University of Rochester; Charles L. Vigue, Ph.D., North Carolina State University; Henry E. Voegeli, Ph.D., University of Rhode Island; Roman N. Zajac, Ph.D., University of Connecticut

Associate Professors: Carmela Cuomo, Ph.D., Yale University; Michael J. Rossi, Ph.D., University of Kentucky; Eva Sapi, Ph.D., Eotvos Lorand University

Lecturers: James Ayers, M.S., Purdue University; Nina Flay, Ph.D., University of Health Sciences/ Chicago Medical School

Practitioners-in-Residence: Norman Abell, D.P.M., Ohio College of Podiatric Medicine; David DePodesta, M.B.A., Quinnipiac University; Anthony Melillo, M.S., University of New Haven

The Co-op Program

The department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work

experience in their career field. For further details see the "Office of Internships and Employer Relations" earlier in the catalog, or contact the co-op coordinator for the College of Art and Sciences.

Biology

Biology provides one of the cornerstones of a liberal education by increasing knowledge and appreciation of oneself and of other living organisms in the ecosphere. It is an active and exciting field leading to careers in drug discovery, medicine, and education. As a major, biology prepares the student for professional or graduate training or for technical and research positions in one of the health or life science fields and also the various sub-disciplines of the biological sciences.

B.S., Biology

Students earning a B.S. degree with a major in biology must complete 122–124 credits. Courses include the University Core Curriculum and the course requirements for the particular biology concentration as indicated below.

Concentration in Pre-medical/Pre-dental/ Pre-veterinary Medical Biology

This concentration gives the student the basic entrance requirements of virtually every U.S. college of medicine, dentistry, and veterinary medicine. Entrance into these colleges is highly competitive, and completion of the concentration does not guarantee acceptance into a medical, dental, or veterinary medical college. Graduates have gone on to pursue medical, dental, and veterinary medical degrees at such schools as Georgetown University, Tufts University, the University of Connecticut, Ohio State University, and the University of Tennessee. Students who complete the program but decide not to pursue a medical career are highly qualified to enter the workforce in one of the technically oriented research, health, or related life science fields. In addition to the University Core Curriculum and seven free electives, the following courses are required:

BI 253–254 Biology for Science Majors with Laboratory I and II
BI 301 Microbiology with Laboratory
BI 308 Cell Biology with Laboratory
BI 311 Molecular Biology with Laboratory
BI 461 Biochemistry with Laboratory
BI 493 Evaluation of Scientific Literature
CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry I and II Laboratory
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry I and II Laboratory
CH 211 Quantitative Analysis with Laboratory
M 117 Calculus I
M 228 Elementary Statistics
PH 103–104 General Physics I and II with Laboratory

Plus three of the following:

BI 259–260 Vertebrate Anatomy and Physiology with Laboratory I and II
BI 304 Immunology with Laboratory
BI 306 Genetics
BI 501 Protein Biochemistry and Enzymology
BI 503 Nucleic Acid Biochemistry
BI 506 Genomics
BI 520 Bioinformatics
CH 221 Instrumental Methods of Analysis with Laboratory

Concentration in Biochemistry

This concentration is most appropriate for students interested in a career in the rapidly growing fields of biotechnology and biomedical/pharmaceutical research or in pursuing an advanced degree in biochemistry or molecular biology. The program offers extensive hands-on experience in biochemical, cellular, and molecular techniques. Recent graduates are employed at Bristol-Myers Squibb, Protein Sciences, Bayer Corporation, Pfizer, U.S. Surgical, Neurogen Corporation, Cytotherapeutics, Curagen, and Yale University School of Medicine. In addition to the University Core Curriculum and seven free electives, the following courses are required:

BI 253–254 Biology for Science Majors with Laboratory I and II
BI 301 Microbiology with Laboratory

BI 308 Cell Biology with Laboratory
BI 311 Molecular Biology with Laboratory
BI 461 Biochemistry with Laboratory
BI 493 Evaluation of Scientific Literature
CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry I and II Laboratory
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry I and II Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
M 117 Calculus I
M 228 Elementary Statistics
PH 103–104 General Physics I and II with Laboratory

Plus two of the following biochemistry courses:

BI 501 Protein Biochemistry and Enzymology
BI 502 Biochemistry of Bioenergetics
BI 503 Nucleic Acid Biochemistry

Plus two of the following restricted electives:

BI 304 Immunology with Laboratory
BI 506 Genomics
BI 511 Molecular Biology of Proteins with Laboratory
BI 513 Molecular Biology of Nucleic Acid with Laboratory
BI 520 Bioinformatics

Concentration in General Biology

This concentration gives the student a general overview of the biological sciences. It is appropriate for the student with a broad interest in biology. In addition to the University Core Curriculum and seven free electives, the following courses are required:

BI 253–254 Biology for Science Majors with Laboratory I and II
BI 301 Microbiology with Laboratory
BI 308 Cell Biology with Laboratory
BI 311 Molecular Biology with Laboratory
BI 461 Biochemistry with Laboratory
BI 493 Evaluation of Scientific Literature
CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry I and II Laboratory
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry I and II Laboratory
M 117 Calculus I
M 228 Elementary Statistics
PH 103–104 General Physics I and II with Laboratory

Plus four of the following:

BI 259–260 Vertebrate Anatomy and Physiology with Laboratory I and II
BI 304 Immunology with Laboratory
BI 306 Genetics
BI 320 Ecology with Laboratory
BI 501 Protein Biochemistry and Enzymology
BI 503 Nucleic Acid Biochemistry
BI 506 Genetics
BI 510 Environmental Health
BI 520 Bioinformatics
CH 221 Instrumental Methods of Analysis with Laboratory
EN 500 Environmental Geoscience
MR 260 Marine Vertebrate Zoology with Laboratory
MR 300 Marine Ecology with Laboratory
MR 310 Marine Biology with Laboratory

B.S., Biotechnology

The bachelor of science program in biotechnology prepares students to enter the growing biopharmaceutical and biotechnical fields. The program integrates courses in biochemistry, genetics, and cellular and molecular biology.

All students earning a B.S. degree with a major in biotechnology must complete 128 credits. Courses include the University Core Curriculum, the required courses listed below, and elective courses.

Required Courses

BI 253–254 Biology for Science Majors with Laboratory I and II
BI 301 Microbiology with Laboratory
BI 304 Immunology with Laboratory
BI 306 Genetics
BI 308 Cell Biology with Laboratory
BI 311 Molecular Biology with Laboratory
BI 461 Biochemistry with Laboratory
BI 493 Evaluation of Scientific Literature
BI 513 Molecular Biology of Nucleic Acid with Laboratory
CH 115–116 General Chemistry I and II

CH 117–118 General Chemistry Laboratory I and II
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry Laboratory I and II
CH 221 Instrumental Methods of Analysis with Laboratory
M 117 Calculus I
M 228 Elementary Statistics
PH 103–104 General Physics I and II with Laboratory

Plus two of the following:

BI 503 Nucleic Acid Biochemistry
BI 506 Genomics
BI 511 Molecular Biology of Proteins with Laboratory
BI 520 Bioinformatics

Minor in Biology

To minor in biology, students must complete the courses listed below. In some instances, an upper-level biology course can be substituted for general biology.

BI 121–122 General and Human Biology with Laboratory I and II
or
BI 253–254 Biology for Science Majors with Laboratory I and II
BI 261 Introduction to Biochemistry
or
BI 461 Biochemistry with Laboratory

Plus the following:

BI 301 Microbiology with Laboratory
BI 308 Cell Biology with Laboratory
BI 311 Molecular Biology with Laboratory

Environmental Science

Environmental scientists are employed by municipal, state, and federal agencies and by consulting companies and businesses both large and small. They work on problems such as wetland mapping and protection; watershed management; ground and surface water contamination; aquifer delineation and protection; marine resource management; crop and pest management; natural hazards; regulatory compliance; environmental health and safety; water, wastewater, and air treatment; and pollution prevention and remediation.

Usually, specialized training is necessary if one wishes to hold an administrative job at a high salary level. Our programs are designed to enable students to enter a graduate or specialty school to continue their education. Examples of advanced study include a graduate program in environmental science or engineering; a school of forestry, planning, or public health; a program in urban ecology or environmental geology; or even, with proper selection of electives, business or law school.

The B.S. degree program establishes a solid background in the biological and earth sciences, chemistry, physics, and mathematics in the first three years. In the fourth year students concentrate on advanced environmental science courses.

B.S., Environmental Science

Required Courses

All students earning a bachelor's degree in environmental science must complete the University Core Curriculum and the courses listed below.

EN 101 Introduction to Environmental Science
EN 102 Environmental Science Laboratory
EN 500 Environmental Geoscience
EN 502 Environmental Effects of Pollutant
BI 253–254 Biology for Science Majors I and II with Laboratory
BI 320 Ecology with Laboratory
BI 510 Environmental Health
CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry Laboratory I and II
CH 211 Quantitative Analysis with Laboratory
PH 103–104 General Physics I and II with Laboratory
M 228 Elementary Statistics

Plus 21 to 28 credits of biology, science, or chemistry electives

CH 201–202 Organic Chemistry I and II
and
CH 203–204 Organic Chemistry Laboratory I and II
M 109 Intermediate Algebra
and
M 115 Pre-Calculus
or
M 115 Pre-Calculus
and
M 117 Calculus I
or
M 117–118 Calculus I and II

Plus four electives

Minor in Environmental Science

The minor in environmental science provides a useful background for students majoring in other areas who have concern for the environment. For example, students majoring in political science might well combine their program with a minor in environmental science. Another useful combination is an environmental science minor and a major in business administration or engineering.

For specific information concerning a minor in environmental science, please consult with the program coordinator.

Required Courses

EN 101 Introduction to Environmental Science
EN 102 Environmental Science Laboratory
EN 320 Introduction to Environmental Geoscience
or
EN 500 Environmental Geoscience
EN 540 Introduction to Geographical Information Systems
BI 320 Ecology with Laboratory

Plus 3 of the following:

EN 502 Environmental Effects of Pollutants
EN 521 Hydrology
EN 525 Geomorphology
MR 300 Marine Ecology with Laboratory
MR 330 Coastal Resources Management
MR 331 Marine Conservation and Restoration

B.S., Marine Biology

This program prepares students to enter the rapidly expanding fields of aquaculture, resource management, environmental assessment, protection and conservation, biotechnology, and education related to estuarine, coastal, and marine environments. The level of experience required for an individual to contribute in these fields is not adequately satisfied by an undergraduate degree in biology or environmental science; therefore, individuals with specific, advanced, and focused training are needed. This program, with a strong basic emphasis on the biological and chemical sciences, will prepare students for these fields.

Required Courses

All students majoring in marine biology must complete the University Core Curriculum and the following courses:

MR 101 Introduction to Marine Biology
MR 102 Seminar in Marine Biology
MR 200 Fundamentals of Oceanography
MR 260 Marine Vertebrate Zoology with Laboratory
MR 300 Marine Ecology with Laboratory
MR 310 Marine Botany with Laboratory
MR 320 Marine Pollution
MR 501–502 Senior Project in Marine Biology I and II
BI 250 Invertebrate Zoology with Laboratory
BI 253–254 Biology for Science Majors with Laboratory I and II
BI 301 Microbiology with Laboratory
BI 320 Ecology with Laboratory
CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry Laboratory I and II
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry Laboratory I and II
HS 102 Modern Western World
M 115 Pre-Calculus
M 117 Calculus I
M 228 Elementary Statistics
PH 103–104 General Physics I and II with Laboratory

Plus two of the following restricted electives:

CH 221 Instrumental Methods with Lab
EN 533 Special Topics in Field Geology
EN 540 Introduction to Geographical Information Systems

MR 330 Coastal Resources and Management
MR 331 Marine Conservation and Restoration
MR 410 Marine Aquaculture and Biotechnology
MR 420 Marine Biogeochemistry with Lab

Plus one of the following:

BI 306 Genetics
BI 308 Cell Biology with Laboratory
BI 311 Molecular Biology with Laboratory
BI 461 Biochemistry with Laboratory

Minor in Bioengineering

No rigid group of courses constitutes a minor in bioengineering. Students wishing to follow such a program should major in one aspect of engineering and take a minor (20 credits) in biology, or the biology major program may be combined with a minor or concentration in engineering. Students should consult with the particular engineering and biology department chairs before starting the program.

Teaching Biology

Students interested in earning a teaching certificate in secondary education in biology may enter the graduate program at UNH. The B.S. in biology with a concentration in general biology is the best choice for a major for those planning to teach at the secondary level, but other related majors are also acceptable. Please contact the Education Department for additional information.

Biotechnology

See BIOLOGY AND ENVIRONMENTAL SCIENCE.

Chemistry

The Department of Chemistry and Chemical Engineering resides in the Tagliatela College of Engineering but offers the B.A. degree in chemistry through the College of Arts and Sciences. Please see the departmental listing in the Tagliatela College of Engineering section of the catalog for additional information, including a list of faculty members and details on other degree programs offered by the Department.

B.A., Chemistry

This program is designed to provide a traditional liberal arts background with the basic requirements of a chemistry major.

Required Courses

All students in the B.A. program in chemistry must complete 125 credits. Courses must include the University Core Curriculum and the following:

CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry I and II with Laboratory
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry I and II Laboratory
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
CH 331–332 Physical Chemistry I and II
CH 333–334 Physical Chemistry I and II Laboratory
CH 341 Synthetic Methods in Chemistry
CH 411 Chemical Literature
CH 412 Seminar
CH 501 Advanced Organic Chemistry
CH 521 Advanced Inorganic Chemistry
EC 133 Principles of Economics
M 117–118 Calculus I and II
M 203 Calculus III
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Opticswith Laboratory

Plus 24 credits of electives

B.S., Chemistry

Minor in Chemistry

These programs appear in this catalog under the Tagliatela College of Engineering.

Teaching Chemistry

Students interested in earning a teaching certificate in secondary education in chemistry may enter the graduate program at UNH. The B.A. or B.S. in chemistry is the best choice for a major for those planning to teach at the secondary level, but other related majors are also acceptable. Please contact the Education Department for additional information.

Communication, Film, and Theatre

Chair: Jerry L. Allen, Ph.D.

Professors: Jerry L. Allen, Ph.D., Southern Illinois University at Carbondale; Marilou McLaughlin, Ph.D., University of Wisconsin; Steven A. Raucher, Ph.D., Wayne State University; Donald C. Smith, Ph.D., University of Massachusetts at Amherst

Instructor: Paul C. Falcone, M.B.A., University of New Haven

Lecturer: Robert C. Boles, M.F.A., Sarah Lawrence College

Students in this program develop a comprehensive understanding of interpersonal communication as well as organizational communication, public relations, advertising, and mass communication (journalism, radio, television, and film). The program blends theoretical concepts and skills, academic rigor, and hands-on experience to prepare students for careers in business, the public sector, or the media, or for additional studies at the graduate level.

An active internship is a valuable complement to the student's classroom studies. The Department offers internships with regional and national businesses, public service organizations, and print and electronic media. Communication majors can gain additional experience through writing for *The Charger Bulletin* (the student newspaper), working at WNHU-FM (the campus radio station), doing programming for local television, or producing specialized film and video programs.

Department faculty have served as editors or associate editors of more than a half dozen of the top-tier scholarly journals in the communication field and have received national and international recognition. All faculty members do research, publish, and have practical experience in their communication specialties. Faculty and students belong to professional organizations such as the International Communication Association; the Public Relations Society of America; the Eastern Communication Association; the National Association of College Broadcasters; the National Academy of Television Arts and Sciences; the National Academy of Cable Programming; the National Federation of Local Cable Programming; the American Film Institute; the Broadcast Educators' Association; the National Communication Association; the Association for Educational Journalism and Mass Communication; the Organization for the Study of Communication, Language, and Gender; the World Communication Association; and the International Listening Association.

In the interest of maximizing students' communication experiences as well as encouraging professional contacts and advancement, the Department urges students to enter regional and national competitions in public relations, advertising, radio, television, and film.

Lambda Pi Eta

The Department sponsors the Beta Kappa Chapter of Lambda Pi Eta, the national communication honor society. To receive honorary membership in this prestigious organization, students must have at least 45 University credits and at least nine credits in communication courses. They must have a 3.0 cumulative G.P.A. and a 3.25 G.P.A. in communication courses. Members become part of a national network of communication majors and may showcase their work at regional and national conferences.

The Co-op Program

The Department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work experience in their career field. For further details see the "Office of Internships and Employer Relations" earlier in the catalog, or contact the Department chair.

B.A., Communication

The bachelor of arts degree program has a strong journalism and public relations concentration. In addition, interpersonal communication theory is emphasized, giving the student a broad background in all the elements of the communication field.

Required Courses

All students in the B.A. program in communication must complete 121 credits. Courses must include the University Core Curriculum and the following:

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 102 Writing for the Media
CO 114 Production Fundamentals
CO 205 Intercultural Communication
CO 212 Television Production I
CO 214 Elements of Film
CO 300 Persuasive Communication
CO 301 Communication Theory and Research
CO 302 Social Impact of Media
CO 306 Public Relations Systems and Practices
CO 308 Broadcast Journalism
CO 309 Public Relations Writing
CO 420 Communication and the Law
CO 500 Seminar in Communication Studies
J 201 News Writing and Reporting
J 311 Copy Desk

Plus three communication electives

Plus seven electives

B.S., Communication

Students earning a B.S. degree in communication are required to complete 121 credits, including the University Core Curriculum, and the Communication program core.

Core Curriculum

40 credits

The following courses must be completed and will be utilized in partial fulfillment of University Core Curriculum requirements.

HS 108 History of Science
or
HU 300 The Nature of Science
This course will be used to fulfill core competency requirement 2.3.

MM 301 Introduction to Multimedia
This course may be used to fulfill core competency requirement 3.

Core Curriculum Electives

12 credits

Students should check their academic program of choice for specific credit hour requirements.

Communication Core

42 credits

These courses develop the foundation knowledge and competencies from which additional advanced course work may follow.

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 102 Writing for the Media
CO 114 Production Fundamentals
CO 205 Intercultural Communication
CO 212 Television Production I
CO 214 Elements of Film
CO 220 Film Production
or
CO 203 Radio Production
CO 300 Persuasive Communication
CO 301 Communication Theory and Research
CO 302 Social Impact of Media
CO 312 Television Production II
CO 420 Communication and the Law
CO 500 Seminar in Communication

Plus 6 credits of communication or journalism courses chosen with the adviser

Plus 21 credits chosen with the adviser.

A.S., Communication

Upon successful completion of 60 credits of the four-year B.S. program in communication, students may petition to receive an associate in science (A.S.)

degree with a major in communication. The following specific communication/journalism course work must be completed:

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 102 Writing for the Media
CO 208 Introduction to Broadcasting
J 201 News Writing and Reporting

Plus 9 credits of communication courses chosen with the adviser.

Students must also complete the following core curriculum requirements:

6 credits (E 105, E 110): Core Competency 1

3 credits (M 127): Core Competency 2

3 credits (CS 107): Core Competency 3

3 credits (HS 102): Core Competency 4

3 credits (EC 133): Core Competency 5

3 credits: Core Competency 6

Additional credits are chosen in consultation with the adviser.

Minor in Communication

A total of 18 credits of communication courses must be earned in order for a student to declare the area of study as a completed minor. This work must include CO 100 Human Communication. The additional credits are chosen in consultation with the adviser.

Communication Certificates

The Communication Department offers certificates in journalism and mass communication. Students must complete 15 credits with a minimum G.P.A. of 2.0 to earn a certificate. Students may choose to take these courses on a matriculated or nonmatriculated basis. For those who choose the nonmatriculated option, it is not necessary to apply for admission to a degree program at the University. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Journalism Certificate

The program provides basic journalism skills in both print and broadcast media. This certificate may supplement students' experience or prepare them for other areas in their current field of work. All students are required to take 15 credits, with a minimum G.P.A. of 2.0 courses include the following:

Required Courses

CO 102 Writing for the Media
CO 309 Public Relations Writing
J 201 News Writing and Reporting

Plus two courses from among the following:

CO 302 Social Impact of Media
CO 308 Broadcast Journalism
J 202 Advanced News Writing and Reporting
J 311 Copy Desk
J 351 Journalistic Performance
J 367 Interpretive and Editorial Writing

Mass Communication Certificate

This program offers options in television production, radio production, writing for media, interpersonal communication, or a combination of radio/television and film. All students are required to take 15 credits, with a minimum G.P.A. of 2.0 courses include the following:

CO 100 Human Communication
CO 114 Production Fundamentals

Nine additional credits are chosen in consultation with the adviser.

Theatre Arts

Coordinator: Robert C. Boles, M.F.A.

Theatre courses may be used to satisfy the arts core requirements. Refer to the University Core Curriculum to determine the specific courses permitted.

Productions

The University community may take part in all departmental productions. Volunteers may act in productions as well as help with lighting, set, and

costume design; set construction; publicity; and stage management. Participants need not be enrolled in theatre classes.

Minor in Theatre Arts

Students may complete a minor in theatre arts by taking 18 credits in the theatre program. Three major productions are mounted each year by the Department, with opportunities for students in performance, directing, and backstage work.

Required Courses

T 131 Introduction to the Theatre
T 132 Theatrical Style
T 241 Early World Drama and Theatre
T 242 Modern World Drama and Theatre

Plus 6 credits in theatre arts, chosen from T 341 Acting, T 342 Play Directing, T 491 Production Practicum I, T 492 Production Practicum II, and T 599 Independent Study

Dental Hygiene

See DIVISION OF HEALTH PROFESSIONS.

Education

Chair: Paulette L. Pepin, Ph.D., Fordham University

Professors: Louise M. Soares, Ph.D., University of Illinois; Shirley Wakin, Ph.D., University of Massachusetts

Associate Professors: Paulette L. Pepin, Ph.D., Fordham University; Judy Randi, Ed.D., Teachers College of Columbia University

Lecturer: John Ciochine, M.A. and 6th Year Certificate, Fairfield University; Susanne Murphy, M.S. and 6th Year Certificate, Southern Connecticut State University

Practitioner-In-Residence: Patricia G. Maiorino, M.S. and 6th Year Certificate, Southern Connecticut State University; David Perry, Ed.D., Columbia University; Robert Law, M.S., Southern Connecticut State University, 6th Year Certificate, Connecticut Center for Gestalt Therapy

While the University of New Haven does not offer an undergraduate degree in the subject of education, the Education Department does offer two programs of graduate study: Teacher Certification, for those seeking initial teacher certification, and Professional Education, for currently certified teachers seeking professional advancement. Both programs lead to the master of science in education degree. These programs represent the University's commitment to the preparation of teacher candidates for meaningful roles in teaching the youth of the twenty-first century. The Education Department prepares future elementary and secondary school teachers. Secondary school subject areas include business education, English/language arts, mathematics, science, and social studies.

All students who are interested in pursuing a teaching career should contact the Education Department as soon as possible during their undergraduate career. University of New Haven undergraduates who wish to pursue a career in teaching may be eligible for early admission to the UNH Education Department's graduate program through the Bachelor's Plus Program. This process allows qualified undergraduates to begin their education course work as undergraduates, enabling them to earn a bachelor's degree, a master's degree, and Connecticut certification in just five years. Students in this program develop a modified major worksheet; for example, a "Bachelor of Arts in Mathematics — Pre-Education."

Students in the Bachelor's Plus Program take their first education course during the spring semester of their junior year. This course, ED 350, Introduction to Education, provides students with an overview of the field of education. (All credit requirements for financial aid and undergraduate standing must be maintained while pursuing the Bachelor's Plus Program.) In their senior year undergraduates continue to take foundation education courses. Following their undergraduate graduation, students begin the graduate program in August and an internship in a public school, which provides payment for tuition. Students attend classes in the evening. Our program's field component places students in a local

school to work with schoolchildren under the direction of a classroom teacher. This experience gives our students the opportunity to observe professional teachers in their own classrooms, thus gaining valuable hands-on experience in an urban and/or a suburban school district as well as linking theory and practice. UNH's Education Department is currently placing interns in 36 Connecticut public schools. Students also experience thirteen weeks of student teaching and are fully responsible for the cost of student teaching.

By the end of June, students complete the program and receive a master's degree, one year after graduating with a bachelor's degree. The master's degree is tuition-free with participation in the public school internship program. Successful completion of all requirements, including the student teaching component, will result in UNH's recommendation to the State Department of Education for Connecticut certification. Students are able to apply for Fall teaching positions in Connecticut public schools.

Entrance Requirements

- Students are required to have and maintain a 3.0 G.P.A.
- Students must develop a modified major worksheet by their sophomore year. For example, a mathematics major would develop a worksheet for the "B.A. in Mathematics — Pre-Education." Formal admission into the program occurs between junior and senior year.
- Successful completion of Praxis I, or a total of 1100 on the SATs for a waiver. Secondary students must pass Praxis II (content exam) before entrance into the graduate program.
- Passing grade on the UNH Writing Proficiency Exam by the end of junior year.
- Successful completion of ED 350 Introduction to Education.
- Approval/recommendation from both major and education advisers.
- Completion of formal application for graduate school and satisfaction of all graduate school requirements. All fees waived.

English

Chair: Donald M. Smith, Ph.D.

Director of Freshman English: Richard J. Farrell, M.Phil., Yale University

Professors Emeriti: Paul Marx, Ph.D., New York University; Douglas Robillard, Ph.D., Wayne State University

Professors: Srilekha Bell, Ph.D., University of Wisconsin; David E. E. Sloane, Ph.D., Duke University; Donald M. Smith, Ph.D., New York University; Brenda R. Williams, Ph.D., Washington University

Senior Lecturers: Wesley J. Davis, M.A., Southern Connecticut State University; Richard J. Farrell, M.Phil., Yale University

Lecturers: Stephen A. Listro, Ph.D., Indiana University of Pennsylvania; Diane C. Russo, Ph.D., University of South Carolina

An English major may choose the concentration in either literature or writing. Students in the literature concentration develop their analytic skills and critical ability by reading widely varied works in the English language: William Shakespeare to Walt Whitman, Jane Austen to Gwendolyn Brooks. The study of English and American literature provides a depth and breadth of liberal education as it also improves one's thinking, writing, and speaking. A major in literature is looked upon very favorably by admissions officers of law, medical, and dental schools. It is good preparation for graduate work in fields such as business, education, urban planning, social work, and public health. Employers in many areas of business, industry, and government seek college graduates with broad knowledge and the ability to communicate effectively.

In the writing concentration, students practice a variety of written language from the expository essay to business and technological applications to more creative forms. Some specific areas in which writing skills have immediate practical worth are journalism, advertising, public relations, sales training, and promotion. Many companies hire writers and editors for company periodicals and reports, equipment handbooks, and

service manuals. Publishing houses provide employment, of many kinds and on many levels, for persons skilled in writing. For writers of proven ability, there are numerous opportunities to freelance for trade journals, newspapers, magazines, and other publications. An English major may also prepare for teacher certification at the elementary or secondary level.

Modern Language Study

While study of a modern language is not required, it is strongly recommended that the student who majors in English know at least one modern language. Knowledge of a modern language makes one more sensitive to the use and meaning of words in one's own language. Furthermore, knowledge of a modern language widens one's perspective and deepens one's understanding through the insights gained into another culture. Students who are considering graduate study certainly should be competent in at least one modern language.

The Literary Club

The English Department sponsors the University's Literary Club, which is open to all UNH students. Its aim is to further interest in the literary arts. The Club's primary activity is publishing *The Elm City Review*, a journal of students' art and writing.

Transfer Credit for Writing Courses

The English Department awards credit for freshman writing courses taken at an accredited American college or University if the courses are essentially the same as E 105 or E 110 and if the student received at least a "C." If the courses were taken at a foreign college, the student must demonstrate proficiency in writing before credit is awarded. In the latter case, the student should make an appointment with the secretary of the English Department for the writing of a one-hour composition.

The Co-op Program

The Department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work experience in their career field. For further details see the "Office of Internships and Employer Relations" earlier in the catalog, or contact the co-op coordinator for the College of Arts and Sciences.

B.A., English

Thirty credits in English beyond the freshman level, with the restrictions indicated below, are required for a major in English. All English majors must take the University Core Curriculum and the following courses:

E 211 Early British Writers
E 213 Early American Writers
HS 102 The Western World in Modern Times
HS 353 Modern Britain

Plus 15 free electives

Concentration in Literature

The literature concentration requires eight additional literature courses, at least one from Category I and at least two from each of the other three categories of upper-level English courses.

Category I	Category II	Category III	Category IV
E 201	E 202	E 217	E 214
E 290	E 212	E 281	E 218
E 323	E 353	E 392	E 260
E 341	E 356	E 395	E 275
E 371	E 390	E 477	E 394
	E 406–409		E 478

Concentration in Writing

The writing concentration requires two additional literature courses, each from a different category of the above list, and six of the following writing courses:

E 220 Writing for Business and Industry (now online)
E 225 Technical Writing and Presentation
E 251 Narrative Nonfiction
E 267 Creative Writing I
E 268 Creative Writing II
E 270 Advanced Essay Workshop
E 480 Internship

Teaching Language Arts

Students interested in earning a teaching certificate for secondary education in language arts may enter the graduate program at UNH. The B.A. in English is the best choice for a major, but other majors are also acceptable. Please contact the Education Department for additional information.

Minor in English

Fifteen credits in literature and/or writing courses, selected by the student in consultation with the department adviser, are required for the minor.

Minor in Black Studies

The minor in black studies is an interdisciplinary program offered in the College of Arts and Sciences and housed in the Department of English. The minor consists of courses in English, history, political science, sociology, and world music. A student may minor in this program by completing 18 credits of courses selected from the following:

E 217 African-American Literature I
E 218 African-American Literature II
HS 120 History of Blacks in the United States
MU 112 Introduction to World Music
MU 550 Studies in Urban Ethnic Music
PS 205 The Politics of the Black Movement in America
SO 221 Cultural Anthropology
SO 315 Social Change
SO 400 Minority Group Relations

Environmental Science

See BIOLOGY AND ENVIRONMENTAL SCIENCE.

Division of Global Studies, History, and Political Science

Courses in global studies, history, modern languages, political science, and philosophy offer students an understanding of the social, political, and cultural forces that have shaped the contemporary world. Increasingly, citizens of a global society need to gain expertise in the rich array of courses offered in this division, from an understanding of international relations and the analysis of historical events, to the discussion of the role of women and religion in modern society.

The Division offers the B.A. degree in global studies, in history, and in political science, and minors in history, political science, and philosophy. It is also the home for the modern languages, which include elementary and intermediate-level courses in Arabic, Chinese, French, German, Italian, Russian, and Spanish. Faculty members also have organized intersession and summer study abroad programs in China, the United Arab Emirates, Oman, and Russia. This Division also contributes many of the courses to the major in global studies, reflecting the University's commitment to develop interdisciplinary ties within the social sciences.

Global Studies

Director: Brett McCormick, Ph.D., Cornell University

The B.A. in global studies is an innovative interdisciplinary major designed to serve students who seek to understand global issues that increasingly affect all aspects of our lives. These issues include international terrorism and crime networks, global stresses on the environment, transnational economic issues, and the effectiveness of diplomacy in responding to global crises and opportunities. The program permits students to integrate courses from across the University with real-life learning experiences (internships and study abroad) in order to achieve global competency. Students in this major will be prepared to enter career opportunities in government, nongovernmental organizations, or multinational companies.

B.A., Global Studies

All students earning a bachelor's degree in global studies must complete the University Core

Curriculum as part of the 121 credits required for the degree. Additional requirements are as follows:

- GLS 100 Introduction to Global Studies (3 credits) during the first semester in the major.
- A minimum of two semesters (6 credits) of a modern language to be taken by the end of the sophomore year. Students concentrating in area studies as described below should take a language relevant to their specific region of specialization.
- Five global foundation courses, with a minimum of two courses from each of the following groups:

  Group 1: Cultural Studies

  E 202 Modern World Literature
  HS 207 History Since 1945
  HTM 166/7 Touristic Geography
  MU 112 World Music
  SO 221 Cultural Anthropology

  Group 2: International Relations and Organizations

  CO 205 Intercultural Communication
  CJ 535 Global Perspectives on Crime and Justice
  EC 200 Global Economy
  PS 222 U.S. Foreign Policy
  PS 241 International Relations
  PS 243 International Law and Organization
  PS 355 Terrorism
- A global studies concentration. Upon completion of the first year of study in the major, students choose a global studies concentration and take 8 additional courses from among the following concentration courses. A minimum of 5 of these courses should be specific to the student's chosen concentration. Concentrations are offered in global economy, Latin American studies, Asian studies, and European studies. Courses for each concentration are listed below.

  Global Economy

  Note: Most of these courses and EC 200 from the foundation courses can be taken only upon completion of EC 133 and EC 134.

  EC 342 International Economics
  EC 440 Economic Development
  IB 421 Operation of the Multinational Corporation
  IB 422 International Business Negotiations
  MK 326 Overview of E-commerce
  MK 413 International Marketing
  MK 442 Marketing Research in the Global Environment

  Latin American Studies

  E 409 International Literature
  HS 350 Latin American History
  MU 300 Studies in Music
  PS 283 Comparative Political Systems: Latin America

  Asian Studies

  HS 260 Modern Asia
  HS 262 Modern Chinese History
  HS 264 Modern Japanese History
  PS 281 Comparative Political Systems: Asia

  European Studies

  E 406–409 International Literature
  HS 345 Europe in the Nineteenth Century
  HS 351 Russia and the Soviet Union
  HS 353 Modern Britain
  HS 355 Modern Germany
  HS 446 Europe in the Twentieth Century
  MU 201–202 Analysis and History of European Art Music I and II
  PS 282 Comparative Political Systems: Europe
- An internship and study abroad. In consultation with the Global Studies adviser, students will complete a minimum of 3 credits through an internship. All students in this program are encouraged strongly to study abroad for a semester or summer term.
- Ten 300-level or 400-level courses must be completed.

History

Associate Professor: Edmund N. Todd, Ph.D., University of Pennsylvania

Assistant Professor: Brett McCormick, Ph.D., Cornell University

Lecturer: Bradley Woodworth, Ph.D., Indiana University

Practitioner-in-Residence: Matthew Wranovix, Ph.D., Yale University

History provides a framework for a liberal education. The study of human experience — failures as well as achievements — is the core of historical study. It gives insight into related disciplines in the humanities and social sciences and broadens the perspective of students in the professional fields of business and engineering by revealing the complexity and interrelatedness of human experience.

History is also excellent preparation for a variety of careers in business, government, law, journalism, foreign service, and many other areas. Because of the great variety of professional programs at the University of New Haven, the student interested in history can combine this interest with highly technical professional training.

The Department strives to meet its objectives by teaching not only content but critical and writing skills through reading, class presentations and discussion, research, and writing. Historical methodology is stressed in all advanced courses, and students take the history seminar in their senior year to sharpen their critical and analytic skills.

Phi Alpha Theta

The University of New Haven has a chapter of the international honor society in history, Phi Alpha Theta, which is open to students who have completed at least 12 credits of history and have maintained an average of better than 3.0 in history courses and better than 2.9 overall. The University chapter of Phi Alpha Theta provides students and faculty with a social and intellectual experience beyond classroom work, offering films, speakers, and roundtable discussions. Students not eligible for membership in the society are welcome to participate in all of the chapter's activities.

B.A., History

All students in the B.A. in history program must complete 121 credits. These courses must include the University Core Curriculum and 36 credits of history courses, including those listed below. The balance of the program can be arranged in consultation with an adviser.

Required Courses

HS 101 Foundations of the Western World
HS 102 The Western World in Modern Times

Plus either HS 211 United States History to 1865 and HS 212 United States History Since 1865
or
HS 110 American History Since 1607 and any other United States history course excluding HS 211/212
HS 260 Modern Asia
HS 491 Senior Seminar

Plus one upper-division Asian history course, two upper-division courses in European history, and one upper-division course in American history

Plus two electives in history

Minor in History

A total of 18 credits in history is required for a minor in history. Courses must include the two listed below and any other four courses in history that support the student's interests and needs.

Required Courses

HS 101 Foundations of the Western World
HS 102 The Western World in Modern Times

Modern Languages

Practitioners-in-Residence: Ramon Funcia, Lic., University of Havana; Yasir Hamed, M.Ed., American Intercontinental University; Chien Wen Yu, M.B.A., Wake Forest University

In an interconnected world, the knowledge of modern languages has become increasingly important and greatly enhances global awareness. The Division regularly offers courses in beginning Arabic, Chinese, French, Italian, Russian, and Spanish. Courses in other major world languages may also be offered on a less regular basis. These courses fulfill the core curriculum requirements on all worksheets. In addition, students interested in study abroad are encouraged to begin their study of a modern language at UNH.

The Division offers the following courses:

AR 101 Elementary Arabic I
AR 102 Elementary Arabic II
AR 450–459 Special Topics in Arabic
CN 101 Conversational Chinese I
CN 102 Conversational Chinese II
CN 201 Chinese Language and Culture
CN 204 Chinese Language and Literature
CN 450–459 Special Topics in Chinese
FR 101 Elementary French I
FR 102 Elementary French II
FR 450–459 Special Topics in French
GR 101 Elementary German I
GR 102 Elementary German II
GR 450–459 Special Topics in German
IT 101 Elementary Italian I
IT 102 Elementary Italian II
IT 450–459 Special Topics in Italian
RU 101 Elementary Russian I
RU 102 Elementary Russian II
RU 201 Intermediate Russian I
RU 202 Intermediate Russian II
RU 450–459 Special Topics in Russian
SP 101 Elementary Spanish I
SP 102 Elementary Spanish II
SP 201 Intermediate Spanish I
SP 202 Intermediate Spanish II
SP 450–459 Special Topics in Spanish

Philosophy

Lecturer: David Brubaker, Ph.D., University of Illinois

Practitioners-in-Residence: Edward Waggoner, Ph.D., Yale University; Brian Bellamy, M.A., Yale University

The main attraction of philosophy always has been and always will be the intrinsic fascination of thinking about the "perennial questions." Is there purpose in the universe or only random causation? Does human existence have meaning, or is it absurd? Are moral obligations real, or are they just social constructs? Is the mind anything more than the functioning of the brain? Are we capable of acting freely, or do we behave as nature dictates? Is reason the slave of the passions? Is it better to be Socrates dissatisfied than a fool satisfied?

But studying in this field also helps a person to develop skills that have wide practical application. Philosophy students practice logical thinking, analytical reading and listening, and precise writing and speaking. They also practice "thinking outside the box" and, hence, cultivate creativity, even humor, because their occupation is none other than the questioning of fundamental assumptions in all areas. Thus, philosophy has served as a useful background for people who have gone on to successful careers in diverse professions, such as computer systems programming, music, management, insurance, investment, marketing, film-making, publishing, real estate, technical writing, literary writing, government, human services, journalism, law, medicine, teaching, research... and stand-up comedy!

Philosophy courses at UNH examine the major world traditions of thought from ancient times to the present. Emphasis is placed on ethical inquiry, including the application of ethical thinking to our daily and professional lives.

Minor in Philosophy

A student in this program must complete 15 credits, as follows:

Required Courses

PL 210 Logic
PL 222 Ethics

Plus at least three additional philosophy courses chosen in consultation with a philosophy adviser

Political Science

Professors: Lawrence J. DeNardis, Ph.D., New York University; James W. Dull, Ph.D., Columbia University; Natalie J. Ferringer, Ph.D., University of Virginia; Joshua H. Sandman, Ph.D., New York University

A major in political science provides the student with a foundation for a career in government on the local, state, national, and international levels; for a career in law; for graduate school programs in political science, international relations, and public policy;

and for careers in the areas of campaign management, communication, public relations, and business. All political science and pre-law majors or minors should discuss career goals and educational objectives with a Department adviser within one month of entrance into the program.

Further, advice on the Law School Admissions Test (LSAT) and the Graduate Record Examination (GRE) preparation courses, which our pre-law and graduate school-oriented students are urged to take, is available through the Department.

Pre-law majors and minors in the Department of Political Science have been especially successful in gaining entrance to law schools throughout the country.

The political science faculty grants the Rollin G. Osterweis Award for Excellence in Political Science to an outstanding political science student.

B.A., Political Science

All students in the B.A. in political science program must complete 121 credits. These courses must include the University Core Curriculum and 48 credits of political science courses, including those listed below.

Required Courses

PS 121 American Government and Politics
PS 122 State and Local Government and Politics
PS 241 International Relations
PS 243 International Law and Organization
PS 261 Modern Political Analysis

Plus one of the following:

PS 281, 282, 283, 285 Comparative Political Systems (Asia, Europe, Latin America, Middle East)

Plus one of the following:

PS 304, 308, 309 Political Parties, Legislative Process, The American Presidency
PS 332 Constitutional Law
PS 461 Political Theory: Ancient and Medieval
PS 462 Political Theory: Modern and Contemporary
PS 499 Senior Seminar I

Plus 18–21 credits of political science electives to be chosen with the student's departmental adviser

Minor in Political Science

The Department of Political Science offers several course clusters for students from other disciplines who wish to enhance their degree programs. The minor consists of 18 credits of political science courses, chosen with a departmental adviser. Several three-course clusters are suggested below for inclusion in the minor to address particular interests. In each case, nine additional credits are to be chosen in consultation with a departmental adviser.

American Government

PS 121 American Government and Politics
PS 122 State and Local Government and Politics
PS 332 Constitutional Law

International Relations

PS 241 International Relations
PS 243 International Law and Organization
PS 281–285 Comparative Political Systems (at least one)

Legal Studies

PS 230 Anglo-American Jurisprudence
PS 231 Judicial Behavior
PS 332 Constitutional Law

General Political Science

Students whose needs are best served by a mixture of political science courses may construct an individualized minor, in consultation with a departmental adviser, or a certification in campaign management.

One additional minor cluster is offered through the Institute of Law and Public Affairs as follows:

Certificate in Public Policy

(Campaign Management)

A certificate in public policy is issued to students who complete 18 credits with a minimum G.P.A. of 2.0 in areas of public affairs designed to serve the student's intellectual and professional needs. An example is the program in campaign management.

Required Courses

PS 121 American Government and Politics

Plus five of the following:

PS 224 Public Attitudes and Public Policy
PS 340 Campaign Management: Procedures and Operations
PS 341 Campaign Management: Structure and Organization
PS 344 Campaign Management: Survey Research, Polling, Computers
PS 346 Campaign Management: Financing and Election Laws
PS 450 Campaign Management: Internship

Additional related elective courses may be selected with the approval of a departmental adviser.

Global Studies

See DIVISION OF GLOBAL STUDIES, HISTORY, AND POLITICAL SCIENCE.

Graphic Design

See VISUAL AND PERFORMING ARTS > Visual Arts.

Division of Health Professions

Chair: Rosa A. Mo, Ed.D., R.D.

The Division of Health Professions of the College of Arts and Sciences is the home of science-based professional training programs in health care. Combining a strong foundation in biological science with practical real-life learning and field experience, programs are offered in dental hygiene and in nutrition and dietetics. The Division also offers a graduate degree in Human Nutrition, described in the *Graduate Catalog*.

Dental Hygiene

Director: Sandra D'Amato-Palumbo, M.P.S.

Associate Professors: Mark Kacerik, M.S., University of Bridgeport; Renee Prajer, M.S., University of Bridgeport

Assistant Professor: Sandra D'Amato-Palumbo, M.P.S., Quinnipiac College; Gwen Grosso, M.S., University of Bridgeport; Teal Mercer, M.P.H., University of Connecticut

The cornerstone of the UNH dental hygiene program is the bachelor of science degree. This program enables the student to be involved in dental hygiene course work throughout all four years of the curriculum. The course of study integrates science prerequisites and general (core) education requirements with foundational and advanced-level dental hygiene courses. Graduates of the bachelor of science program will be prepared not only to seek employment in private dental offices but also to pursue employment in a variety of other health care settings such as dental hygiene and dental business/industry, nursing homes, centers for the developmentally disabled, hospitals, home health care agencies, correctional facilities, and community health centers. Bachelor of science degree students also have the knowledge and skills necessary to pursue education at the graduate level.

Students who wish to exit the program at the end of three years of study may earn an associate in science degree in dental hygiene. This program prepares graduates for necessary board examinations and employment primarily in the dental office setting. The associate degree program integrates science prerequisite courses and foundational dental hygiene courses into a three-year curriculum. Graduates of the program are positioned to practice as dental hygienists and, if desired, complete the bachelor's degree by participating in one additional year of study.

In addition to the programs described above, UNH offers a dental hygiene degree completion program. This curriculum is designed for practicing dental hygienists who are graduates of associate degree programs. The degree completion program enables dental hygienists to transfer credits from an accredited dental hygiene program and utilize their academic and work experience as the basis for completing course work leading to the bachelor of science degree.

Admission Requirements

In addition to the general admission requirements for all prospective UNH students, it is recommended that applicants to the dental hygiene program demonstrate satisfactory performance in the sciences and mathematics. It is strongly recommended that applicants have completed both high school biology and chemistry with laboratory and two years of college preparatory mathematics. An in-person or telephone interview with the department director or a faculty member is recommended; letters of recommendation supporting the student's ability to pursue a rigorous science-based curriculum and desire to contribute in the health care delivery system are strongly encouraged. Admission to the program is limited, and part-time study is available only during the first year of the curriculum. All students enrolled in the dental hygiene clinical course sequence must be full-time.

Professional Accreditation and Licensure

The program in dental hygiene is accredited by the Commission on Dental Accreditation of the American Dental Association, a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation and by the United States Department of Education.

Students in the program are provided with application materials for the Dental Hygiene National Board Examination (written) and the Northeast Regional Board Examination (NERB/clinical). Both the National Board Examination and a clinical examination are required for program graduates to apply for dental hygiene licensure in Connecticut and most other states.

B.S., Dental Hygiene

Students earning a bachelor of science degree in dental hygiene must complete 128 credits. Courses must include the University Core Curriculum for bachelor's degree students and the required courses listed below. Once students are enrolled in the dental hygiene clinical course sequence (DH 220, 240, 330, 350, 460), they must be enrolled in a full-time course of study.

Required Courses

CH 105 Introduction to General and Organic Chemistry with Laboratory
CS 107 Computers and their Applications
DH 105–110 Introduction to Dental Hygiene I and II
E 105 Composition
E 110 Composition and Literature
HS 102 The Western World in Modern Times
M 109 Intermediate Algebra
or
M 127 Finite Math
P 111 Introduction to Psychology
SO 113 Sociology
BI 121 General and Human Biology with Laboratory I
DI 215 Principles of Nutrition
DH 214 Oral Facial Structures
DH 215 Radiology
DH 220 Dental Hygiene Concepts I
E 230 Public Speaking and Group Discussion
or
CO 100 Human Communication
DH 240 Dental Hygiene Concepts II
BI 259/260 Vertebrate Anatomy and Physiology I and II with Laboratory
BI 261 Introduction to Biochemistry
BI 301 Microbiology with Laboratory
PA 308 Health Care Delivery Systems
DH 320 Pharmacology and Pain Management
DH 325 General and Oral Pathology
DH 327 Periodontology
DH 330 Dental Hygiene Concepts III
DH 342 Dental Materials
DH 350 Dental Hygiene Concepts IV
DH 360 Local Anesthesia
DH 423 Instructional Planning and Media
DH 438 Dental Hygiene Research
DH 455 Dental Hygiene Public Health
DH 460 Advanced Dental Hygiene Practice
DH 461 Oral Medicine
DH 462 Dental Hygiene Internship
DH 468 Dental Hygiene Senior Project

Plus two three-credit electives

A.S., Dental Hygiene

Students earning an associate in science degree in dental hygiene must complete 100 credits. Courses must include the University Core Curriculum for associate degrees and the required courses listed below. Students enrolled in the dental hygiene clinical course sequence (DH 220, 240, 330, 350, 460), must be enrolled in a full-time course of study. Those students earning an associate degree must enroll in the clinical course during the designated summer session.

Required Courses

DH 105–110 Introduction to Dental Hygiene I and II
CH 105 Introduction to General and Organic Chemistry with Laboratory
CS 107 Computers and their Applications
E 105 Composition
E 110 Composition and Literature
HS 102 The Western World in Modern Times
M 109 Intermediate Algebra
or
M 127 Finite Math
P 111 Introduction to Psychology
SO 113 Sociology
BI 121 General and Human Biology with Laboratory I
DI 215 Principles of Nutrition
DH 214 Oral Facial Structures
DH 215 Radiology
DH 220 Dental Hygiene Concepts I
E 230 Public Speaking and Group Discussion
or
CO 100 Human Communication
DH 240 Dental Hygiene Concepts II
BI 259/260 Vertebrate Anatomy and Physiology I and II with Laboratory
BI 261 Introduction to Biochemistry
BI 301 Microbiology with Laboratory
DH 320 Pharmacology and Pain Management
DH 325 General and Oral Pathology
DH 327 Periodontology
DH 330 Dental Hygiene Concepts III
DH 342 Dental Materials
DH 350 Dental Hygiene Concepts IV
DH 360 Local Anesthesia
DH 455 Dental Hygiene Public Health
DH 460 Advanced Dental Hygiene Practice

Nutrition and Dietetics

Program Director: Georgia Chavent, Assistant Professor, M.S., Columbia University, RD, Medical College of Virginia

B.S., Nutrition and Dietetics

Nutrition and dietetics professionals are well equipped to enter the health and wellness field. Managing the delivery of food and providing healthy eating guidance to health professionals, athletes, private practice clients, chefs, food service managers, food scientists, and consumers of all ages is the essence of the dietetics field, offering challenges for students to prepare themselves for varied and exciting career opportunities.

The Nutrition and Dietetics Program is within the Division of Health Professions and is designed for the student seeking a career as a nutritionist or registered dietitian (RD). The program includes management, food, and clinical course work that is accredited by the Didactic Program in Dietetics (DPD), and by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, phone 312.899.5400. Students earning credits toward a dietetics degree may apply for associate membership in the American Dietetic Association.

The registered dietitian (RD) credential is recognized nationally, enabling graduates to practice the art and science of the nutrition care process throughout the United States. Graduates are providing food and nutrition services in private practice settings, health care institutions such as teaching hospitals and extended-care facilities, community nutrition sites, child care centers, school lunch programs, corporate food companies, physicians' offices, and specialized programs for eating behavior and weight management.

Students who have earned a bachelor's or graduate degree in another discipline may apply credits toward

a nutrition and dietetics degree or be eligible to receive a verification statement authorizing their entry into a supervised practice program, such as an accredited dietetic internship program, once they have completed the required dietetics courses. A minimum of seven to ten didactic program courses must be taken at the University of New Haven for a student to receive a verification statement from the director of the program.

The undergraduate nutrition and dietetics program is also associated with the master of science program in human nutrition, enabling qualified students to complete graduate study concurrently with the undergraduate program.

Required Courses

A minimum total of 123 credits, including the University Core Curriculum, must be completed for the bachelor of science degree in nutrition and dietetics. The courses included are as follows:

A 101 Introduction to Financial Accounting
BI 121 General and Human Biology with Laboratory I
BI 259–260 Vertebrate Anatomy and Physiology with Laboratory I and II
BI 261 Introduction to Biochemistry
BI 301 Microbiology with Laboratory
CH 105 Introduction to General and Organic Chemistry with Laboratory
CO 100 Human Communication
DI 150 Sports Nutrition (optional)
DI 200 Food Science and Preparation with Laboratory
DI 214 Menu Planning
DI 215 Principles of Nutrition
DI 216 Food Safety, Sanitation, and Procurement
DI 222 Careers in Health and Wellness
DI 315 Nutrition and Disease
DI 326 Principles of Dietetics Management
DI 330 Dietetic Practice in Today's Society
DI 342 Healthy Food Preparation
DI 350 Nutrition Throughout the Lifecycle
DI 405 Community and Institutional Nutrition
DI 450–459 Special Topics
DI 597 Dietetic Practicum (optional)
E 220 Writing for Business and Industry
or
E 230 Public Speaking and Group Discussion
MK 200 Principles of Marketing
PA 308 Health Care Delivery Systems

Plus one restricted elective

Plus four free electives

Minor in Nutrition

The minor in nutrition is highly desirable in today's health-conscious marketplace and offers an opportunity for students to study personal nutrition, healthy eating for disease prevention or sports performance, food science, or cultural cuisine while strengthening their food preparation skills in the food laboratory.

A total of 19 credits of nutrition and related course work must be earned by a student to declare a minor in nutrition. This minor course of study has been approved by the Connecticut Division of Higher Education and includes the following three required courses:

BI 121 General and Human Biology with Laboratory I
DI 215 Principles of Nutrition
DI 342 Healthy Food Preparation

Plus any three of the following courses (or others) chosen in consultation with the program director:

DI 150 Sports Nutrition
DI 200 Food Science and Preparation with Laboratory
DI 214 Menu Planning
DI 216 Food Safety, Sanitation, and Procurement
DI 315 Nutrition and Disease
HR 315 Volume Food Production and Service
HR 315 Cultural Understanding of Food and Cuisine

History

See DIVISION OF GLOBAL STUDIES, HISTORY, AND POLITICAL SCIENCE.

Interior Design

See VISUAL AND PERFORMING ARTS > Visual Arts.

Marine Biology

See BIOLOGY AND ENVIRONMENTAL SCIENCE.

Mathematics

Chair: James W. Uebelacker, Ph.D.

Coordinator of Pre-Calculus Mathematics: Ali A. Jafarian, Ph.D.

Professors Emeriti: Donald Fridshal, Ph.D., University of Connecticut; Joseph M. Gangler, Ph.D., Columbia University; Bruce Tyndall, M.S., University of Iowa

Professors: Ali A. Jafarian, Ph.D., University of Toronto; Erik Rosenthal, Ph.D., University of California, Berkeley; Baldev K. Sachdeva, Ph.D., Pennsylvania State University; Ramesh Sharma, Ph.D., Banaras Hindu University, Ph.D., University of Windsor; James W. Uebelacker, Ph.D., Syracuse University; Shirley Wakin, Ph.D., University of Massachusetts; W. Thurmon Whitley, Ph.D., Virginia Polytechnic Institute and State University

Associate Professor: Marc H. Mehlman, Ph.D., University of California, Riverside

Lecturer: Roger Fiondella, M.S., University of Bridgeport

The study of mathematics opens the door to a wide variety of career opportunities and academic pursuits. Mathematics is a major part of the framework of modern science and technology, business and social sciences. Persons with strong mathematics backgrounds qualify for stimulating occupations in an ever-increasing number of fields, from private industry to government service.

The Mathematics Department offers a B.A. degree in mathematics. In addition, concentrations in applied mathematics, computer science, or statistics leading to a B.S. degree are offered. Students who do not take the computer science concentration are encouraged to consider a minor in computer science to be better prepared for our technological society. Students majoring in other fields may minor in mathematics.

Mathematics students have direct access to University computing facilities via computer laboratories throughout the campus. Several modern computing languages are available. The most modern and up-to-date data processing packages as well as mathematical and statistical software packages have been installed and are utilized in instruction.

Student Awards

Each year, the Mathematics Department awards two outstanding mathematics students free honorary memberships in the Mathematical Association of America and the Society for Industrial and Applied Mathematics.

In addition, the department annually awards the Bert Ross Mathematics Prize to the outstanding senior mathematics major. This award consists of a set of mathematics books and a certificate of achievement.

The Co-op Program

The department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work experience in their career field. For further details see the "Office of Internships and Employer Relations" earlier in the catalog, or contact the chair of the Mathematics Department.

Basic Courses Required for All Mathematics Majors

All students earning a bachelor's degree in mathematics must complete the University Core Curriculum, the course requirements for their particular math program, and the basic math courses listed below.

M 117–118 Calculus I and II
M 203 Calculus III
M 204 Differential Equations
M 305 Discrete Structures
M 308 Introduction to Real Analysis
M 311 Linear Algebra
M 321 Modern Algebra
M 331 Combinatorics*
or

M 361 Mathematical Modeling*
M 338 Numerical Analysis
M 371 Probability and Statistics I
M 472 Probability and Statistics II
M 491 Department Seminar

*Both are required for the B.S. concentration in applied mathematics

B.A., Mathematics

This program provides students with a broad overview of mathematics and its applications, especially those students who wish to study pure mathematics or for those whose career objectives include mathematics education or the application of mathematics to fields such as business, economics, or the social sciences.

Students earning a B.A. degree with a mathematics major must complete a minimum of 124 credits. Courses include the basic courses required for all mathematics majors listed above, the University Core Curriculum, and the courses listed below.

Required Courses

CS 110 Introduction to C Programming
CS 210 Java Programming
CS 226 Data Structures Using Collections
PH 150 Mechanics, Heat, and Waves with Laboratory

Plus 6 credits of mathematics compatible with the area of concentration, M 300 series or above

Concentration in Mathematics — Education

This program is designed for students interested in earning a teaching certificate in secondary education in mathematics. The restricted electives and electives give the student the opportunity to add a second certification. Students in this program receive a B.A. degree in mathematics and have the opportunity to participate in the University's Bachelor's Plus program, which results in the completion of both the bachelor's and the master's degree in 5 years. During the undergraduate program, students may apply to the University of New Haven's Department of Education. Upon acceptance they move directly into the graduate education program. Upon successful completion of the fifth year of this program, students are certified to teach mathematics in Connecticut and hold a master's degree in education.

Students earning a B.A. in mathematics with an education concentration must complete 124 credits. Courses include the basic courses required of all mathematics majors, listed above, except M 204, M 338, and M 472, the University Core Curriculum, and the courses listed below.

Required Courses

CS 110 Introduction to C Programming
CS 210 Java Programming
or
MM 301 Introduction to Multimedia
M 304 Using Technology to Teach Mathematics
PH 150 Mechanics, Heat and Waves with Laboratory
ED 350 Introduction to Education and Field Study
ED 503 Human Growth and Development
ED 504 Educational Psychology
ED 606 History of American Education
ED 620A Seminar in Multicultural Issues

Plus six hours of mathematics, chosen from M 204 or M 300 or above series

B.S., Mathematics

Students interested in applied mathematics should pursue the B.S. degree. Within this degree program, the concentrations of computer science, applied mathematics, and statistics are offered.

Students earning a B.S. degree with a major in mathematics must complete a minimum of 124 credits. Courses must include the basic courses required for all mathematics majors listed above, the University Core Curriculum, and the courses listed below for one of the three concentrations.

Concentration in Computer Science

This program is primarily for students interested in using computing techniques to solve mathematical problems in a wide variety of disciplines. In addition to the mathematics requirements, students take eight or nine courses in computer science designed to

provide training in the structure of computer languages, computing machines, and computing systems.

Students in this program must complete a minimum of 124 credits. Courses include the basic courses required for all mathematics majors listed above, the University Core Curriculum, and the courses listed below.

Required Courses

CS 110 Introduction to C Programming
CS 210 Java Programming
CS 226 Data Structures Using Collections
CS 326 Data Structures and Algorithms
PH 150 Mechanics, Heat, and Waves with Laboratory

Restricted CS or Math Elective

Plus 9–12 credits in computer science; 9–12 credits in mathematics, chemistry, or physics (the number of credits here depends on specific upper-level electives chosen)

Concentration in Applied Mathematics

This program is primarily for students whose mathematical interests are in the application of mathematics to fields such as physics, chemistry, operations research, and engineering. In addition to the courses listed below, students take five to seven courses in a single discipline of the natural sciences or engineering.

Students in this program must complete a minimum of 125–127 credits. Courses include the basic courses required for all mathematics majors listed above, the University Core Curriculum, and the courses listed below.

Required Courses

M 204 Differential Equations
M 338 Numerical Analysis
M 472 Probability and Statistics II
CS 110 Introduction to C Programming
CS 210 Java Programming
CS 226 Data Structures Using Collections
PH 205 Electromagnetism and Optics with Laboratory
Two-course science sequence

Plus 6 credits of mathematics compatible with the area of concentration, M 300 series or above

Concentration in Statistics

This program provides students with a background in mathematical statistics. The mathematics courses required enable a person to gain employment as a statistician in business or government or to pursue graduate study in statistics. These courses are also necessary for students wishing to pursue careers in the actuarial field.

Students in this program must complete a minimum of 124 credits. Courses include the basic courses required for all mathematics majors listed above, the University Core Curriculum, and the courses listed below.

Required Courses

M 204 Differential Equations
M 338 Numerical Analysis
M 472 Probability and Statistics II
M 473 Advanced Statistical Inference
M 481–482 Linear Models I and II
CS 110 Introduction to C Programming
CS 210 Java Programming
CS 226 Data Structures Using Collections

Plus 12 credits in science, computer science, or mathematics

Minor in Mathematics

Students may minor in mathematics by completing six mathematics courses approved by the Department. Those students contemplating a minor in mathematics should consult with the Department as early as possible in their academic careers as to the choice and availability of courses.

Required Courses

M 118 Calculus II
M 203 Calculus III
M 311 Linear Algebra

Plus 9 credits of upper-level mathematics courses that complement the major area of interest

Recommended Courses

M 204 Differential Equations
Any course in the M 300 series or above

Modern Languages

See DIVISION OF GLOBAL STUDIES, HISTORY, AND POLITICAL SCIENCE.

Multimedia/Web Creation Studies

See VISUAL AND PERFORMING ARTS > Multimedia / Web Creation Studies

Music and Sound Recording

See VISUAL AND PERFORMING ARTS > Music / Music Industry / Music and Sound Recording

Music

See VISUAL AND PERFORMING ARTS > Music.

Nutrition and Dietetics

See DIVISION OF HEALTH PROFESSIONS.

Philosophy

See DIVISION OF GLOBAL STUDIES, HISTORY, AND POLITICAL SCIENCE.

Physics

Coordinator: Matthew Griffiths, Ph.D.

Associate Professors: Matthew Griffiths, Ph.D., University of Edinburgh; Saion Sinha, Ph.D., University of Kentucky

Physics is concerned with the most basic aspects of our knowledge of the natural world. It is a subject in which experiment and theory evolve constantly to provide a precise and simple description of the physical phenomena around us in terms of a relatively small number of physical laws and theories.

As a fundamental science, physics is at the root of almost all branches of science and technology. It has provided the microscopic basis for chemistry, has stimulated important developments in mathematics, is the basis of most branches of engineering and, during the past decade, has proved to be increasingly valuable to the life sciences.

Consequently, a basic knowledge of physics is excellent preparation for diverse careers: research in University and government laboratories, industrial research and development, applied science and engineering, biological and medical sciences, research in environmental problems, and teaching at all levels from the elementary school to the University. It also prepares students for careers in non-physics-related fields such as philosophy, business, and law.

The University does not currently offer a bachelor's degree in physics. The Department does, however, offer a minor in physics suitable for majors in any of the University's colleges and departments. A physics minor is particularly valuable for students in chemistry, environmental science, biology, forensic science, fire science, or occupational safety, as well as for any student planning to teach science at the elementary or secondary level.

The physics minor requires a total of 20 credits of work in physics. Students should plan their minor in consultation with a faculty adviser in the Physics Department.

Required Courses for Physics Minor

PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
PH 211 Modern Physics

Plus 9 credits of selected physics courses depending on the career interests of the student

Political Science

See DIVISION OF GLOBAL STUDIES, HISTORY, AND POLITICAL SCIENCE.

Psychology

Professor Emeritus: Thomas L. Mentzer, Ph.D., Brown University

Professors: Michael Morris, Ph.D., Boston College; Ronald H. Nowaczyk, Ph.D., Miami University; Gordon R. Simerson, Ph.D., Wayne State University

Assistant Professors: Tara L'Heureux-Barratt, Ph.D., University of Connecticut; W. Amory Carr, Ph.D., Fordham University; Alexandria E. Guzmán, Ph.D., State University of New York at Binghamton; Stuart D. Sidle, Ph.D., DePaul University

Practitioners-In-Residence: Dennis McGough, Ph.D., Union Institute in Cincinnati; Danielle I. Moreggi, Ph.D., Pacific Graduate School of Psychology

Although psychology is one of the newest branches of science, it has some very old roots. Psychology endeavors to answer some of humanity's oldest questions: How does our mind work? How do we interpret and use the information gathered by our senses? How do we learn things? How do we remember things? How and why are some things forgotten? How do we acquire language? How do we communicate verbally and non-verbally? What kinds of behavior are abnormal, why do they occur, and how can they be prevented? In what ways do our intellectual and perceptual faculties break down following brain damage? As the scientific study of mind and behavior, psychology tries to find answers to these and many other fundamental questions.

Our dedication to these goals requires that students study psychology from a variety of viewpoints. Thus, students take courses in cognitive, developmental, social, physiological, and clinical psychology. Our students also develop skills in experimental design and scientific analysis through the study of statistics, experimental methods, and psychological theory. Furthermore, through involvement in fieldwork, students have the opportunity for direct, practical experience in areas such as behavior therapy and community psychology.

We offer a general psychology concentration, which permits students to tailor their preparation in a number of areas. This program combines basic science and applications and prepares students for further professional training in psychology or for careers in human services, law, education, business, and industry. We also have a specialty concentration in community/clinical psychology for those students who have well-defined professional goals.

Psychology majors are also encouraged to widen their preparation by taking courses (or minors) in sociology, political science, social welfare, management, computer science, criminal justice, mathematics, and biology. This ensures that our students have a broad knowledge of many disciplines in the College of Arts and Sciences.

The psychology program benefits from a psychology laboratory building on the main campus. The laboratory contains facilities for student and faculty research.

The University of New Haven also offers the master of arts degree in community psychology and in industrial/organizational psychology as well as a graduate certificate in applications of psychology. For descriptions of these programs, see the *Graduate School Catalog*.

Psychology Club

Students in psychology have the opportunity to participate in the Psychology Club. Its purpose is to provide opportunities both to socialize and to develop students' interests in the science and profession of psychology. Throughout the year, the club sponsors guest lecturers and a variety of field trips. All students are welcome to join.

Psi Chi Honor Society

Membership in the University chapter of Psi Chi, the national honor society, is open to students in the top 35 percent of their class who have completed at least nine credits of psychology with grades of B or better and who are making the study of psychology one of their major interests.

Graduating seniors also may nominate themselves for the annually awarded McGough psychology prize.

The Co-op Program

The Department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work experience in their career field. For further details see the Department chair.

B.A., Psychology

The B.A. in psychology program requires the completion of 120–123 credits, 37–46 of which are required to complete the major.

To complete the major, students must complete 16 credits of core psychology courses and select one of two 21-credit concentrations: general psychology or community-clinical psychology, or the 30-credit concentration in forensic psychology. The concentrations are described below.

Concentration in General Psychology

The general psychology concentration consists of 21 credits of psychology courses beyond the required core courses.

Required Core Courses

P 111 Introduction to Psychology
P 301 Statistics for the Behavioral Sciences
P 305 Experimental Methods in Psychology
P 306 Psychology Laboratory
P 341 Psychological Theory

Depth and Breadth Areas
(1 course from each area below)

Biological Psychology (1 course)

P 261 Drugs and Behavior
P 360 Cognitive Neuroscience
P 361 Behavioral Neuroscience

Clinical Psychology (1 course)

P 330 Introduction to Community Psychology
P 336 Abnormal Psychology
P 350 Human Assessment
P 375 Foundations of Clinical/Counseling Psychology

Cognitive and Experimental Psychology (1 course)

P 218 Sensation and Perception
P 220 Psychology of Language and Reading
P 312 Cognitive Psychology
P 315 Human and Animal Learning

Developmental/Personality/Social Psychology (1 course)

P 216 Psychology of Human Development
P 321 Social Psychology
P 355 Organizational Behavior
P 370 Psychology of Personality

Plus three psychology electives (9 credits) chosen with the academic adviser.

Concentration in Community-Clinical Psychology

The community-clinical psychology concentration consists of 21 credits of psychology courses beyond the required core courses.

Required Community-Clinical Psychology Courses

P 216 Psychology of Human Development
P 330 Introduction to Community Psychology
P 336 Abnormal Psychology
P 350 Human Assessment
P 375 Foundations of Clinical/Counseling Psychology

Depth and Breadth Areas
(1 course from each area below)

Biological Psychology (1 course)

P 261 Drugs and Behavior
P 360 Cognitive Neuroscience
P 361 Behavioral Neuroscience

Cognitive and Experimental Psychology (1 course)

P 218 Sensation and Perception
P 220 Psychology of Language and Reading
P 312 Cognitive Psychology
P 315 Human and Animal Learning

Concentration in Forensic Psychology

The forensic psychology concentration consists of 30 credits of psychology courses beyond the required core courses, and 6 credits of criminal justice courses.

Required Forensic Psychology Courses

P 205 Introduction to Forensic Psychology
P 216 Psychology of Human Development
P 336 Abnormal Psychology
P 345 Police and Investigative Psychology
P 357 Legal Psychology
P 365 Law, Psychology, and the Mental Health System

P 370 Psychology of Personality
P 475 Senior Seminar in Forensic Psychology
CJ 100 Introduction to Criminal Justice
CJ 311 Criminology

Depth and Breadth Areas
(1 course from each area below)

Biological Psychology (1 course)

P 261 Drugs and Behavior
P 360 Cognitive Neuroscience
P 361 Behavioral Neuroscience

Cognitive and Experimental Psychology (1 course)

P 218 Sensation and Perception
P 220 Psychology of Language and Reading
P 312 Cognitive Psychology
P 315 Human and Animal Learning

Minor in Psychology

Psychology, perhaps more than any other subject, relates closely to many other disciplines. A minor in psychology prepares you for graduate study in the field and can add another dimension to your studies in other programs at the University. A total of six courses is required for a minor in psychology.

Required Courses

P 111 Introduction to Psychology
P 301 Statistics for the Behavioral Sciences
P 305 Experimental Methods in Psychology

Plus 9 credits of psychology electives

Exceptions to the requirements above can be made for students whose major programs contain required courses that are equivalent to P 301 and P 305 (such as CJ 251 and CJ 250). Such students may be permitted to substitute advanced psychology courses for P 301 and P 305. Exemptions will be granted on a case-by-case basis by the chair of the Psychology Department.

Sociology

Practitioners-in-Residence: Brian Bellamy, M.A., Yale University; Edward Waggoner, Ph.D., Yale University

Sociology is the study of social life and the social causes and consequences of human behavior. Sociology's subject matter ranges from analysis of families, corporations, cities, and sports to that of sexuality, death, race, gender, and ethnicity, as well as the impact of demographic and environmental policies and other social phenomena. The sociological perspective is empirically grounded and sufficiently broad to be relevant to those considering careers in related fields such as research, governmental service, social work, personnel management, advertising, law, medicine, journalism, social gerontology, and hospitality and tourism.

The University of New Haven does not currently offer a major in sociology. For those students wishing to satisfy core or elective requirements, or for students who may wish to select sociology or social welfare as a minor, a selection of courses is offered.

Minor in Sociology

A minimum of 18 credits (6 courses) is required for the minor in sociology. Three of the courses are specified.

Required Courses

SO 113 Sociology

One of the following:
SO 250 Research Methods
CJ 250 Scientific Methods in Criminal Justice
P 305 Experimental Methods in Psychology

One of the following:
P 301 Statistics for Behavioral Sciences
M 228 Elementary Statistics
CJ 251 Quantitative Applications in Criminal Justice
The remaining three courses must be sociology electives that meet with the approval of the Sociology chair.

Theatre Arts

See COMMUNICATION, FILM AND THEATRE.

Visual and Performing Arts

Chair: Guillermo E. Mager, Ph.D.

Professors Emeriti: Elizabeth J. Moffitt, M.A., Hunter College; Ralf E. Carriuolo, Ph.D., Wesleyan University

Professor: Michael G. Kaloyanides, Ph.D., Wesleyan University

Associate Professor: Guillermo E. Mager, Ph.D., New York University

Assistant Professors: Albert G. Celotto, M.A., Indiana University; Christy A. Somerville, M.A., California State University, Long Beach

Lecturer: Todd Jokl, M.A., University of Connecticut; Victor Markiw, M.F.A., SUNY Purchase

Practitioner-in-Residence: Richard Blakin, Recording Studio Manager

Multimedia/Web Creation Studies

Coordinator: Todd Jokl, M.F.A.

Multimedia is the use of computers for the integration of graphics, animation, video, music, speech, and live presentation. Active markets for multimedia include (1) the Internet, where careers in web page creation and website management have grown exponentially in recent years; (2) business, where computer presentations have taken the place of slide shows; (3) education, where teachers and parents are finding new ways to present their material; and (4) the entertainment industry, with the ever-growing use of computers for special effects in games, music videos, and films.

Multimedia studies will enable graduates from programs in graphic design, music, education, business, and many other disciplines to use the computer not only to generate traditional print materials but also to design interactive programs for use in websites, CD-ROMs, business presentations, games, and educational software.

The multimedia courses and the web page creation courses have been designed to allow students to use computer, audio, video, and graphic technologies to conceptualize and implement interactive interfaces in a comprehensive approach that includes the multimedia production process, the technology, and the aesthetic design.

Minor in Multimedia

A total of seven courses (21 credits) is required to complete the minor in multimedia.

Required courses

MM 301 Introduction to Multimedia
MM 311 Advanced Multimedia
or
MM 312 Web Creation
MM 401 Multimedia Seminar

Plus two of the following sequences (12 credits)*:

MU 311–312 Multitrack Recording I and II
AT 203–204 Graphic Design I and II
CO 212–312 Television Production I and II

* These courses must be taken outside the student's major area of study (for example, music majors may not use MU 311–312). Also, note that some of these courses have prerequisites.

Music

Coordinator: Michael G. Kaloyanides, Ph.D.

Music courses may be used to satisfy the arts core requirements.

The program in music is unique. Music is studied as a worldwide phenomenon, not defined simply in the western European art tradition. Students are encouraged to view music as a creation of all cultures and civilizations on both the folk and art levels, including our own urban and ethnic subcultures. Exposure to various music should lead students to specialization in a particular area as upper-class persons.

Since music is a performing art, students are expected to reach a satisfactory level of proficiency in either a traditional western instrument or one central to the particular culture in which they choose to specialize.

A degree in music qualifies students for professions as performers, composers, music publishers, critics and journalists, teachers, curators, and librarians. Combining music with other fields, graduates may enter the fields of concert and ensemble management and sound engineering areas. There are, of course, countless performance opportunities for instrumentalists, vocalists, and composers. Vocations such as music publishing, recording sales and promotions, and music criticism and journalism are also available to graduates with a degree in music. Students may also pursue careers in music education, not only as teachers in schools and conservatories but also as curators and librarians.

Performance/Practice and Recording Facilities

In addition to traditional performance and practice rooms, the following special areas are equipped for the use of students enrolled in the music industry and sound recording programs.

Our recording studios are designed as both teaching and professional recording environments. Both control rooms offer comfortable seating for students as well as providing excellent views of the consoles, computer screens, and associated technology.

Studio A

Advanced recording seminar classes take place in our newest facility, an all-digital computer-based studio running Digidesign's Pro-Tools TDM system, the industry standard for professional recording studios. Additional equipment includes a Yamaha 56-input digital console, Roland music workstation, Yamaha MOTIF synthesizer, and Universal Audio microphone pre-amplifiers.

Studio B

The multitrack recording technology classes take place in a second recording facility. Equipment includes a 24-track analog and two 8-track digital recorders for a total of 40 tracks; a 40-input/32-monitor console for a total of 72 inputs in mix mode; an Apple Macintosh computer running Digidesign's Pro-Tools system; an extensive selection of outboard (signal processing) equipment; and MIDI gear, including synthesizer, drum machine, and an AKAI music production center.

Studio C

Recording fundamentals classes take place in a third recording facility with a 16-input/16-monitor console, a digital multitrack recorder, a computer with digital audio and MIDI sequencing capabilities, assorted signal processing equipment, and MIDI synthesizer and drum machine.

Workstations

Our digital mixing workstation contains Tascam multitrack recorders and a digital mixing board, a Macintosh computer running Digidesign's Pro-Tools, and assorted signal processing gear.

Additional workstations can be rolled into classrooms for the Recording Fundamentals and the Sound Synthesis/MIDI classes.

B.A., Music

The bachelor of arts in music is a dynamic program for the study of music within a liberal arts curriculum. It is distinctive in its treatment of music as a world-wide phenomenon. It is also flexible, allowing students to focus on performance or musicology.

Students focusing on performance are urged to take private instruction on an instrument or in voice each semester of enrollment. Seniors must present either a senior thesis or a senior recital to qualify for graduation. There are options in the senior year curriculum for courses appropriate for thesis or recital preparation.

All students majoring in the B.A. in music must complete 121–122 credits.

Required Courses

Courses must include the University Core Curriculum plus the following:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 116 Performance
(12 credits minimum)
MU 125–126 Elementary Music Theory with Laboratory (if required)
MU 150–151 Introduction to Music Theory I and II
MU 175–176 Musicianship I and II
MU 201–202 Analysis and History of European Art Music I and II
MU 501 Seminar in Advanced Research I
or
MU 416 Advanced Performance
MU 502 Seminar in Advanced Research II
or
MU 416 Advanced Performance

Plus music electives (6 credits)

Plus ten electives

B.A., Music Industry

The music industry degree is offered to anyone interested in an exciting career in the fields of music management, arts administration, record production, promotion and sales, marketing, artist management, music publishing, and any other areas in the entertainment industry.

The program provides a unique balance of courses in the areas of music, sound recording, and business as well as music industry. Music courses include topics such as music theory, musicianship, music history, and performance. Sound recording courses include multitrack recording, digital audio, and the use of computers in the recording studio. Business courses cover areas such as accounting, management, and marketing.

Music industry courses, specifically designed for this program, cover topics such as record companies, contracts, music marketing and merchandising, recording studio management, music publishing, copyright law and concert planning, promotion, and management. Special emphasis is given to career planning and development.

Required Courses

Courses include the University Core Curriculum plus the following:

MU 111 Introduction to Music
or
MU 112 Introduction to World Music
MU 125–126 Elementary Music Theory with Laboratory (if required)
MU 150–151 Introduction to Music Theory I and II
Plus the following:

MU 116 Performance
MU 175–176 Musicianship I and II
or
MU 201–202 Analysis and History of European Art Music I and II
MU 211 History of Rock
MU 261 Introduction to the Music Industry
MU 301 Recording Fundamentals
MU 311 Multitrack Recording I
MU 312 Multitrack Recording II
or
MU 321 Sound Synthesis/MIDI
MU 361 Production, Promotion, and Distribution
MU 362 Legal Issues, Copyrights, and Contracts
MU 461–462 Internship in the Music Industry I and II

Plus music electives (6 credits)

A 101 Introduction to Financial Accounting
A 102 Introduction to Managerial Accounting
MG 210 Management and Organization
MK 200 Principles of Marketing

Plus business electives (6 credits)

Plus three electives

B.A., Music and Sound Recording

The bachelor of arts in music and sound recording is a unique four-year degree program. Its development is based on the philosophy that musicians should have a working knowledge of the media through which their art is most often heard and that sound recordists

should have a working knowledge of the art form they are recording. Thus, the program is designed to instruct students in three interrelated areas: 1) music history, theory, and aesthetics; 2) musicianship; and 3) sound recording methodology and technique.

Required Courses

Courses include the University Core Curriculum plus the following:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 116 Performance (6 credits minimum)
MU 125–126 Elementary Music Theory with Laboratory (if required)
MU 150–151 Introduction to Music Theory I and II
MU 175–176 Musicianship I and II
MU 201–202 Analysis and History of European Art Music I and II
MU 211 History of Rock
MU 221 Film Music
MU 301 Recording Fundamentals
MU 311–312 Multitrack Recording I and II
MU 321 Sound Synthesis/MIDI
MU 401–402 Recording Seminar/ Project I and II
PH 100 Introductory Physics with Laboratory
PH 203 The Physics of Music and Sound with Laboratory

B.S., Music and Sound Recording

The bachelor of science in music and sound recording is similar to the bachelor of arts program in its philosophy and design, but it provides a stronger background in the science and technology of recording through classes in calculus, physics, and electrical engineering.

Required Courses

Courses include the University Core Curriculum plus the following:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 116 Performance (6 credits minimum)
MU 125–126 Elementary Music Theory with Laboratory (if required)
MU 150–151 Introduction to Music Theory I and II
MU 175–176 Musicianship I and II
MU 201–202 Analysis and History of European Art Music I and II
MU 211 History of Rock
MU 221 Film Music
MU 301 Recording Fundamentals
MU 311–312 Multitrack Recording I and II
MU 321 Sound Synthesis/MIDI
MU 401–402 Recording Seminar/Project I and II
EAS 230 Fundamentals and Applications of Analog Devices
EE 235 Analog Circuits
M 117–118 Calculus I and II
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Minor in Music

A total of 18 credits in music courses (other than performance) is required for the minor in music. A student's program should be planned in consultation with a member of the music faculty.

Visual Arts

Coordinators: Interior Design, Christy Somerville; Art, Graphic Design and Multimedia, Todd S. Jokl, M.F.A.

Study of the visual arts provides an opportunity for self–realization and gives the individual a perception of his or her relationship to society. Foundational courses in the basics of two- and three-dimensional design, color, and drawing, plus work in major disciplines such as painting, sculpture, and the use of computers as a design tool provide the student with the necessary vocabulary for effective visual communication.

Knowledge of the development of art throughout human cultural evolution from the cave era to present day is provided through studies in art history and the contemporary art scene. Thus, equipped with a working vocabulary of visual form and a sense of art history, students progress toward the goal of making a mature visual statement in their chosen field.

University of New Haven art programs provide preparation for graduate study or career opportunities in fields related to art, graphic design, interior design,

and architecture.

Students in all B.A. art programs listed below must complete at least 121 credits. These courses must include the core requirements for the University and the required courses as listed for each program.

B.A., Art

This program is designed to assist students in discovering their potential for creative expression in the plastic arts and the development of a personal idiom in disciplines of their own choosing, including painting, sculpture, drawing, and printmaking. Acquisition of an effective visual vocabulary is promoted by foundational courses in two- and three-dimensional design, color, and drawing. Art historical studies provide perspective on art forms of the past.

The program prepares students for graduate study in art as well as for career opportunities in a broad spectrum of art and art-related fields.

Required Courses

Courses include the University Core Curriculum plus the following:

AT 101–102 Introduction to Studio Art I and II
AT 105–106 Basic Drawing I and II
AT 201–202 Painting I and II
AT 205 Ceramics I
AT 209 Photography I
AT 211–212 Basic Design I and II
AT 213 Color
AT 231–232 History of Art I and II
AT 302 Figure Drawing
AT 304–305 Sculpture I and II
AT 315 Printmaking
AT 401–402 Studio Seminar I and II

Plus one art history elective and two art electives

Plus five electives

B.A., Graphic Design

Graphic design, the art of visual communication through words and pictures, is an expanding discipline. Posters, publications, identity systems, graphs, diagrams, information design, signage, and exhibits are components of the visual environment in which we live. The graphic designer's duty is to bring clarity and visual aesthetics to communication through an understanding of theory, design practice, and technology.

The introductory courses in the graphic design program concentrate on basic design vocabulary, composition, color perception, drawing, introduction to the use of computers as a design tool, and photography. The junior and senior year curriculum focuses on typographic studies, illustration, critical analysis, problem-solving methodology, advanced computer projects, and complex applied design projects, preparing students for graphic design positions in design studios, corporations, and agencies, as well as for graduate studies in the field.

Required Courses

Courses include the University Core Curriculum plus the following:

AT 105–106 Basic Drawing I and II
AT 122 Graphic Design Production
AT 201 Painting I
AT 203–204 Graphic Design I and II
AT 209 Photography I
AT 211–212 Basic Design I and II
AT 213 Color
AT 221–222 Typography I and II
AT 231–232 History of Art I and II
AT 309 Photographic Design
AT 315 Printmaking
AT 322 Illustration
AT 401–402 Studio Seminar I and II
AT 403–412 Special Topics (one course)
AT 599 Independent Study
MK 307 Advertising and Promotion
Plus four electives

A.S., Graphic Design

Required Courses

AT 105–106 Basic Drawing I and II
AT 122 Graphic Design Production
AT 203–204 Graphic Design I and II
AT 209 Photography I

AT 211 Basic Design I
AT 213 Color
AT 221–222 Typography I and II
AT 309 Photographic Design

Plus the University's associate degree core, one Special Topics in Design History course, and one free elective.

Minor in Art

A total of 18 credits in art is required for the minor in art. Students may take the courses listed below and any other courses that fill their needs and interests.

Recommended Courses

AT 105 Basic Drawing I
AT 201 Painting I
AT 213 Color
AT 302 Figure Drawing
AT 304 Sculpture I

Recommended Courses for a Photography Interest

AT 209–210 Photography I and II
AT 225 Photographic Methods
AT 309 Photographic Design
AT 310 Photographic Lighting

Plus one special topics course such as Digital Imaging

Recommended Courses for a Graphic Design Interest

AT 122 Graphic Design Production
AT 211 Basic Design I
AT 203–204 Graphic Design I and II
AT 213 Color
AT 221 Typography I
or
AT 322 Illustration

Recommended Courses for an Interior Design Interest

ID 109–110 Architectural Drawing I and II
ID 211–212 Interior Design I and II
ID 213 Color
ID 315 History of Architecture and Interiors I or
ID 316 History of Architecture and Interiors II

B.A., Interior Design

Studies in the interior design programs are organized to focus on the construction and technology of the built environment for a broad range of residential, commercial, and institutional spaces. Programming and problem-solving abilities are developed through two-dimensional visualization techniques and three-dimensional model building. Hand-drawn and computer-generated drawings and documents provide the basis for implementing design solutions. During the first two years of the program, students develop their theoretical understanding of design and their technical drawing skills through courses in architectural drawing, sketching and rendering, construction documents, lighting design, and residential and commercial interior design studios.

During the third and fourth years, students take advanced courses in interior systems, materials, codes, and interior products and specifications; computer aided design (CAD); and history of architecture, interiors, and furniture. Independent studies and internships, as well as interior design studies focused on areas such as kitchen and bath design, office design, hospitality and restaurant design, retail, health care, historic preservation, universal design and sustainability design are also completed during the third and fourth years. Career preparation is developed through a professional practices course and a series of portfolio design and production courses culminating in a senior portfolio.

Through experiential learning projects and field trips, students develop an understanding of the relationship between interior designers and clients, the interaction between interior designers and architects and other specialized professionals, and methods of communication between designers and fabricators. The program's award-winning student chapter of the American Society of Interior Designers and our affiliations with the design community for internships and job placements provide students with excellent opportunities to network and develop a clear understanding of the profession of interior design.

Required Courses

Courses include the University Core Curriculum plus the following required courses for interior design majors, B.A.:

ID 100 Portfolio Design
ID 109–110 Architectural Drawing I and II
ID 200 Portfolio Production I
ID 211–212 Interior Design I and II
ID 214 Lighting Design and Specifications
ID 215–216 Construction Documents I and II
ID 217 Sketching and Rendering for Interiors
ID 218 Interior Systems, Materials and Codes
ID 300 Portfolio Production II
ID 311–312 Interior Design III and IV
ID 313–314 CAD for Interiors I and II
ID 315–316 History of Architecture and Interiors I and II
ID 317 Interior Products and Specifications
ID 400 Portfolio Presentation
ID 411–412 Interior Design V and VI
ID 413 Professional Practices for Interior Designers
ID 598 Internships for Interiors and Allied Fields
or
ID 598 Independent Study

Plus the following art courses:

AT 105 Basic Drawing I
AT 211–212 Basic Design I and II
AT 213 Color

And one of the following art history courses:

AT 231–232 History of Art I or II, or
AT 331 Contemporary Art

Plus two electives (6 credits)

Concentration in Interior Design/ Pre-architecture

Studies in the interior design/pre-architecture concentration follow the same program format as the interior design degree program with the additional preparation of calculus, physics, and city planning. This concentration prepares the student to potentially enter a professional degree program such as architecture at the graduate school level.

Required Courses

Courses include the University Core Curriculum plus the following courses for interior design/pre-architecture concentration majors, B.A.:

ID 100 Portfolio Design
ID 109–110 Architectural Drawing I and II
ID 200 Portfolio Production I
ID 211–212 Interior Design I and II
ID 214 Lighting Design and Specifications
ID 215–216 Construction Documents I and II
ID 217 Sketching and Rendering for Interiors
ID 218 Interior Systems, Materials and Codes
ID 300 Portfolio Production II
ID 311–312 Interior Design III and IV
ID 313–314 CAD for Interiors I and II
ID 315–316 History of Architecture and Interiors I and II
ID 317 Interior Products and Specifications
ID 400 Portfolio Presentation
ID 411–412 Interior Design V and VI
ID 413 Professional Practices for Interior Designers
ID 598 Internships for Interiors and Allied Fields
or
ID 598 Independent Study

Plus the following art courses:

AT 105 Basic Drawing I
AT 211–212 Basic Design I and II
AT 213 Color

And one of the following art history courses:

AT 231–232 History of Art I or II, or
AT 331 Contemporary Art

Plus the following courses for the pre–architecture concentration:

M 115 Pre-calculus (fulfills the core curriculum math requirement)
M 117 Calculus
PH 103 General Physics with Laboratory
or
PH 150 Mechanics, Heat, and Waves with Laboratory (either course fulfills the core curriculum science with lab requirement)
CE 403 City Planning

A.S., Interior Design

Required Courses

Courses include the University Core Curriculum plus the following courses for interior design majors, A.S.:

ID 100 Portfolio Design
ID 109–110 Architectural Drawing I and II
ID 200 Portfolio Production I
ID 211–212 Interior Design I and II
ID 214 Lighting Design and Specifications
ID 217 Sketching and Rendering for Interiors
ID 315–316 History of Architecture and Interiors I and II

Plus the following art courses:

AT 105 Basic Drawing I
AT 211–212 Basic Design I and II
AT 213 Color

Plus one elective or MR (major requirement) elective* (3 credits)

* MR elective in interior design for NCIDQ

Recommended Electives

AT 203 Graphic Design I
AT 416 ST: Digital Photography and Imaging I
MM 301 Introduction to Multimedia

Visual Arts

See VISUAL AND PERFORMING ARTS.

COLLEGE OF BUSINESS

Richard A. Highfield, B.A., M.B.A., Ph.D., Dean

Vision Statement

To be a preeminent and distinguishable leader among institutions of higher education in the provision of academic business programs.

Mission

To provide high-quality, career-advancing business education opportunities within an environment of lifelong learning. The College of Business sets the PACE through its dedication to ensuring the following:

P: Practical technology applications and professional enrichment

A: Academic excellence

C: Communication skill development

E: Experiential learning opportunities

Business Programs

Bachelor of Science (B.S.)

- Accounting
- Finance
- Hotel and Restaurant Management
- Management
- Management: Concentration in Management of Sports Industries
- Management of Sports Industries
- Marketing
- Tourism and Event Management

Associate in Science (A.S.)

- Management

Minors

- Accounting
- Behavioral Economics
- Entrepreneurship
- Finance
- International Business
- Management
- Marketing
- Quantitative Analysis

Business-Related Programs

Bachelor of Science (B.S.)

- Public Administration (evening courses only)

The College of Business PACE Program

The College of Business Personalized Academic Curricular Experience (PACE) program is open to all College of Business majors pursuing a B.S. degree, regardless of the area of study. This program provides each student with an opportunity to become engaged in a thematic learning experience that focuses on the student's career interests and aspirations. Using this area as a guide, the student selects twelve credits of corresponding courses, with the assistance of an adviser, offered outside the College of Business. These courses must be thematically linked in a way that advances preparation for career placement and must strengthen the academic background in a way that supplements business-related expertise. Additional information may be obtained from College of Business advisers.

The Robert Alvine Professional Enrichment Program

All College of Business students may participate in the Robert Alvine Professional Enrichment Program. Students pursuing a B.S. degree in a business program must participate by way of curricular requirements in certain courses. This program offers co-curricular activities during which students meet and network with area specialists; learn from business leaders; become involved in work-related endeavors such as internships, practicum, and job shadowing; and attend various seminars, workshops, and forums that deal with professional readiness and work-related issues or

emerging issues that impact the business environment. The Professional Enrichment Program builds upon the academic programs by (a) providing cutting-edge information and knowledge concerning matters that impact the operation of business and (b) merging theory into practice by way of the professional expertise and orientation of the session speakers.

Academic Policies

Following are the academic policies of the College of Business.

1. At least 50 percent of business program core credits (i.e., a minimum of 15 credits) required for the B.S. degree must be earned through course work completed at the UNH College of Business.
2. At least 50 percent of the major-specific credits (i.e., a minimum of 15 credits) required for the B.S. degree must be earned through course work completed at the UNH College of Business. Major-specific course work includes all credit requirements in both the eighteen-credit major requirement and the twelve-credit business restricted elective requirement.
3. No credit for course work completed at a community/two-year institution may be applied to, or transferred in as, 300-, 400-, or 500-level courses that are offered by the College of Business.
4. Courses completed at AACSB-accredited institutions may be transferred into the business programs for equivalent-level courses offered by the College of Business. Credits earned at four-year non-AACSB-accredited schools may be transferred only with the approval of the chair of the department offering the course and the dean of the College of Business.
5. Students pursuing either a dual College of Business major or a second College of Business B.S. degree must meet all degree curriculum requirements for each major/degree. A minimum of eighteen College of Business non-overlapping credits must be completed for each new major/degree program completed; credits taken must have the approval of the department chair/program director.
6. To receive a degree from the College of Business, the final 30 credits completed must be earned at UNH.

Evening Accelerated Business Programs

The College of Business offers Evening Accelerated Business Programs for both full- and part-time day students as well as part-time working professionals. Full-time students who are financial aid recipients must consult with the Financial Aid Office to ensure that accelerated program courses meet enrollment eligibility criteria for federal financial aid programs. The accelerated program courses are scheduled in four modules plus summer terms throughout the academic year and are primarily cohort-driven. Complete degree requirements for the B.S. in Management and the B.S. in Accounting are offered for evening students; curriculum requirements for day and evening programs are identical. For additional information about the Evening Accelerated Business Programs, please call University College at 203.932.7180 or 1.800.DIAL.UNH, ext. 7180.

University Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the University Core Curriculum outlined on page 15.

Business Program Structure

College of Business B.S. degree program credits are categorized into one of six groups and conform to the following template:

University Core Curriculum:

Core: 37 credits (40 credits including QA 380)

Electives/PACE program: 12 credits

Non-Business Restricted Electives: 12 credits

Business Program Core:

30 credits*

Major: 18 credits

Restricted Electives: 12 credits

* QA 380 satisfies a core curriculum requirement but is tabulated with the business program core credits.

Additional detail is provided below.

University Core Curriculum:

37 credits (40 credits including QA 380)

The following courses must be completed and will be utilized in partial fulfillment of core curriculum requirements:

Communication (choose one)
CO 100 Human Communication
E 230 Public Speaking and Group Discussion
This course fulfills core competency requirement 1.2.

Quantitative Analysis
M 109 Intermediate Algebra
This course fulfills core competency requirement 2.2.

Technology Applications
QA 380 Operations Management
This course fulfills core competency requirement 3.

Economic Foundations
EC 133 Principles of Economics I
This course fulfills core competency requirement 5.3.
EC 134 Principles of Economics II
This course fulfills core competency requirement 2.3.

Political Science (choose one)
PS 121 American Government and Politics
PS 122 State and Local Government and Politics
This course fulfills core competency requirement 4.2.

Behavioral Science (choose one)
P 111 Introduction to Psychology
SO 113 Sociology
This course fulfills core competency requirement 5.1.

Non-Business Electives/PACE Program:

12 credits

These credits may be used to fulfill the requirements of the College of Business PACE program; otherwise they may be used as free electives in a non-business topic, unless specifically designated. Students should check their academic program of choice for specific credit requirements.

Non-Business Restricted Electives:

12 credits

QA 118 Business Mathematics
QA 216 Business Statistics
Six additional credits in a non-business topic are required and may be specifically designated by major. Consult the academic program of choice for courses that satisfy this requirement.

College of Business Program Core:

30 credits

These courses develop the foundation knowledge and competencies from which major-specific course work may follow.

A 101 Introduction to Financial Accounting
A 102 Introduction to Managerial Accounting
LA 101 Business Law and the Regulatory Environment
FI 213 Business Finance
MK 200 Principles of Marketing
MG 210 Management and Organization
MG 240 Business Ethics and Diversity
QA 343 Management Information Systems
QA 380 Operations Management
MG 550 Business Policy
BA 500 Experiential Learning Capstone (required, non-credit*)
*This non-credit requirement reflects the commitment of the College of Business to engaged, professional learning as well as to international awareness.

College of Business Major Requirement:

18 credits

Students should check their academic program of choice for specific curricular requirements, which build upon the business program core and offer in-depth exposure to advanced material related to the area of study.

College of Business Restricted Electives:

12 credits

These credits provide advanced material, either in the major or in course work that reflects emerging issues of importance. Students should check their academic program of choice for specific curricular requirements.

Business-Related Program Structure

College of Business business-related program requirements are specific to the area of study. Students pursuing these academic programs should check the academic program of choice for all specific curricular requirements.

Accounting

Chair: Robert E. Wnek, L.L.M., J.D., CPA

Professors: Robert E. Wnek, L.L.M. Boston University School of Law, J.D., CPA

Associate Professors: Alireza Daneshfar, Ph.D., Concordia University; Robert McDonald, M.B.A., New York University, CMA, CPA, CIA, CFA; Michael Rolleri, M.B.A., University of Connecticut, CPA; Martin A. Goldberg, L.L.M., New York University, J.D.; Scott J. Lane, Ph.D., University of Kentucky, CPA

Instructor: Mary Miller, M.B.A., CPA University of New Haven

The Accounting Department oversees courses in accounting, business law, and taxation. While the study of accounting has its roots in economic theory, the courses emphasize practical application to real-world problems and the decision-making process, as well as principles and procedures used to produce the information required by decision-makers. Accounting promotes an appreciation for not only the nature of accounting information but also the use of that information in the complex process of decision-making by individuals, business firms, and government. The Department of Accounting at the University of New Haven seeks to serve the educational needs of those involved in all areas of accounting: public, private, or government.

There are many career opportunities for accounting students in the business world, government, and academia. Accounting professionals are needed by consulting firms, public accounting firms, and private industry as well as by federal, state, and local governments. An educational opportunity is also available to students who desire to meet the 150-credit educational requirements necessary to take the Certified Public Accounting (CPA) examination. These additional educational requirements may be taken at the graduate level, leading to an M.B.A. degree.

B.S., Accounting

The accounting major is selected by students wishing to pursue a career in management accounting or in public accounting leading to the Certified Public Accounting (CPA) license. The integration of business law, taxation, and finance into the program requirements provides the necessary academic background to meet the challenges of the accounting profession.

Students earning a B.S. degree in accounting are required to complete 121 credits, including the core curriculum (37 credits), core curriculum restricted electives (12 credits), and core curriculum electives/PACE requirements (12 credits), and the business program core (30 credits). Requirements are identical for both day and evening programs. The following are in addition to the aforementioned curricular requirements:

Core Curriculum Non-Business Restricted Elective:

EC 200 Global Economy
Together with QA 118 and QA 216, this course partially fulfills the core curriculum non-business restricted elective requirement.

Business Program Core:

A 250 Accounting Information Systems
For all accounting majors, this course replaces QA 343 Management Information Systems in the business program core.

Business Major: 18 credits

A 220 Intermediate Financial Accounting I
A 221 Intermediate Financial Accounting II
A 323 Cost Accounting
A 422 Intermediate Financial Accounting III
A 431 Advanced Financial Accounting
A 433 Auditing and Assurance Services

Business Restricted Electives: 12 credits

A 435 Federal Income Taxation I
A 436 Federal Income Taxation II
Plus six credits chosen in consultation with the adviser.

Minor in Accounting (Business program majors only)

Requirements for the minor in accounting, for business program majors only, are nine credits beyond the business program core.

A 220 Intermediate Financial Accounting I
A 221 Intermediate Financial Accounting II
Plus three accounting credits chosen in consultation with the adviser.

Economics and Finance

Chair: Kamal P. Upadhyaya, Ph.D.

Professors Emeriti: Edward A. Downe, Ph.D., New School for Social Research; Phillip Kaplan, Johns Hopkins University; Ward Theilman, Ph.D., University of Illinois

Professors: Peter I. Berman, Ph.D., Johns Hopkins University; Robert M. Rainish, Ph.D., City University of New York; Steven J. Shapiro, Ph.D., Georgetown University; Kamal P. Upadhyaya, Ph.D., Auburn University

Associate Professors: Wentworth Boynton, Ph.D., University of Rhode Island; John J. Phelan, Ph.D., George Washington University; Demissew Ejara, Ph.D., University of Connecticut; Armando Rodriguez, Ph.D., University of Texas

The Department of Economics and Finance offers courses in both economics and finance. Faculty in the Department have a wide range of research interests, as well as extensive experience in government policymaking, consulting, and industry.

Economics courses provide a basis for an understanding of economic structures, a wide range of domestic and international issues, and trends in the economic life of modern societies. These courses offer training in analysis of economic problems as an aid to the evaluation of economic policies. The minor in behavioral economics addresses the emerging importance of understanding market behavior and the heuristics and biases that impact on decision-making in the context of uncertainty.

Finance, as an area of study, is designed to promote an analytic appreciation of the financial system and the financial decision-making process in which society—through its individuals, business firms, and governments—is continually engaged. In particular, the study of finance provides a structured analysis of the financial system and the financial decision-making process as determinants of the economic wealth of the individual, the business firm, and the nation. The study of finance enables the student to pursue the preparation required for a number of financial decision-making positions in government and industry, including the financial services industry. Both a B.S. and a minor in finance are available for the interested student.

B.S., Finance

Students earning a B.S. degree in finance are required to complete 121 credits, including the core curriculum (37 credits), core curriculum restricted electives (12 credits), and core curriculum electives/PACE requirements (12 credits), and the business program core (30 credits). The following are in addition to the aforementioned curricular requirements:

Core Curriculum Non-Business Restricted Elective:

EC 200 Global Economy
Together with QA 118 and QA 216, this course partially fulfill the core curriculum restricted-elective requirement.

Business Major: 18 credits

FI 330 Investment Analysis and Management
FI 345 Financial Institutions and Markets
FI 425 International Finance
FI 429 Corporate Financial Management

Plus two of the following:

A 422 Intermediate Financial Accounting III
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
FI 314 Principles of Real Estate
FI 327 Risk and Insurance
FI 341 Financial Decision Making

Business Restricted Electives: 12 credits

A 220 Intermediate Financial Accounting I
A 221 Intermediate Financial Accounting II
Plus six credits chosen in consultation with the adviser.

Minor in Finance (Business program majors only)

Requirements for the minor in finance, for business program majors only, are nine credits beyond the business program core.

FI 330 Investment Analysis and Management
Plus six finance credits chosen in consultation with the adviser.

Minor in Behavioral Economics (Business program majors only)

Requirements for the minor in behavioral economics, for business program majors only, are 9 credits beyond the business program core.

EC 310 Game Theory
EC 313 Behavioral Economics
EC 425 Decision-Making Economics and Uncertainty

International Business Programs

Professors: Usha Haley, Ph.D., New York University; Michael Kublin, Ph.D., New York University

The College of Business international business programs and global initiatives are overseen by a committee of faculty members who are chosen from each functional area of study in the College of Business. This ensures that these programs are cross-disciplinary in nature and that they consider emerging issues that impact the operation of business by way of all disciplines and fields of study. The College of Business supports a minor in international business for students who are majors in business programs, as well as a minor in international business for students of business-related or non-business programs. In addition, the College of Business supports exchange programs with other institutions across the world, including universities in China, Ecuador, Germany, Ireland, and Spain. Students interested in these study abroad initiatives should contact the dean's office in the College of Business for additional information.

Minor in International Business (Business program majors only)

Requirements for the minor in international business, for business program majors only, are nine credits beyond the business program core.

CO 205 Intercultural Communication

Plus one of the following:

EC 200 Global Economy
FI 425 International Finance
MK 413 International Marketing
MG 415 Multinational Management

Plus one of the following:

IB 421 Operation of the Multinational Corporation
IB 422 International Business Negotiations

Minor in International Business (Non-business and business-related program majors only)

Requirements for the minor in international business, for non-business or business-related program majors only, are the following eighteen credits:

EC 200 Global Economy
MG 210 Management and Organization
MK 200 Principles of Marketing
CO 205 Intercultural Communication
MK 413 International Marketing
IB 422 International Business Negotiations

Management

Chair: William S. Y. Pan, Ph.D.

Professors Emeriti: Lynn W. Ellis, D.P.S., Pace University; Judith Neal, Ph.D., Yale University; Warren J. Smith, M.B.A., Northeastern University

Professors: Tony Carter, M.B.A., Wagner College Graduate School of Business; J.D., University of Denver, College of Law; Linda R. Martin, Ph.D.; University of South Carolina; Abbas Nadim, Ph.D., University of Pennsylvania; William S. Y. Pan, Ph.D., Columbia University; Anshuman Prasad, Ph.D., University of Massachusetts

Associate Professors: Dale M. Finn, Ph.D., University of Massachusetts; JiaJuan Liang, Ph.D., Hong Kong Baptist University; Pawel Mensz, Ph.D., Systems Research Institute of the Polish Academy of Sciences

At this time, as all of society's systems — governmental, technological, societal, educational, industrial, and military, as well as business-related — are becoming increasingly sophisticated and complex, there is a growing need for skilled managers that is unrivaled historically. Contemporary managers must attend to global competition, understand complex logistical matters, maintain service quality and continuous improvement, and monitor both the internal and external business environments. In response to these needs, the management programs seek to provide students with the foundations of knowledge and skill necessary to obtain and advance in professional managerial positions in both national and international corporations. The Department of Management offers a diverse set of degree programs in management and public administration. Minors are also available, in niche areas such as entrepreneurship and quantitative analysis.

The Co-op Program

The Department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work experience in their career field. For further details see the Office of Internships and Employer Relations section on pg. 23 of this catalog.

B.S., Management

In order to function effectively in a variety of organizational situations, administrators and managers must understand the complexities of organizational communication and the interrelationships that exist among the various functional groups that each impact organizational welfare. This point of view is essential for managers who wish to both participate effectively with others in the administrative and managerial group and also administer and oversee activities effectively in critical areas of responsibility. The Department's program in management provides the requisite skill sets for success in this demanding and increasingly international and diverse work environment.

Students earning a B.S. degree in management are required to complete 121 credits, including the core curriculum (37 credits), core curriculum restricted electives (12 credits), and core curriculum electives/PACE requirements (12 credits), and the business program core (30 credits). The following are in addition to the aforementioned curricular requirements:

Business Major: 18 credits

MG 331 Management of Human Resources
MG 350 Management of Workforce Diversity
MG 415 Multinational Management
MG 512 Contemporary Issues in Business and Society
Plus six management credits are chosen in consultation with the adviser.

Business Restricted Electives: 12 credits

These credits are chosen in consultation with the adviser.

Concentration in Management of Sports Industries (Business program)

Students majoring in management have the option of pursuing the concentration in management of sports industries. As part of the management degree, the concentration requires a specified twelve credits. Nine of these credits fulfill the business restricted elective group of courses, with three additional credits designated to fulfill the core curriculum restricted elective. The degree may be completed within the standard 121-credit requirement.

Core Curriculum Restricted Electives:

MG 120 Development of American Sports
Together with QA 118 and QA 216, this course partially fulfills the core curriculum restricted-elective requirement.

Business Restricted Electives:

MG 230 Management of Sports Industries
MG 235 Marketing and Public Relations in Sports

MG 320 Sports Industries and the Law
These courses fulfill nine credits of the business restricted-elective requirement. Three additional credits of business electives are chosen in consultation with the adviser.

A.S., Management

Upon successful completion of 61 credits of the four-year B.S. degree program in management, students may petition to receive an Associate in Science (A.S.) degree in management. Credit requirements are designed to facilitate continuance to the four-year B.S. degree in a business discipline.

The following specific business program core courses must be completed:

A 101 Introduction to Financial Accounting
A 102 Introduction to Managerial Accounting
FI 213 Business Finance
LA 101 Business Law and the Regulatory Environment
MG 210 Management and Organization
MG 240 Business Ethics and Diversity
MK 200 Principles of Marketing

Students must also complete the following core curriculum requirements:

6 credits (E 105, E 110): core competency 1.1
3 credits (CO 100 or E 230) core competency 1.2
3 credits (M 109): core competency 2.2
3 credits (EC 134): core competency 2.3
3 credits (QA 380): core competency 3
3 credits (HS 101 or HS 102): core competency 4.1
3 credits (PS 121 or PS 122): core competency 4.2
3 credits (P or SO): core competency 5.1
3 credits (EC 133): core competency 5.3
3 credits: core competency 6

The following courses, which are offered by the College of Business, must also be completed:

QA 118 Business Mathematics
QA 216 Business Statistics

Minor in Management (Non-business or Business-related program majors)

Requirements for the minor in management, for non-business or business-related program majors only, are the following eighteen credits:

A 101 Introduction to Financial Accounting
LA 101 Introduction to Law and the Regulatory Environment
EC 133 Principles of Economics I
MK 200 Principles of Marketing
MG 210 Management and Organizations
MG 240 Business Ethics and Diversity

Minor in Entrepreneurship (Business program majors)

Throughout the United States, many large enterprises began as small businesses initiated by an entrepreneur with an idea or vision. Still today, ninety-five percent of all businesses in the United States are small businesses. Entrepreneurship and small businesses are dynamic and powerful interactive forces in these increasingly difficult economic times.

The University of New Haven offers a minor in entrepreneurship as a means of preparing students who are considering a business start-up, purchasing an existing business, or joining the family business following graduation. The minor may also provide an "intrapreneurship" foundation for students who aspire to work in big business. As such, the minor pursues a multidisciplinary approach to entrepreneurship that integrates the business disciplines with communication, negotiation, and presentation skills. Moreover, the program merges theory into practice by linking emerging academic developments with the most effective business approaches.

Requirements for the minor in entrepreneurship, for business program majors only, are nine credits beyond the business program core.

MG 317 Entrepreneurship and New Business Development
MG 327 Business Planning
MG 417 Managing an Entrepreneurial Venture

Quantitative Analysis

The Department of Quantitative Analysis delivers courses designed to address the development of quantitative reasoning; critical thinking; information collection, organization, and analysis; and decision-making skills. These include courses in applied calculus, operations research and operations management, information systems, and statistics. The Department offers a minor in quantitative analysis for those students interested in further strengthening their skill sets in this critical area that supports the business functions.

Minor in Quantitative Analysis (Business program majors)

Requirements for the minor in quantitative analysis, for business program majors only, are nine credits in quantitative analysis courses chosen in consultation with the adviser, in addition to the business program core, QA 118, and QA 216.

Marketing

Coordinator: Ben B. Judd, Jr., Ph.D.

Professor Emeritus: Robert P. Brody, D.B.A. Harvard University

Professors: George T. Haley, Ph.D., University of Texas at Austin; Ben B. Judd, Jr., Ph.D., University of Texas at Arlington; Cheng Lu Wang, Ph.D., Oklahoma State University

Associate Professor: Subroto Roy, Ph.D., University of Western Sydney

The discipline of marketing investigates business practices and strategies needed to attract customers and compete effectively in a global free-market system. Although the curriculum places a greater emphasis on practices and strategies in the domestic environment, international issues are explored in most courses and in an international marketing course. Newer coverage includes the emerging impact of the Internet on channels of distribution and on promotion practices. Skills are also developed in the traditional areas of consumer analysis and marketing research.

B.S., Marketing

Marketing is the study of the processes for developing and distributing goods and services attractive to selected customer groups. These markets may include both consumer and organizational (industrial, governmental, or non-profit) groups. An understanding of customers results from studies of psychological and sociological perspectives and from the use of research tools. Based on this understanding, competitive strategies and distribution channels can be devised to reach the desired customers more effectively. The emergence of e-commerce has substantially modified some of the existing strategies for understanding the customer and for managing channels of distribution.

Students earning a B.S. degree in marketing are required to complete 121 credits, including the core curriculum (37 credits), core curriculum restricted electives (12 credits), and core curriculum electives/PACE requirements (12 credits), and the business program core (30 credits). The following are in addition to the aforementioned curricular requirements:

Business Major: 18 credits

MK 205 Consumer Behavior
or
MK 307 Advertising and Promotion
MK 302 Organizational Marketing
MK 326 Overview of E-Commerce
MK 413 International Marketing
MK 442 Marketing Research in the Global Environment

Plus one of the following:

MK 316 Sales Management
MK 321 Retail Management
MK 402 Marketing of Services
MK 515 Marketing Management

Business Restricted Electives: 12 credits

These credits are chosen in consultation with the adviser.

Minor in Marketing (Business program majors only)

Requirements for the minor in marketing, for business program majors only, are nine credits beyond the business program core.

MK 413 International Marketing

Plus two of the following:

MK 205 Consumer Behavior
MK 302 Organizational Marketing
MK 307 Advertising and Promotion
MK 321 Retail Management
MK 402 Marketing of Services
MK 442 Marketing Research in the Global Environment
MK 450–459 Special Topics
MK 515 Marketing Management

Minor in Marketing (Non-business or business-related program majors only)

Requirements for the minor in marketing, for non-business or business-related program majors only, are the following 18 credits:

MK 200 Principles of Marketing
MG 210 Management and Organization

Plus four of the following:

MK 205 Consumer Behavior
MK 302 Organizational Marketing
MK 307 Advertising and Promotion
MK 321 Retail Management
MK 402 Marketing of Services
MK 413 International Marketing
MK 515 Marketing Management

Sports Management, Hospitality and Tourism Management

Chair: Gil B. Fried, J.D.

Professor Emeritus: Elisabeth van Dyke, Ph.D., Columbia University

Professors: Gil B. Fried, J.D., Ohio State University; Allen Sack, Ph.D., Pennsylvania State University

Lecturer: Robert L. Brown, M.B.A., American Intercontinental University

Sports management is a rapidly growing field that provides numerous career options from professional and collegiate sports broadcasting and selling sporting goods. Hospitality, tourism, and event management are also strong fields that have significant growth through large national hotel chains to amusement parks and resorts. The two fields have many common issues/opportunities and UNH focuses on the business side of these industries. Our graduates work in numerous business environments with the strong legal, financial, managerial, marketing, and event management skills embodied in our classes. Our courses are supplemented with numerous experiential education opportunities from industry internships to professional enrichment opportunities where students can network with industry leaders.

With several unique degree options, UNH's Sport Management/Hospitality and Tourism Management Department can provide the education students need to become leaders in these exciting industries.

The Co-op Program

The Department participates in the cooperative education program (co-op), which enables students to combine their education with practical, paid work experience in their career field. For further details see the Office of Internships and Employer Relations section on pg. 23 of this catalog.

B.S., Management of Sports Industries

The sports industry continues to experience significant growth as a business sector of the economy. As the industry expands, so does the need for sports management specialists who are trained in business management skills and also demonstrate sensitivity to the unique features of the sports enterprise. College graduates in management of sports industries can pursue careers in professional sports franchises, coliseum and arena management, ski resorts, corporate fitness centers, college sports programs, sports media industries, sporting goods merchandising, and a wide variety of other sports-related areas. Students of this program receive specialized training in areas such as sports law, marketing, finance, and event management, which are all integrated by way of the comprehensive internship requirement.

Students earning a B.S. degree in management of sports industries are required to complete 121 credits, including the core curriculum (37 credits), core curriculum restricted electives (12 credits), and core curriculum electives/PACE requirements (12 credits), and the business program core (30 credits). The following are in addition to the aforementioned curricular requirements:

Core Curriculum Restricted Electives:

MG 120 Development of American Sports
Together with QA 118 and QA 216, this course fulfills the core curriculum restricted elective credit requirement.

Business Major: 18 credits

MG 230 Management of Sports Industries
MG 235 Marketing and Public Relations in Sports
MG 320 Sports Industries and the Law
MG 331 Management of Human Resources
MG 350 Management of Workforce Diversity
MG 415 Multinational Management

Business Restricted Electives: 12 credits

MG 325 Sports Facility Management
MG 430 Financial Management for Sports Administration
MG 475 Sport Event Management
MG 598 Internship

B.S., Tourism and Event Management
B.S., Hotel and Restaurant Management

These programs offer a balanced curriculum of management skills and global orientations necessary to develop leaders for careers in the world's largest industry. Classroom learning integrates practical technology applications, academic excellence, and communication skills, and is reinforced through experiential learning and professional enrichment opportunities. Students are also encouraged to participate in projects involving tourism and event professionals from the state, regional, national, and international levels.

The B.S. degree in either tourism and event management or hotel and restaurant management provides students with the knowledge and experience necessary to successfully obtain and advance in managerial positions. Our student professional associations strive to supplement these prospects through networking, service learning, and interaction with industry leaders.

Located between New York and Boston, two of the most prominent tourism gateways, the University of New Haven's tourism and event management program offers students an ideal location from which to study the industry. Furthermore, we are in proximity to several multinational businesses with which our students may partner to complete their fieldwork (800 hours) and internship (400 hours) requirements. Each student is also required to complete a 200-hour service learning component prior to graduation.

Students earning a B.S. degree in either tourism and event management or hotel and restaurant management are required to complete 121 credits, including the core curriculum (37 credits), core curriculum restricted electives (12 credits), core curriculum electives/PACE requirements (12 credits), and the business program core (30 credits). The following are in addition to the aforementioned curricular requirements:

Business Major: 18 credits

HTM 165 Introduction to Hospitality and Tourism
HTM 225 Restaurant Management
HTM 250 Lodging Operations

HTM 316 Hospitality Finance and Revenue Management
HTM 325 Destination Marketing and Sales
HTM 410 International Tourism

For students pursuing the B.S. degree in tourism and event management:

Business Restricted Electives: 12 credits

HTM 598 Internship

Plus three of the following:

HTM 227 Service Management
HTM 335 Convention and Meeting Planning
HTM 340 Tourism Planning and Policy
HTM 345 Catering and Event Management
HTM 360 Corporate Travel Planning
HTM 370 Gaming and Casino Management
HTM 430 Special Interest Tourism
HTM 450–459 Special Topics
HTM 470 Tour Design, Marketing, and Management
HTM 597 Practicum
MG 475 Sport Event Management

For students pursuing the B.S. degree in hotel and restaurant management:

Business Restricted Electives: 12 credits

HTM 598 Internship

Plus three of the following:

HTM 202 Hospitality Purchasing
HTM 210 Applied Techniques in the Culinary Arts
HTM 220 Pastry Making Techniques
HTM 226 Front Office Procedures
HTM 227 Service Management
HTM 235 Dining Room Management
HTM 300 Principles of Baking
HTM 304 Volume Food Production and Service
HTM 305 Wine Appreciation
HTM 315 Beverage Management
HTM 380 Resort Operations
HTM 440 International Food, Buffet, and Catering
HTM 445 Advanced Cuisine Management and Technique
HTM 450–459 Special Topics
HTM 597 Practicum

Public Administration

Chair: Charles Coleman, M.P.A.

Professors: Jack Werblow, Ph.D., University of Cincinnati

Associate Professors: Cynthia Conrad, Ph.D., University of Texas

Assistant Professor: Charles Coleman, M.P.A., West Virginia University

B.S., Public Administration (Business-related program)

Public administration is a rich and challenging multidisciplinary field that addresses both philosophical and social science perspectives that influence the nature of organizations. The B.S. degree in public administration is designed to develop skill sets that impact on the personal and professional effectiveness of people working in public, non-profit, voluntary, and private organizations. Graduates of the program are prepared to enter the work force and advance to leadership positions in these organizations with a sense of commitment to social purpose, the public interest, and effective public problem-solving.

Students earning a B.S. degree in public administration are required to complete 121 credits, including the core curriculum.

Core Curriculum:

40 credits

The following required courses partially fulfill the core curriculum requirements:

CO 100 Human Communication
This course fulfills core competency requirement 1.2.

M 109 Intermediate Algebra
This course fulfills core competency requirement 2.2.

EC 134 Principles of Economics II
This course fulfills core competency requirement 2.3.

CS 107 Computers and their Applications
This course fulfills core competency requirement 3.

HS 102 The Western World in Modern Times
This course fulfills core competency requirement 4.1.

PS 121 American Government
This course fulfills core competency requirement 4.2.

EC 133 Principles of Economics I
This course fulfills core competency requirement 5.3.

College of Business Public Administration Core:

33 credits

BA 100 Leadership in Business
QA 118 Business Mathematics
A 101 Introduction to Financial Accounting
A 102 Introduction to Managerial Accounting
LA 101 Business Law and the Regulatory Environment
EC 314 Public Finance and Budgeting
MK 200 Principles of Marketing
MG 210 Management and Organization
PS 122 State and Local Government and Politics
PS 216 Urban Government and Politics
QA 343 Management Information Systems
BA 500 Experiential Learning Capstone (non-credit)

Public Administration Major Requirements:

24 credits

PA 101 Introduction to Public Administration
PA 302 Public Administration Systems and Procedures
PA 305 Institutional Budgeting and Planning
PA 307 Urban and Regional Management
PA 404 Public Policy Analysis
PA 405 Public Personnel Practices
PA 512 Seminar in Public Administration
PA 598 Public Administration Internship

Core Curriculum Electives/PACE Program:

12 credits

These credits can fulfill the requirements of the College of Business PACE program; otherwise, credits are chosen in consultation with the adviser.

College of Business Public Administration Electives:

6 credits

These credits are chosen in consultation with the adviser.

Additional Electives:

6 credits

These credits are chosen in consultation with the adviser.


UNIVERSITY OF NEW HAVEN
CONNECTICUT

TAGLIATELA COLLEGE OF ENGINEERING

Barry J. Farbrother, Ph.D., Dean
M. Ali Montazer, Ph.D., Associate Dean

The Tagliatela College of Engineering (TCoE) offers a variety of programs in engineering and the applied sciences. These two areas encompass a number of dynamic professions in which practitioners use their knowledge, judgment, and creativity to solve some of the most important and interesting challenges facing society. These challenges and the changing face of engineering will shape the world of the twenty-first century — a world of exotic materials, new sources of energy, staggering telecommunications and computing capabilities, cybernetic factories, and needed public works. In the coming years we anticipate exciting opportunities to emerge at the frontier between engineering and the life sciences.

Few professions can match engineering for its challenge and excitement or for its essential spirit of play. These qualities are true for each of the school's seven engineering programs — chemical, civil, computer, electrical, general, mechanical, and system engineering — and also for its applied science programs in computer science, information technology, and chemistry. The rewards of an engineering career include challenging tasks, social standing, and appealing working conditions and compensation. All of these are in addition to the great satisfaction of seeing your accomplishments in the real world of engineered components and systems. But a degree in engineering or the applied sciences can also lead to a wide variety of careers outside the realm of engineering and applied science. Engineers are problem solvers, and the ability to analyze a problem and find a viable solution is a highly sought-after attribute in many walks of life. Engineering skills provide an entry to business, law, medicine, politics, and entrepreneurship. Innovation will play a major role in the future, and individuals who are able to generate creative solutions to the myriad of problems that face society will be well rewarded.

Vision

The vision of the Tagliatela College of Engineering is to be the acknowledged regional leader in innovative engineering and applied science education.

Mission

The mission of the Tagliatela College of Engineering is to provide high-quality programs in an environment that supports student development, encourages faculty scholarship, and provides for the personal growth of all community members. The college provides an innovative teaching and engaged learning environment in order to maximize student success. Students are prepared for evolving professional careers by the fostering of a multidisciplinary perspective, and by the instilling of broad problem-solving, design, organizational, and communications skills. Graduates are prepared to practice ethical behavior, engage in career-long learning, and contribute to the betterment of society. All community members value diversity and expect that graduates will bring recognition to themselves and to the institution throughout their professional careers. In the context of our historically successful programs, we have established a continuous quality-improvement environment that seeks to achieve the following goals:

- Sustain a positive environment for the critical evaluation of new ideas
- Maintain nationally accredited programs
- Develops leading-edge curricula to meet the needs of the region
- Adapt curricula in response to technological advances

- Maximize learning by incorporating new and effective pedagogies
- Use appropriate classroom technology to support learning
- Provide laboratory facilities that reflect the current state of practice
- Further develop experiential learning opportunities
- Actively partner with business, corporate, government, industrial, and community leaders

Guiding Principles

Members of the Tagliatela College of Engineering teaching/learning community are committed to the guiding principles below:

- To exhibit respect, integrity, dignity, and professionalism
- To assist all members of the Tagliatela College of Engineering — students, staff, and faculty — to achieve their full potential
- To instill a spirit of pride, cooperation, and accountability
- To believe that personal contact with and concern for our students are essential
- To be committed to the total development of the student
- To recognize that in diversity there is strength
- To understand that the Tagliatela College of Engineering is one component of the teaching/learning environment and to offer support for other programs within the University

Organizational Structure

The Tagliatela College of Engineering consists of four operational units as follows:

- The Department of Chemistry and Chemical Engineering (Ch/ChE)
- The Department of Electrical and Computer Engineering and Computer Science (EE/CEN/CS)
- The Department of Mechanical, Civil, and Environmental Engineering (MCEE)
- The Multidisciplinary Engineering Systems Division (MES)

Further information concerning each operational unit, its mission and goals, its faculty and its program offerings, is given below.

Professional Accreditation

The programs leading to the bachelor's degrees in chemical, civil, computer, electrical, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). The bachelor's degree program in computer science is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology (CAC/ABET).

Programs

Responsibility for the curricular content of academic programs resides with the faculty in each of the academic units. Each academic program is managed by a program coordinator who is the students' primary point of contact for program-related inquiries. Each of the college's academic programs is listed under its departmental affiliation.

Undergraduate Programs

Bachelor of Science	**Operational Unit**
Chemical Engineering	Ch/ChE
Chemistry	Ch/ChE
Civil Engineering	MCEE
Computer Engineering	EE/CEN/CS
Computer Science	EE/CEN/CS
Electrical Engineering	EE/CEN/CS
General Engineering	MES
Information Technology	EE/CEN/CS
Mechanical Engineering	MCEE
System Engineering	MES
Associate in Science	
Computer Science	EE/CEN/CS
Certificates	
Computer Programming	EE/CEN/CS
Logistics	MES

Graduate Programs

Master of Science

Computer Science	EE/CEN/CS
Electrical Engineering	EE/CEN/CS
Electrical Engineering (CEN option)	EE/CEN/CS
Environmental Engineering	MCEE
Engineering Management	Office of the Dean
Industrial Engineering	MES
Mechanical Engineering	MCEE

Dual Degree

M.B.A./M.S. Industrial Engineering	MES

Graduate Certificates

Civil Engineering Design	MCEE
Computer Applications	EE/CEN/CS
Computer Programming	EE/CEN/CS
Computing	EE/CEN/CS
Logistics	MES
Lean/Six Sigma	MES
Quality Engineering	MES

Choosing a Major

The University of New Haven is one of a small number of universities in which entering freshmen are admitted directly to the engineering college. A student may be accepted into the Tagliatela College of Engineering without declaring a major in a specific engineering discipline. This is possible because the freshman year curriculum is essentially common to all engineering programs. Students who have chosen a major should follow the recommended first-year program for the major. Students who are undecided about their choice of engineering major should choose the general engineering degree program and follow the recommended first-year program.

Those students wishing to complete an engineering degree program other than general engineering are strongly advised to decide on their new program by the beginning of the sophomore year. Students interested in chemistry, computer science, or information technology are advised to choose that option in their first year.

Academic Advising

Faculty members within the Tagliatela College of Engineering take very seriously their responsibilities as academic advisers. Good academic advising helps a student make wise academic decisions and avoid course sequencing errors that can delay graduation. Each student is encouraged to meet with his or her academic adviser as soon as possible during the first semester of the freshman year and on a regular basis at least once per semester.

All newly admitted students, including transfer students, are assigned a faculty adviser in the department responsible for their chosen degree program. Students choosing general engineering are assigned a faculty adviser from the Division of Multidisciplinary Engineering Systems.

The Multidisciplinary Foundation for Engineering Programs

To operate effectively in today's workforce, engineers need to have a multidisciplinary perspective along with substantial disciplinary depth. The faculty of the Tagliatela College of Engineering have developed an innovative approach to achieve this perspective: The Multidisciplinary Engineering Foundation Spiral Curriculum. This curricular model enables the needed mix of breadth and depth, along with the desired professional skills, by providing carefully crafted, well-coordinated curricular experiences in the first two years. Full details of this program can be found in the section Multidisciplinary Engineering Systems on page 145.

University Core Curriculum

In addition to college and department requirements, students must fulfill all requirements of the University Core Curriculum. (See University Curricula section of the catalog.) Included within the

core curriculum are requirements in the humanities and social sciences. For details, see the section Social Science and Humanities Electives below.

General Policies of the Tagliatela College of Engineering

The following information applies to all degree programs within the TCoE:

Transfer Credit

Transfer of credits for previous academic work is coordinated by the dean's office and assessed by program coordinators according to school policy, described in the document "Guidelines on Transfer Credit Awards." All transferred courses are the result of a determination of equivalence of course content and level. Courses for transfer claiming engineering content normally are accepted only from ABET-accredited programs.

Transfer students whose previous academic work results in placement beyond the freshman year may be given the option of following the program worksheet in effect for upper-level students in the chosen major. Such a choice may shorten the time required to complete the degree program.

Social Science and Humanities Electives

The work of engineers and applied scientists requires creative solutions that are socially, politically, economically, culturally and aesthetically acceptable. Courses in the social sciences and humanities help to develop awareness of the needs of the global society and contribute to the ability of a scientist/engineer to communicate technical options to the broad constituencies that are affected by technical solutions. Specific courses chosen in these areas must satisfy the University Core Curriculum requirements.

Mathematics Electives

These are courses from the Mathematics Department at the 300 or higher level. Academic advisers should be consulted for recommendations on the mathematics electives most relevant to a student's career objectives.

Technical Electives

Technical electives are upper-level courses directly pertinent to a student's major field of study. These electives must be approved by the student's academic adviser and are usually chosen from engineering college courses. The adviser's approval is important to ensure that students meet the prerequisite requirements.

Design Electives

Design electives within each program are those upper-level engineering courses that incorporate substantial design activities. Suitable courses include a (D) following the course title. These courses may also be used as technical electives.

Internship Requirement

All Tagliatela College of Engineering graduates are required to complete an internship prior to graduation. Students should check with their academic adviser regarding the specific requirements (which differ by program).

Senior Project Experience

The Tagliatela College of Engineering's strategic plan calls for each TCoE engineering major to complete a yearlong, team-based, client sponsored project. Students are encouraged to seek suitable topics for project work from the organizations in which they undertake their internships.

Chemistry and Chemical Engineering

Chairman: W. David Harding, Ph.D.

Professors Emeriti: Peter J. Desio, Ph.D., University of New Hampshire; George L. Wheeler, Ph.D., University of Maryland

Professors: Michael A. Collura, Ph.D., Lehigh University; W. David Harding, Ph.D., Northwestern University; Michael J. Saliby, Ph.D., SUNY at Binghamton; Pauline M. Schwartz, Ph.D., University of Michigan

Associate Professors: Eddie Luzik, Ph.D., Bryn Mawr College; Arthur S. Gow III, Ph.D., Pennsylvania State University

Assistant Professor: Nancy Ortins Savage, Ph.D., The Ohio State University

Lecturer: Eddie Del Valle, M.S., Pontifical Catholic University of Puerto Rico

Visiting Instructor: Tiffany Hesser, M.S., University of New Haven

The mission of the Department of Chemistry and Chemical Engineering is to prepare a diverse student body for entrance into the chemical engineering and chemistry professions and for evolving professional careers, including graduate study and professional school.

The Department offers bachelor's degree programs and minors in chemical engineering and chemistry.

Degrees Offered

B.A., Chemistry

B.S., Chemistry

B.S., Chemical Engineering

Jacob Finley Buckman Endowed Chair and Scholarships

The Jacob Finley Buckman Endowed Chair of Chemistry and Chemical Engineering was established in 1981 by Mrs. Clarice Buckman of New Haven in memory of her late husband, Jacob Finley Buckman, cofounder of Enthone Corporation. The Clarice Buckman Scholarships are awarded to juniors majoring in Chemical Engineering or Chemistry.

Chemical Engineering

Chemical engineers are creative problem solvers. They apply the fundamental principles of chemistry, physics, biology, mathematics, and economics to the solution of practical problems and to the search for new knowledge. Traditionally, chemical engineers develop, design, optimize, and operate processes that convert material and energy resources into new or improved products. It was practitioners of this discipline who developed the technological infrastructure for industries such as chemicals, petroleum products, plastics, textiles, pharmaceuticals, and food processing.

Chemical engineers are at the forefront in implementing emerging technologies such as bio-processing and biomaterials and nanotechnology. Chemical engineers are also concerned with the critical areas of resource depletion, energy conservation, pollution prevention and control, improved control of processes, and enhanced productivity. The major has also proven to be an excellent background for the study of law, medicine, or business.

Mission and Outcomes

The mission of the Chemical Engineering program is to prepare a diverse student body for entrance into the chemical engineering profession and for evolving professional careers. The following four program objectives have been set to achieve the program's mission:

- To graduate students who have the technical knowledge and professional skills necessary for the current practice of engineering.
- To prepare students for technical careers that require a high level of interaction and communication with others and sensitivity to the broad social scope of engineering problems.
- To prepare graduates to apply an organized approach to competently address problems and opportunities through careful problem formulation, critical analysis of inputs, creative solutions, and the ability to learn what is needed to solve the complex problem.
- To assure that students have a firm understanding of the terminology, techniques, and methods employed by chemical engineers.

Based on the program objectives, ten program outcomes have been established:

- Students can demonstrate the understanding of and an ability to apply concepts in basic science and mathematics and have a working knowledge of advanced chemistry.

- Students can demonstrate the ability to design and conduct experiments, analyze data, assess results, and make recommendations regarding the outcome of their work.
- Students can demonstrate proficiency in the use of computer tools typical of those used in the process industries for research, development, design, and operation activities.
- Students can demonstrate the ability to function as integral members of multidisciplinary teams.
- Students are aware that solutions to technical problems have wide-ranging effects on society. They can demonstrate the ability to incorporate consideration of such effects into their solutions.
- Students can demonstrate the ability to effectively communicate technical ideas to a variety of audiences.
- Students can demonstrate the ability to develop solutions to open-ended problems that achieve balance among competing constraints.
- Students can demonstrate the ability to apply an engineering approach to the solution of problems.
- Students can demonstrate the ability to think creatively and to extend their knowledge through independent learning.
- Students can demonstrate the ability to apply the concepts of balances, rate, and equilibrium relationships and of process/product/equipment analysis and design.

Achievement of these four objectives and ten outcomes is assessed by a variety of means, including course evaluations, exit surveys, alumni surveys, and employer surveys.

B.S., Chemical Engineering

Program Coordinator: W. David Harding, Ph.D.

The B.S. degree in chemical engineering is accredited by the American Institute of Chemical Engineers (AIChE) and by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). The Chemical Engineering program is challenging, but for those genuinely interested it develops the depth of knowledge required to embark on a fascinating and satisfying professional career in industry or government or to continue study at the graduate level.

The freshman year in chemical engineering is like that of the other engineering disciplines (see the section "Multidisciplinary Foundation for Engineering Programs" on page 144). Chemical Engineering students take EAS 120, Chemistry with Application to Biosystems, during the freshman year.

The first chemical engineering course, taken in the sophomore year, is the beginning of a well-integrated sequence that builds on the multidisciplinary foundation. Each chemical engineering course contributes uniquely to the development of skills in problem solving, communication, computer usage, and engineering design. Several common themes weave throughout these courses, including safety, concern for the environment, and practical application of knowledge to real-world problems. A comprehensive laboratory experience is integrated into most of the chemical engineering courses and culminates with the chemical engineering laboratory course during the senior year. This laboratory experience contributes to these educational objectives through the use of modern, industrial-type data acquisition and control instruments and computers on pilot-scale process equipment. Comprehensive design projects in the senior year enable the student to synthesize and focus on the entire curriculum. Several engineering or science electives allow flexibility in the program, to include areas of special interest.

Students in the Chemical Engineering program satisfy the University Core Curriculum requirements through specified courses and electives. University Core Curriculum categories are indicated in the list below for such electives.

Required Courses

(130 credits total including freshman year)

Freshman Year

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
E 105 Composition

E 110 Composition and Literature
EAS 107P Introduction to Engineering
EAS 109 Project Planning and Development
EAS 112 Methods of Engineering Analysis
EAS 120 Chemistry with Applications to Biosystems
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I
M 118 Calculus II

Plus one Core Competency 5.1 elective

Sophomore Year

CH 201–202 Organic Chemistry I and II
CH 203 Organic Chemistry I Laboratory
CM 220 Process Analysis
EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 224 Fluid-Thermal Systems
M 203 Calculus III
M 204 Differential Equations
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Junior Year

CH 331–332 Physical Chemistry I and II
CH 333–334 Physical Chemistry I and II Laboratory
CM 311 Chemical Engineering Thermodynamics
CM 315 Transport Operations I
CM 316 Transport Operations II
CM 321 Reaction Kinetics and Reactor Design
EAS 230 Fundamentals and Applications of Analog Devices
EAS 232 Project Management and Engineering Economics

Plus one Core Competency 1.2 elective, and one Core Competency 5.2 elective

Senior Year

CM 401 Mass Transfer Operations
CM 411 Chemical Engineering Laboratory
CM 415 Process Dynamics and Control
CM 420 Process Design Principles
CM 421 Plant and Process Design
EAS 415 Professional Engineering Seminar
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times

Plus one Core Competency 6 elective and 9 credits of engineering or science electives

Students who wish to concentrate in a particular area should select a cluster of elective courses that matches their interests. Following are examples of popular clusters:

Biochemical Engineering Applications

BI 253 Biology for Science Majors with Laboratory I
BI 301 Microbiology
BI 461 Biochemistry

Biotechnology Applications

BI 253 Biology for Science Majors with Laboratory I
BI 301 Microbiology
BI 308 Cell Biology
BI 311 Molecular Biology

Environmental Engineering Applications

CE 315 Environmental Engineering
CE 404 Water and Wastewater Engineering
CM 521 Air Pollution Fundamentals

In some cases, students may wish to take courses beyond those required for the degree, to gain depth in an area of interest.

Minor in Chemical Engineering

Students who wish to earn a minor in chemical engineering should complete EAS 224 and five courses in chemical engineering, including the following:

EAS 224 Fluid-Thermal Systems
CM 220 Process Analysis
CM 315 Transport Operations I
CM 321 Reaction Kinetics and Reactor Design

Plus two additional chemical engineering (CM) courses.

Chemical Engineering Club

The Chemical Engineering Club has ties to the American Institute of Chemical Engineers (AIChE).

The Club provides students the opportunity to socialize, meet chemical engineers working in the area, visit process plants, and participate in community projects.

Chemistry

Chemists are concerned with the structure and analysis of matter and the changes that matter undergoes. Today's chemists are solving problems and developing new substances with the increasing use of laboratory instruments. Many of these instruments are interfaced with computers for rapid data analysis and display.

Careers for chemists in today's market include the rapidly developing fields of instrumentation; computers; energy; environment; forensics; medicine; biochemistry and biotechnology; safety and health; pharmaceutical, product, and equipment development; chemical engineering; plastics and polymers; synthetic fibers; industrial chemistry; technical sales and services; and management.

Objectives

The Chemistry program has the following educational objectives:

- To provide a strong background in theoretical chemical principles and laboratory practice.
- To develop problem-solving and critical-thinking skills.
- To develop the ability to communicate effectively.
- To provide pertinent experience with chemical instrumentation.

B.S., Chemistry

Program Coordinator: Arthur S. Gow III, Ph.D.

The B.S. in Chemistry program includes most of the courses recommended by the American Chemical Society (ACS) and provides a rigorous background well-suited to those students who will pursue graduate studies in chemistry. The program is also highly recommended for premedical students. The program contains six technical electives. By careful selection of courses, these electives allow the student to develop a cluster in a related field such as biotechnology, biochemistry, computer science, environmental studies, or an engineering field.

Students majoring in forensic science may also earn a B.S. degree in chemistry by taking 16 credits in addition to those required for the B.S. degree in forensic science.

Required Courses

Students majoring in chemistry must complete the following courses for a total of 123–126 credits:

Freshman Year

CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry I and II Laboratory
E 105 Composition
E 110 Composition and Literature
M 117–118 Calculus I and II
PH 150 Mechanics, Heat, and Waves with Laboratory
FE 001 Freshman Experience (required for all first-time day-division freshmen)
Plus one Core Competency 3 Option A elective

Sophomore Year

CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry I and II Laboratory
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times
M 203 Calculus III
PH 205 Electromagnetism and Optics with Laboratory

Plus one computer science (CS) elective or an approved restricted elective chosen with the adviser, and one Core Competency 5.1 elective

Junior Year

CH 331–332 Physical Chemistry I and II
CH 333–334 Physical Chemistry I and II Laboratory
CH 341 Synthetic Methods in Chemistry

Plus two technical electives chosen with the adviser, one advanced chemistry elective, one Core Competency 1.2 elective, one Core Competency 2.3 elective, one Core Competency 5.2 elective, and one Core Competency 6 elective

Senior Year

CH 411 Chemical Literature
CH 412 Seminar
CH 451 Thesis with Laboratory or advanced chemistry or chemical engineering course
CH 501 Advanced Organic Chemistry
CH 521 Advanced Inorganic Chemistry
CH 599 Independent Study or advanced chemistry or chemical engineering course

Plus four technical electives chosen with the adviser, and one biology or mathematics elective from Core Competency 2

Teaching Chemistry

Students interested in earning a teaching certificate in secondary education in chemistry may enter the graduate program at UNH. The B.S. or B.A. degree in chemistry is the best major for those planning to teach at the secondary level, but other related majors are also acceptable. Students interested in teaching science at the middle-school level need a variety of science courses, including chemistry. Please contact the Education Department for additional information.

Minor in Chemistry

To obtain a minor in chemistry, students must complete 23–24 credits, including the following courses:

Required Courses

CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry I and II Laboratory
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry I and II Laboratory
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
(A CH 300-level or above course may be substituted for CH 221.)

Forensic Science and Chemistry Club

The Forensic Science and Chemistry Club is a student affiliate of the American Chemical Society (ACS). The Club is open to all students, and all chemistry and forensic science majors are encouraged to join. Club activities include field trips, community and University service projects, films, group discussions, and social activities.

Electrical and Computer Engineering and Computer Science

Chairman: Ali Golbazi, Ph.D.

Professors Emeriti: Gerald J. Kirwin, Ph.D., Syracuse University; Kantilal K Surti, Ph.D., University of Connecticut; Darrell Horning, Ph.D., University of Illinois; Roger G. Frey, Ph.D., J.D., Yale University

Professors: Bouzid Aliane, Ph.D., Polytechnic Institute of New York; Tahany Fergany, Ph.D., University of Connecticut; Alice E. Fischer, Ph.D., Harvard University; Andrew J. Fish, Jr., Ph.D., University of Connecticut; Ali Golbazi, Ph.D., Wayne State University; Bijan Karimi, Ph.D., Oklahoma State University

Associate Professors: William R. Adams, Ph.D., University of Connecticut; Barun Chandra, Ph.D., University of Chicago; David W. Eggert, Ph.D., University of South Florida; Norman Hosay, Ph.D., University of Wisconsin

Degrees Offered

A.S., Computer Science

B.S., Computer Engineering

B.S., Computer Science

B.S., Electrical Engineering

B.S., Information Technology

Five-year B.S./M.S. in Electrical and Computer Engineering

Five-year B.S./M.S. in Computer Science

For graduate degrees offered by this Department, please refer to the UNH *Graduate Catalog*.

Mission

The mission of the Department is to prepare students from diverse backgrounds for professional practice and continued growth in the fields of electrical engineering, computer engineering, computer science, and information technology. We provide students with the skills and basic background needed to become proficient in today's technology, as well as to keep abreast of future developments in these fields.

The offerings in the Department cover a wide spectrum of possibilities. On one end, the electrical engineering discipline focuses on the design of electrical systems, both computer-related and noncomputer-related. On the other end, the computer science discipline focuses on the design and implementation of computer software for various applications. In between, the field of computer engineering bridges this gap through the design of computer hardware and its controlling software. The area of information technology deals with the deployment and integration of these various components into larger systems, such as a secure computer network infrastructure or an e-commerce website.

Educational Philosophy

Being true to the broader educational missions of the University and the Tagliatela College of Engineering, the programs in the Department possess many facets. Through the University's core requirements, students expand their cultural and intellectual horizons by exposure to the humanities and social sciences, in addition to the technical aspects of mathematics and science. Written and oral communication skills are developed continually throughout the curriculum.

During the freshman and sophomore years, students in each program participate at different levels in the multidisciplinary spiral curriculum of the TCoE, in addition to taking introductory discipline courses. They then have an opportunity to pursue particular interests through required and elective courses in their final two years.

Another important feature of these programs is that they put theory into practice. Through a mixture of specific lab courses and in-class projects, students have "hands-on" experiences to further emphasize the lessons they have learned. These activities culminate in a design project in their senior year, as well as an internship in local industry.

Internship Requirement

The internship program enriches the academic experience for the student by providing exposure to a working industrial environment. Each internship is a partnership between the student, a faculty adviser and an employer. Once the junior year is reached (60 credits), a student is eligible to find and propose a particular experience. This could take the form of part-time or summer employment, a co-op job, community service or some other activity of sufficient duration and with duties relevant to the discipline. The minimum length of time required for the internship varies for each program (300 hours for electrical and computer engineering, 100 for computer science and information technology). Students who are already working in the field should contact their adviser concerning a possible waiver of this requirement.

Extracurricular Activities

Students are encouraged to develop themselves not only academically, but also socially. Various opportunities exist outside the classroom for interaction with other students and faculty. The Living/Learning Community provides a great bonding experience in the freshman year. In later years, various clubs and student chapters of national societies, such as the Institute of Electrical and Electronic Engineers and the Association of Computing Machinery, provide an opportunity to listen to visiting lecturers, attend workshops or conferences, and take field trips into the surrounding industry. Student chapters of national honor societies (for example, Eta Kappa Nu for electrical and computer engineering), also recognize the outstanding achievements of superior students.

Five-year B.S./M.S. Programs

Students of good academic standing are eligible to participate in a five-year program in which both B.S. and M.S. degrees are earned. Those in the B.S.E.E. and B.S.C.E.N. degrees can transition to the M.S.E.E., while those in the B.S.C.S. program can continue to the M.S.C.S. program with minimal

paperwork and no application fee. Students take two graduate courses in their senior year that both fulfill their B.S. requirements and waive certain M.S. requirements, so that they can graduate with both degrees in five years. Students are encouraged to speak with their academic advisers for details.

B.S., Computer Engineering

Program Coordinator: Bijan Karimi, Ph.D.

The B.S. degree in computer engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

Computer engineering is concerned with design and implementation of digital systems such as computer systems, computer-based control systems, interfaces between digital and analog systems, interfaces between hardware and software, and control software for embedded computer systems. This program spans the disciplines of both electrical engineering and computer science, and can be described as bridging the area between the two.

Computers are used in almost every device or system manufactured today, from large multi-computer systems to cell phones and credit card reading devices. In addition, they are used in signal processing applications, speech recognition, medical imaging, and picture and data communication. The Internet is possible in part because of advances made in computing machines and data communications by people working in the capacity of computer engineers. Careers for computer engineers are found in all phases of the production of these devices and systems, from design, manufacturing, and maintenance to marketing and sales.

Recognizing the changing trend in engineering education, the Computer Engineering program has adopted a multidisciplinary approach for teaching and learning by incorporating a series of newly developed project-oriented courses based on the spiral curriculum.

The early part of the program emphasizes computer engineering skills that form the background for the upper-level elective and design courses. Physics, chemistry, mathematics, computer programming, basic engineering science, and general education courses supplement the required and elective computer engineering courses.

The upper-level computer engineering course work provides areas of concentration for in-depth study. Students can choose additional technical electives from outside the area of concentration to provide more breadth of knowledge.

To influence our society's evolution, the computer engineer must acquire an understanding of our society, our cultural heritage, and the human condition. The engineer must communicate ideas to other engineers and to the public. The Computer Engineering program enables this via liberal and humanistic studies. The University Core Curriculum requirements allow students to expand their cultural and intellectual horizons by exposing them to the humanities and social sciences. Students learn written and oral communication skills in the core courses as well as in multidisciplinary engineering-science courses in the freshman and sophomore years. Students apply these skills in the humanities and social science courses as well as in laboratory/design courses in their major.

An important feature of the computer engineering curriculum is the design experience. Our students develop the ability to analyze appropriate models, conduct empirical tests, gather relevant information, interpret empirical tests, develop appropriate models, develop alternative solutions, formulate problems, and synthesize in our laboratory sequence. This sequence of courses takes the student in gradual steps from a well-structured laboratory experiment in the sophomore year to an open-ended design project in the senior year. This allows students to gain practical experience in engineering design.

Internship Requirement

The internship program is intended to enrich the academic experience of our undergraduate students, providing exposure to and participation in a working engineering environment. Each internship must involve a partnership consisting of the student, faculty, and employers/organizations to provide each student intern with an optimal experience. A minimum

of 300 hours performing relevant engineering duties is required prior to graduation. Students must complete 60 credits toward the bachelor's degree in computer engineering before an internship is attempted.

The internship carries no credit for the degree; however, the requirement may be satisfied utilizing a co-op position, summer employment, and part-time or full-time positions that are approved by the student's employer and by the department/internship coordinator as relevant to the goals of the internship experience. A waiver (or substitution) of the internship requirement may be granted for students who are employed in the field, subject to a formal review by the department/internship coordinator. The student's request for such a waiver must be initiated one year prior to the anticipated graduation date.

Educational Objectives

The educational objectives of the Computer Engineering program prepare students for professional practice and lifelong learning. Program graduates will demonstrate the following qualities and attributes:

- High-quality performance as computer engineers in industry who have a strong theoretical background for pursuing graduate studies
- Leadership abilities and an understanding of human relationships in general
- The ability to function as innovators, entrepreneurs, and problem solvers in industry or academia
- The ability to function as members of multidisciplinary teams or as team leaders, and the ability to secure high-level managerial positions in their discipline
- The ability to deal with societal and global issues such as environmental and ethical concerns

Design and problem-solving are the central themes of this program. It combines the engineering and hardware approach of electrical engineering with the knowledge of computing structu]res and the algorithmic approach of computer science. The first two years of the program concentrate on basic science, mathematics, and engineering. The last two years consist of courses in digital systems, computer systems, networks, electrical systems, and design of software systems. Three electives in the fourth year give the student an opportunity to explore a hardware and/or software oriented program. The final year includes a yearlong senior design project in which the student designs a device, system, or software application. Depending on the student's interests, the project can be hardware and/or software oriented. Industry-based projects are encouraged. The program also has a general education component in communications, economics, and the humanities needed to create a well-rounded professional.

Required Courses

Students must complete a total of 128 credits to earn the bachelor of science degree in computer engineering. Humanities or social science electives must be selected to fulfill the University Core Curriculum requirements, and students must complete the internship requirement.

Technical electives are 300-level or higher CS or EE courses that fit into the student's plan of study and are approved by the academic adviser. One technical elective may be taken outside the specified areas with the approval of the academic adviser. In the final year of study the student takes a two-semester senior design sequence, CEN 457 and CEN 458. In the first semester the student selects a topic, completes a literature search, and commences the design process. In the second semester, the student completes the design, implements the project, and presents the results.

The following list shows the sequence of courses that a student should follow to complete the program in four years.

Freshman Year

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
CS 110 Introduction to C Programming
CS 166 Discrete Mathematics for Computing
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering
EAS 112 Methods of Engineering Analysis
FE 001 Freshman Experience (required for all first-time day-division freshmen)

M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat, and Waves with Laboratory

Sophomore Year

CS 210 Java Programming
EAS 211 Introduction to Modeling of Engineering Systems
EAS 230 Fundamentals and Applications of Analog Devices
EE 155 Digital Systems I
EE 235 Analog Circuits
EE 256 Digital Systems Laboratory
EE 257 Analog Circuits Laboratory
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times
M 203 Calculus III
M 204 Differential Equations
PH 205 Electromagnetism and Optics with Laboratory

Junior Year

CEN 398 Computer Engineering Internship
CS 226 Data Structures Using Collections
CS 320 Operating Systems
E 300 Writing Proficiency Examination
EE 247 Electronics I
EE 302 Systems Analysis
EE 320 Random Signal Analysis
EE 356 Digital Systems II
EE 371 Computer Engineering
EE 410 Networking I
EE 472 Computer Architecture
EE 475 Embedded Systems, Interfaces, and Buses

Senior Year

CEN 457 Design Preparation
CEN 458 Electrical Engineering Design Laboratory
EAS 232 Project Management and Engineering Economics
EAS 415 Professional Engineering Seminar

Plus three technical electives, and one from each of the categories below:
Social Interaction core elective
Communication core elective
Aesthetic Responsiveness core elective
Global Perspective core elective

Minor in Computer Engineering

A student may obtain a minor in computer engineering by completing the following courses:

CS166 Discrete Mathematics for Computing
CS 226 Data Structures Using Collections
EAS 230 Fundamentals and Applications of Analog Devices
EE 155 Digital Systems I
EE 247 Electronics I
EE 256 Digital Systems Laboratory
EE 356 Digital Systems II
EE 371 Computer Engineering I

Student Societies

The Computer Engineering program sponsors a student section of the Institute of Electrical and Electronics Engineers. This organization supports visiting lecturers, educational workshops, field trips to surrounding industrial sites, and social events.

Eta Kappa Nu, the national honor society for electrical and computer engineers, is represented by the Zeta Rho Chapter at the University of New Haven. This society exists to honor superior students and to encourage high scholastic achievement.

B.S., Computer Science

Program Coordinator: Alice E. Fischer, Ph.D.

The bachelor's degree program in computer science is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone: 410.347.7700.

The mission of the Computer Science program at UNH is to inform, challenge, and train our diverse student body for a constantly changing world of technology. Our program objectives are to inform, challenge, and educate graduates who will demonstrate the following qualities and attributes:

- Ability to work effectively and professionally with others
- Ability to work effectively in a variety of contexts using various languages and environments
- Ability to independently learn and master new tools of the profession
- Ability to develop or help develop a project that meets professional standards
- Commitment to working ethically and making a contribution to society
- Readiness for career-long learning
- Readiness for graduate study in computer science or ability to move into a leadership position

At the time of graduation, every student should have achieved the following program outcomes:

- Knowledge and understanding of computer hardware, software, and theory, as defined by the Association for Computing Machinery (ACM) curriculum guidelines
- Ability to communicate technical material orally and in good written English
- Ability to design and implement a system for a real application
- A professional level of skill in programming, both individually and as part of a team
- Readiness for employment at a professional level in industry
- Knowledge and understanding of the legal and ethical issues that confront the field of computing
- Knowledge of the rights and obligations of the practicing computing professional

A typical initial job title might be applications programmer or software engineer. Later titles might be system analyst, team leader, or software consultant. Areas of application range from database management to technical design projects.

The Computer Science program includes instruction in several programming languages and a strong base in mathematics. Intermediate courses include the study of systems, hardware, and theory. Advanced courses are available in various application areas. With the help of an adviser, each student will also choose an area of interest outside computer science and pursue a specialization in that field. It is often easy to extend this specialization into a minor in the selected field. Popular areas include mathematics, engineering, business, social sciences, and multimedia.

Internship Requirement

The internship program is intended to enrich the academic experience of our undergraduate students, providing exposure to and participation in a working computing environment. Each internship is a partnership between the student, a faculty adviser, and an employer/organization that provides each student intern with an optimal experience. Although the internship carries no formal credit for the degree, a minimum of 100 hours performing relevant computer-oriented duties is required prior to graduation. Students must complete 60 credits toward the bachelor's degree before an internship is attempted.

The requirement may be satisfied through a co-op position, summer or part-time employment, community service or other activity that is approved by the student's supervisor and by the department/internship coordinator as relevant to the goals of the degree program. A waiver (or substitution) of the internship requirement may be granted for students who are employed in the field, subject to a formal review by the department/internship coordinator. The student's request for such a waiver must be initiated one year prior to the anticipated graduation date.

Required Courses

A total of 126 credits, including the University Core Curriculum, is required for the bachelor of science degree in computer science.

Freshman Year

CS 110 Introduction to C Programming
CS 166 Discrete Mathematics for Computing
CS 210 Java Programming
EAS 107P Introduction to Engineering
E 105 Composition
E 110 Composition and Literature
FE 001 Freshman Experience (required for all first-time day-division freshmen)
HS 101 Foundations of the Western World

or
HS 102 The Western World in Modern Times
M 117 Calculus I
M 118 Calculus II

Plus one Social Interaction core elective

Sophomore Year

CS 212 Intermediate C Programming
CS 214 Computer Organization
CS 215 Introduction to Databases
CS 226 Data Structures using Collections
EE 155 Digital Systems I
M 203 Calculus III

Plus two semesters of a laboratory science sequence, one Aesthetic Responsiveness core elective, and one Global Perspective core elective

Junior Year

CS 247 Networking Essentials and Technologies
CS 320 Operating Systems
CS 326 Data Structures and Algorithms
CS 590 Internship
E 220 Writing for Business and Industry
or
E 225 Technical Writing and Presentation
E 300 Writing Proficiency Exam
EAS 345 Applied Engineering Statistics

Plus one computer science elective, one laboratory science elective, two specialization electives, and one Citizenship core elective

Senior Year

CS 416 Social and Professional Issues in Computing
CS 428 Object-Oriented Design
CS 536 The Structure of Programming Languages
CS 547 Systems Programming

Plus two senior-level computer science electives. one technical elective, one technical or specialization elective, one specialization elective, and one Global Perspective core elective

In addition, or as part of the preceding requirements, each student must complete a substantial individual programming project and a team project.

A.S., Computer Science

Program Coordinator: Alice E. Fischer, Ph.D.

This two-year associate degree program is designed for part-time students and for those who wish to enter the job market as soon as possible. All credits can be applied toward the corresponding B.S. degree in computer science. It is recommended, however, that students enroll in the bachelor's degree program when they begin the associate degree program in order to guarantee that all A.S. credits can be applied toward the B.S. A total of 61 credits is required for the awarding of the A.S. degree in computer science.

Required Courses

Freshman Year

CS110 Introduction to C Programming
CS 166 Discrete Mathematics for Computing
CS 210 Java Programming
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I
M 118 Calculus II
Plus one Social Interaction or Global Perspective core elective, and one History or Citizenship core elective

Sophomore Year

CS 212 Intermediate C Programming
CS 214 Computer Organization
CS 215 Introduction to Databases
CS 226 Data Structures using Collections
CS 247 Networking Essentials and Technologies
EE 155 Digital Systems I

Two semesters of a laboratory science sequence and, one Aesthetic Responsiveness core elective

Minor in Computer Science

Students may minor in computer science by completing 18 credits of computer science courses. Those considering a minor in computer science should seek guidance from the CS undergraduate coordinator as

early as possible. Students must complete the following courses:

CS 210 Java Programming
CS 212 Intermediate C Programming
CS 226 Data Structures using Collections
CS 326 Data Structures and Algorithms

Plus two CS electives at the 350 level or higher

Computer Programming Certificate

This certificate is designed for individuals who require rapid entry into the job market as a computer programmer. Candidates do not need to matriculate into an associate or bachelor's degree program at the University but may enroll directly as a student pursuing a certificate. Credits earned toward the certificate may be applied toward the requirements for a degree program at a later date. Students must complete 21 credits with a minimum G.P.A. of 2.0, including the following courses:

CS 110 Introduction to C Programming
CS 166 Discrete Mathematics for Computing
CS 210 Java Programming
CS 212 Intermediate C Programming
CS 226 Data Structures using Collections

Plus two CS sophomore electives

B.S., Electrical Engineering

Program Coordinator: Ali Golbazi, Ph.D.

The bachelor's degree program in electrical engineering is nationally accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

Electrical engineering is concerned with the analysis, design, development, and operation of electrical and electronic systems. Examples of these systems include communication, fiber optics, data processing, power generation, and distribution, control, and instrumentation. Digital circuits and computers are important and integral parts of such systems and are widely used by electrical engineers in their design and development. The electrical engineer is also concerned with the devices that make up systems such as transistors, integrated circuits, rotating machines, antennas, lasers, and computer-memory devices.

Recognizing the changing trend in engineering education, the Electrical Engineering program has adopted a multidisciplinary approach for teaching and learning by incorporating a series of newly developed project-oriented courses based on the spiral curriculum.

The early part of the program emphasizes electrical engineering skills that form the background for the upper-level elective and design courses. Physics, chemistry, mathematics, computer programming, basic engineering science, and general education courses supplement the required and elective electrical engineering courses.

The upper-level electrical engineering course work provides areas of concentration for in-depth study. Students can choose additional technical electives from outside the area of concentration to provide more breadth of knowledge.

To influence our society's evolution, the electrical engineer must acquire an understanding of our society, our cultural heritage, and the human condition. The engineer must communicate ideas to other engineers and to the public. The Electrical Engineering program enables this via liberal and humanistic studies. The University Core Curriculum requirements allow students to expand their cultural and intellectual horizons by exposing them to the humanities and social sciences. Students learn written and oral communication skills in the core courses as well as in multidisciplinary engineering-science courses in the freshman and sophomore years. Students apply these skills in the humanities and social science courses as well as in laboratory/design courses in their major.

An important feature of the electrical engineering curriculum is the design experience. Our students develop the ability to analyze appropriate models, conduct empirical tests, gather relevant information, interpret empirical tests, develop appropriate models, develop alternative solutions, formulate problems, and synthesize in our laboratory sequence. This sequence of courses takes the student in gradual steps from a well-structured laboratory experiment in the sophomore year to an open-ended design project in

the senior year. This allows students to gain practical experience in engineering design.

Internship Requirement

The internship program is intended to enrich the academic experience of our undergraduate students, providing exposure to and participation in a working engineering environment. Each internship must involve a partnership consisting of the student, faculty, and employers/organizations to provide each student intern with an optimal experience. A minimum of 300 hours performing relevant engineering duties is required prior to graduation. Students must complete 60 credits toward the bachelor's degree in electrical engineering before an internship is attempted.

The internship carries no credit for the degree; however, the requirement may be satisfied utilizing a co-op position, summer employment, and part-time or full-time positions that are approved by the student's employer and by the department/internship coordinator as relevant to the goals of the internship experience. A waiver (or substitution) of the internship requirement may be granted for students who are employed in the field, subject to a formal review by the department/internship coordinator. The student's request for such a waiver must be initiated one year prior to the anticipated graduation date.

Educational Objectives

The educational objectives of the program, based on the ABET Engineering Criteria and the program mission, are to produce graduates who demonstrate the following qualities and attributes:

- Ability to pursue professional practice in initial electrical engineering positions or continue into graduate study either in electrical engineering or related fields
- Ability to adopt the analytical skills and the broad foundation in general education and liberal arts to allow for lifelong learning, providing the basis for leadership in their chosen field of endeavor
- Ability to communicate ideas effectively and participate in multidisciplinary teams to solve technical problems and benefit humankind
- Responsibility and awareness of the broad issues relating to professional ethics, safety, and the environment

Required Courses

Students must complete a total of 125 credits for a bachelor of science degree in electrical engineering. Humanities or social science electives must be selected to fulfill the University Core Curriculum requirements and ABET.

Technical elective courses in the B.S.E.E. program must be selected from upper-level offerings (third or fourth year) under the guidance and approval of the student's academic adviser. At least three must be electrical or computer engineering courses.

In the final year of study the student takes a senior design sequence, EE 457 and EE 458, over two semesters. In the first semester the student selects a topic and completes a literature search and a preliminary design. In the second semester, the student completes the design, implements the project, and presents the results.

Freshman Year

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering
EAS 109 Project Planning and Development
EAS 112 Methods of Engineering Analysis
FE 001 Freshman Experience (required for all first-time day-division freshmen)
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat, and Waves with Laboratory

Sophomore Year

CS 110 Introduction to C Programming
EAS 211 Introduction to Modeling of Engineering Systems
EAS 230 Fundamentals and Applications of Analog Devices

EE 155 Digital Systems I
EE 235 Analog Circuits
EE 256 Digital Systems Laboratory
EE 257 Analog Circuits Laboratory
M 203 Calculus III
M 204 Differential Equations
PH 205 Electromagnetism and Optics with Laboratory

Plus one Global Perspective core elective

Junior Year

E 300 Writing Proficiency Examination
EE 247 Electronics I
EE 302 Systems Analysis
EE 320 Random Signal Analysis
EE 348 Electronics II
EE 349 Electronics Design Laboratory
EE 355 Control Systems
EE 371 Computer Engineering
EE 398 Electrical Engineering Internship

Plus one Social Interaction core elective, one mathematics elective, and one technical elective

Senior Year

EAS 232 Project Management and Engineering Economics
EAS 415 Professional Engineering Seminar
EE 445 Communication Systems
FE 457 Design Preparation
EE 458 Electrical Engineering Design Laboratory
EE 461 Electromagnetic Theory

Plus three technical electives, one Aesthetic Responsiveness core elective, and one Communication core elective

Minor in Electrical Engineering

A student may obtain a minor in electrical engineering by completing the following courses:

EAS 230 Fundamentals and Applications of Analog Devices
EE 155 Digital Systems I
EE 235 Analog Circuits
EE 256 Digital Systems Laboratory
EE 257 Analog Circuits Laboratory

Plus one of the following sequences:

EE 247 Electronics I and
EE 348 Electronics II
or
EE 371 Computer Engineering and
EE 356 Digital Systems II
or
EE 302 Systems Analysis and
EE 355 Control Systems

Student Societies

The Electrical Engineering program sponsors a student section of the Institute of Electrical and Electronics Engineers. This organization supports visiting lecturers, educational workshops, field trips to surrounding industrial sites, and social events.

Eta Kappa Nu, the national honor society for electrical and computer engineers, is represented by the Zeta Rho Chapter at the University of New Haven. This society exists to honor superior students and to encourage high scholastic achievement.

B.S., Information Technology

Program Coordinator: David W. Eggert, Ph.D.

The goals of the bachelor's degree program in information technology (IT) are to inform, challenge, and train our diverse student body for a constantly changing world of technology. At graduation, every student should be able to demonstrate the following qualities and attributes:

- Knowledge and understanding of current technical concepts and practices in the core information technologies
- Ability to design effective and usable IT-based solutions and integrate them into a user's environment, both individually and as part of a team
- Ability to assist in the creation of an effective project plan
- Ability to communicate effectively and efficiently with clients, users, and peers, both orally and in writing
- Independent critical thinking and problem-solving skills
- Knowledge and understanding of computer hardware and software

- Sensitivity to human/computer interface design issues
- Awareness of the legal and ethical issues that confront the field of computing
- Knowledge of the rights and obligations of the practicing computing professional
- Readiness for lifelong learning in the field

The program consists of a common core that exposes students to a wide range of computing and technology topics, including the study of databases, hardware, networks, programming, and human/computer interaction. Advanced courses are selected from one of two tracks: web and database development or network administration and security. A student also must complete a specialization in another discipline. Suggested specializations include criminal justice, management, marketing, international business, art, and multimedia.

Areas of application include web page design and development, database administration and maintenance, and network development and administration. Typical initial job titles might be web developer, network technician, applications developer, and network security technician. With several years of experience, job titles might be website administrator, network administrator, database administrator, and security manager.

Internship Requirement

The internship program is intended to enrich the academic experience of our undergraduate students, providing exposure to and participation in a working computing environment. Each internship is a partnership between the student, a faculty adviser, and an employer/organization that provides each student intern with an optimal experience. Although the internship carries no formal credit for the degree, a minimum of 100 hours performing relevant computer-oriented duties is required prior to graduation. Students must complete 60 credits toward the bachelor's degree before an internship is attempted.

The requirement may be satisfied through a co-op position, summer or part-time employment, community service or some other activity that is approved by the student's supervisor and by the department/internship coordinator as relevant to the goals of the degree program. A waiver (or substitution) of the internship requirement may be granted for students who are employed in the field, subject to a formal review by the department/internship coordinator. The student's request for such a waiver must be initiated one year prior to the anticipated graduation date.

Required Courses

A total of 122 credits, including the University Core Curriculum, is required for the B.S. degree in information technology. Students must complete one of two tracks: web and database development or network administration and security. Substitutions for track courses are permitted with the adviser's approval.

Freshman Year

CS110 Introduction to C Programming
CS 166 Discrete Mathematics for Computing
CS 210 Java Programming
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering
EC 133 Principles of Economics I
or
EC 134 Principles of Economics II
FE 001 Freshman Experience (required for all first-time day-division freshmen)
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times
M 115 Pre-Calculus

Plus one Aesthetic Responsiveness core elective

Sophomore Year

CS 214 Computer Organization
CS 215 Introduction to Databases
CS 350 Human-Computer Interaction
CO 100 Human Communication
EAS 109 Project Planning and Development
EAS 232 Project Management and Engineering Economics
M 228 Elementary Statistics

Plus one Laboratory Science core elective, and one

Social Interaction core elective

Web and Database Development Track
CS 226 Data Structures using Collections

Network Administration and Security Track
CS 247 Networking Essentials and Technologies

Junior Year

CS 320 Operating Systems
CS 590 Internship
E 220 Writing for Business and Industry
or
E 225 Technical Writing and Presentation
E 300 Writing Proficiency Exam

Plus one Business restricted elective, one Citizenship core elective, two specialization electives, and one Global Perspective core elective

Web and Database Development Track
CS 247 Networking Essentials and Technologies
MM 301 Introduction to Multimedia
MM 312 Website Creation

Network Administration and Security Track

CS 445 Network Administration
CS 472 Script Programming for Network Administration
Plus one technical elective

Senior Year

CS 416 Social and Professional Issues in Computing
CS 428 Object-Oriented Design
or
CS 504 Senior Project
IE 414 Engineering Management

Plus one Global Perspective core elective, two specialization electives, and one technical elective

Web and Database Development Track
CS 441 Web-Database Application Development
CS 524 Advanced Databases

Plus one technical elective

Network Administration and Security Track
CS 446 Introduction to Computer Security

Plus two CJ or CS restricted electives

Minor in Information Technology

Students may minor in information technology by completing 18 credits of computer science courses. Those considering a minor in information technology should seek guidance from the information technology undergraduate coordinator as early as possible. Students must complete the following courses:

CS 110 Introduction to C Programming
CS 214 Computer Organization
CS 215 Introduction to Databases
CS 247 Networking Essentials and Technologies

Plus two CS electives (excluding CS 107)

A computer science or computer engineering student is ineligible to earn a minor in information technology.

Mechanical, Civil, and Environmental Engineering

Chairman: Gregory P. Broderick, Ph.D.

Professors Emeriti: M. Hamdy Bechir, Sc.D., Massachusetts Institute of Technology; Oleg Faigel, Ph.D., Moscow Textile Institute; Ross Lanius, M.S.C.E., University of Connecticut; John C. Martin, M.E., Yale University; Thomas C. Warner, Jr., M.S., Massachusetts Institute of Technology

Professors: Carl Barratt, Ph.D., Cambridge University; Gregory P. Broderick, Ph.D., University of Texas; Agamemnon D. Koutsospyros, Ph.D., Polytechnic University; Konstantine C. Lambrakis, Ph.D., Rensselaer Polytechnic Institute; Ismail Orabi, Ph.D., Clarkson University; Stephen M. Ross, Ph.D., Johns Hopkins University; John Sarris, Ph.D., Tufts University; Richard M. Stanley, Ph.D., Yale University; David J. Wall, Ph.D., University of Pittsburgh

Associate Professors: Samuel D. Daniels, Ph.D., Boston University; Jean Nocito-Gobel, Ph.D., University of Massachusetts

The Department of Mechanical, Civil, and Environmental Engineering comprises faculty, staff, and facilities that support two undergraduate (B.S. Civil Engineering and B.S. Mechanical Engineering) and two graduate (M.S. Environmental Engineering and M.S. Mechanical Engineering) programs.

B.S., Civil Engineering

Program Coordinator: Gregory P. Broderick, Ph.D.

The bachelor's degree program in civil engineering is nationally accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET).

Civil engineering is about community service; development and improvement; the planning, design, construction, and operation of facilities essential to modern life. Civil engineers are problem solvers taking on the challenges of environmental pollution, traffic congestion, infrastructure rehabilitation, drinking water and energy needs, urban redevelopment, and community planning. They are at the forefront of technology, leading users of some of the most sophisticated high-tech products available (for example, GPS and GIS systems; fiber-optic sensors; CAD systems; and highly sophisticated, task-specific computer software). Innovation is paramount in the solution to most civil engineering projects.

Program Mission and Educational Objectives

The mission of the Civil Engineering program is to provide a state-of-the-art/state-of-the-practice program designed to achieve four major educational goals:

- Educate a new generation of civil engineers to meet the challenges, demands, and expectations of society
- Cultivate, enrich, and promote scholarship, responsibility, and service among our graduates
- Disseminate new knowledge
- Nurture interdisciplinary education for solving the problems facing an ever-changing society

In order to achieve its mission, the Civil Engineering program has adopted the following educational objectives:

- Provide educational experiences that prepare our students for professional practice of modern civil engineering in a global, societal, and environmental context
- Promote scholarship and problem-solving skills
- Instill an understanding of the technical, economic, political, ethical, and humanistic dimensions of civil engineering projects
- Prepare students to interact and communicate effectively in multidisciplinary fields
- Instill the desire and provide the educational foundation for lifelong learning
- Encourage service to the civil engineering profession and to society through professional registration and community involvement

To help achieve the educational goals and objectives presented above, the faculty of the Civil Engineering program, in combination with the other faculty of the Tagliatela College of Engineering, have developed a new and innovative curriculum: the Multidisciplinary Engineering Foundation Spiral. It is an effort to provide the student, during the first two years of study, with a multidisciplinary engineering perspective. (See in-depth discussion on pg. 144.)

The foundation engineering courses (EAS prefix) taken during the first two years of study serve both as the basis for depth in civil engineering study and as part of a broad multidisciplinary background. Each foundation course also stresses the development of several essential skills, such as problem solving, oral and written communication, the design process, teamwork, project management, computer analysis methods, laboratory investigation, data analysis, and model development. In the junior and senior years, the student is exposed to required and elective civil engineering course work embedded with experiences in analysis, design, and professional issues, providing insight into five civil engineering subdisciplines: structural, geotechnical, hydraulics water resources,

transportation, and environmental engineering. The critical skills introduced during the first two years are further enhanced through a variety of pedagogical methods, including laboratory reports, team projects, design assignments, oral presentations, and participation in American Society of Civil Engineers Student Chapter activities, as well as field trips to local civil engineering projects. Upper-level technical electives provide comprehensive exposure to current and emerging technologies in the various civil engineering subdisciplines. Aspects of professional and ethical civil engineering practice and service to the profession and society are covered to a finite degree in all upper-level courses and extensively in a required course, "Professional and Ethical Practice of Engineering." Course work culminates with a capstone design course that provides extensive exposure to real-world design problems faced within contemporary civil engineering professional practice. Humanities and social science courses are included at all levels of the curriculum.

The Civil Engineering program is enriched by a diverse student body, which includes students of a wide range of ages, professional and nonprofessional experiences, and nationalities. Graduates of the program are encouraged to continue their education throughout their professional careers and to become registered professional engineers.

A bachelor's degree from an ABET-accredited institution is required to become a PE, a registered professional engineer. Accreditation is a testament to the quality of the Civil Engineering program.

Internship Requirement

The internship program is intended to enrich the academic experience of our undergraduate students, providing exposure to and participation in a working engineering environment. Each internship must involve a partnership consisting of students, engineering faculty, and employers/organizations to provide each student intern with an optimal experience. A minimum of 300 hours performing relevant engineering duties is required prior to graduation. Students must complete 60 credits toward the bachelor's degree in civil engineering before an internship is attempted.

The internship carries no credit for the degree; however, the requirement may be satisfied utilizing a co-op position, summer employment, and part-time or full-time positions that are approved by the student's employer and by the department/internship coordinator as relevant to the goals of the internship experience. A waiver (or substitution) of the internship requirement may be granted for students who are employed in the field, subject to a formal review by the department/internship coordinator. The student's request for such a waiver must be initiated one year prior to the anticipated graduation date.

Students must complete a total of 132 credits for the bachelor's degree in civil engineering, including the engineering requirements for the freshman year, the University Core Curriculum requirements, and the internship requirement. Students are also required to earn a cumulative quality point ratio of no less than 2.0 in all civil engineering courses and technical electives.

Required Courses

Freshman Year

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering
EAS 109 Project Planning and Development
EAS 112 Methods of Engineering Analysis
EAS 120 Chemistry with Applications in Biosystems
EAS 120L Chemistry with Applications in Biosystems Laboratory
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I
M 118 Calculus II

Plus one University Core Competency 5.1 elective

Sophomore Year

CE 203 Elementary Surveying
CE 218 Civil Engineering Systems
EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 222 Fundamentals of Mechanics and Materials

EAS 224 Fluid-Thermal Systems
M 203 Calculus III
M 204 Differential Equations
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 250 Electromagnetism and Optics with Laboratory

Junior Year

CE 206 Engineering Geology
CE 304 Soil Mechanics
CE 306 Hydraulics
CE 309 Water Resources Engineering
CE 312 Structural Analysis
CE 323 Mechanics and Structures Laboratory
CE 398 Civil Engineering Internship
CE 408 Steel Design and Construction
or
CE 409 Concrete Design and Construction
or
CE 412 Wood Engineering
E 300 Writing Proficiency Exam
EAS 232 Project Management and Engineering Economics
EAS 345 Applied Engineering Statistics

Plus one Core Competency 5.2 elective, and one Core Competency 1.2 elective

Senior Year

CE 301 Transportation Engineering
CE 315 Environmental Engineering
CE 327 Soil Mechanics Laboratory
CE 328 Hydraulics and Environmental Laboratory
CE 407 Professional and Ethical Practice of Engineering
CE 500–501 Senior Project I and II
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times

Plus 9 credits of civil engineering technical electives, of which 6 credits must be design courses, and one Core Competency 6.0 elective.

Minor in Civil Engineering

Students are required to complete 18 credits of civil engineering courses for the minor. With the approval of the program coordinator, engineering majors may substitute other civil engineering courses for a minor. Students must fulfill all prerequisites for courses chosen. Six courses from the following list are required for the minor:

CE 203 Elementary Surveying
CE 218 Civil Engineering Systems
CE 301 Transportation Engineering
CE 304 Soil Mechanics
CE 306 Hydraulics
CE 309 Water Resources Engineering
CE 312 Structural Analysis
CE 315 Environmental Engineering
CE 407 Professional and Ethical Practice of Engineering

Student Chapter of the American Society of Civil Engineers

An active student chapter of the American Society of Civil Engineers (ASCE) sponsors technical lectures, field trips, and social activities that offer an opportunity for students to interact with practicing professionals. Membership is open to all civil engineering students in good standing.

Chi Epsilon

Students with high academic standing are nominated annually for membership in Chi Epsilon, the national honor society for civil engineers.

B.S., Mechanical Engineering

Program Coordinator: John Sarris, Ph.D.

Mechanical engineering represents a wide diversity of pursuits including the analysis, design, and testing of machines, products, and systems essential to everyday life — everything from doorknobs, tennis rackets, and fishing reels to power plants, skyscrapers, and automobiles. Mechanical engineers work in a variety of fields such as aerospace, utilities, materials processing, transportation, manufacturing, electronics, and telecommunications.

Program Mission and Educational Objectives

The mission of the Mechanical Engineering program is to graduate professionally competent and responsible students who can meet industry's current and future needs in the general area of mechanical engineering.

In order to achieve its mission, the Mechanical Engineering program must ensure that its graduates are able to do the following:

- Apply knowledge in mathematics (through multivariate calculus and differential equations, with familiarity with statistics and linear algebra)
- Apply knowledge in science (chemistry and calculus-based physics, with depth in physics)
- Apply knowledge in engineering, including the formulation and solution of engineering problems
- Use techniques, skills, and tools (contemporary analytic, computational, and experimental) necessary for modern engineering practice
- Design, conduct, and analyze results of experiments
- Actively participate in teams, including multidisciplinary teams
- Communicate effectively
- Accomplish design and realization of thermo/fluid and mechanical systems, components, and processes
- Understand the professional and ethical ramifications of engineering solutions within the context of modern society
- Cultivate a lifelong capacity for learning

Recognizing current knowledge-based demands on graduating engineers and responding to input from the program's stakeholders, the Mechanical Engineering Department has embraced the concept of a multidisciplinary foundation to discipline-specific education (for details, see the description on pg. 144.) Thus, the bachelor of science in mechanical engineering (B.S.M.E.) curriculum includes a sequence of ten (EAS prefix) foundation courses.

Mechanical engineering classes are small (rarely more than twenty students) and are taught almost exclusively by full-time faculty. Experienced practitioners from industry may also contribute their expertise in selected courses. Faculty and students work with industry in research and design projects.

With help from their academic adviser, students can choose from several available concentrations. Restricted and technical elective courses offer the opportunity for further learning in areas such as fluids, energy, design, heat transfer, numerical analysis and computers, aerospace sciences, and control systems.

Academic Performance

Mechanical engineering majors who complete their first twelve credits of ME-prefixed engineering courses with a cumulative grade point average for these courses of less than 2.0 will have their academic records reviewed by the entire ME faculty on a regular basis. An ME-prefixed course may not be taken more than twice unless consent is granted by the program coordinator.

An undergraduate student already enrolled at the University of New Haven who wishes to transfer to mechanical engineering will normally be expected to satisfy the standards of the program for admission by transfer.

The coordinator of the Mechanical Engineering program reserves the right not to award transfer credit for technical courses taken at any institution more than ten years prior to a student's matriculation in the bachelor of science degree program in mechanical engineering at the University of New Haven, if it is determined that knowledge acquired in those courses is either inadequate or obsolete.

Exceptional students having an overall average of 3.5 or better may join the Delta Zeta Chapter of the Pi Tau Sigma honor society, which provides the opportunity for closer relations with faculty and other prominent individuals in the field for the purpose of further professional development, involvement in faculty research, and varied social and intellectual activities.

Practicum

It is recognized in the Mechanical Engineering program that experiential work by undergraduate

students is a valuable tool in launching a successful professional career. It is desirable, then, for mechanical engineering majors to spend time prior to graduation performing engineering-related duties at a manufacturing company, consulting firm, technical organization, government agency, or other appropriate setting.

Interns are required to complete a minimum of 300 hours of practical experience in an area or technical project closely related to mechanical engineering. The requirement may be satisfied through appropriate co-op work experience, part- or full-time employment, a summer job, or an apprenticeship or volunteer work at any time during a student's undergraduate studies. Registration, proof of compliance, or a request for waiver must be submitted to the Department only after completion of 75 credits toward the B.S.M.E. degree. The practicum is graded on a Satisfactory/Unsatisfactory basis and carries no academic credit.

The B.S.M.E. program has been nationally accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET) for over 35 years.

Required Courses

Students earning the bachelor of science degree in mechanical engineering are required to complete 126 credits, including the University Core Curriculum.

Freshman Year

In addition to the common first-year courses listed under the Tagliatela School of Engineering, mechanical engineering students take the Mechanical Engineering Skills Workshop. This one-hour-per-week workshop familiarizes students with basic practices in a laboratory environment, including safety considerations, design planning, layout, fabrication, and the use of basic measuring equipment and devices to test and verify a design. The workshop is offered in the Spring semester and is graded on a Satisfactory/Unsatisfactory basis. The workshop carries no academic credit.

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering
EAS 109 Project Planning and Development
EAS 112 Methods of Engineering Analysis
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I
M 118 Calculus II
ME 001 Mechanical Engineering Skills Workshop

Plus one lab science elective (EAS 120 or a four-credit biology course), and 3 credits of a Social Interaction (Core Competency 5.1) elective

Sophomore Year

EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 222 Fundamentals of Mechanics and Materials
EAS 224 Fluid-Thermal Systems
M 203 Calculus III
M 204 Differential Equations
ME 201 Engineering Graphics
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Plus 3 credits of a Communication (Core Competency 1.2) elective

Junior Year

E 300 Writing Proficiency Examination
EAS 230 Fundamentals and Applications of Analog Devices
EAS 232 Project Management and Engineering Economics
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times
ME 300 Rigid Body Dynamics
ME 305 Engineering Thermodynamics
ME 308 Applied Elasticity
ME 315 Mechanics Laboratory
ME 321 Incompressible Fluid Flow
ME 330 Fundamentals of Mechanical Design (D)

Plus 3 credits of a restricted ME elective (ME 344 or ME 438), and 300 hours of Practicum.

Senior Year

EAS 415 Professional Engineering Seminar
ME 404 Heat and Mass Transfer
ME 415 Thermo/Fluids Laboratory
ME 431–432 Mechanical Engineering Design I (D) and II (D)

Plus 3 credits of a restricted ME elective (ME 422 or energy-related course), 3 credits of an Aesthetic Responsiveness (Core Competency 6) elective, 3 credits of a design elective (D-designated ME course), 3 credits of a technical elective*, 3 credits of an engineering/mathematics analysis elective*, 3 credits of a Social Interaction and Global Perspective (Core Competency 5.2) elective.*

*Must be chosen in consultation with the student's adviser.

The B.S.M.E. program includes two required stems of coherent course offerings: 1) Thermo/Fluid Systems, comprising EAS 211, EAS 224, ME 305, ME 321, ME 404, ME 415, and a restricted ME elective (21 credits) and 2) Mechanical Systems, comprising EAS 213, EAS 222, ME 300, ME 308, ME 315, ME 330, and a restricted ME elective (21 credits). It should be noted that the required capstone design sequence ME 431–432 (6 credits) may be taken in either of the above stems. Also, technical and design electives are offered periodically in both thermo/fluid and mechanical systems, and the practicum experience could be in either one or both of these areas.

Minor in Mechanical Engineering

Students wishing to minor in mechanical engineering must complete the following courses with a minimum G.P.A. of 2.0:

EAS 222 Fundamentals of Mechanics and Materials
EAS 224 Fluid-Thermal Systems
ME 201 Engineering Graphics
ME 300 Rigid Body Dynamics
ME 305 Engineering Thermodynamics
ME 321 Incompressible Fluid Flow

Student Chapter of ASME

Membership in the American Society of Mechanical Engineers student section is open to all mechanical engineering students in good standing and provides the opportunity for field trips to local industrial plants, attendance at technical presentations, social activities, and access to interesting professional literature.

Multidisciplinary Engineering Systems Division

Chairman: Michael A. Collura, Ph.D.

Faculty in the Multidisciplinary Engineering Systems Division (MESD) hold a primary appointment to one of the disciplinary departments of the Tagliatela College of Engineering and are MESD Instructors, Fellows, or Scholars, depending on their level of participation in the activities of the division.

Mission

The mission of the division is to provide a multidisciplinary engineering foundation for a variety of programs, to administer engineering programs that cross traditional engineering boundaries, and to promote scholarship and excellence in engineering education.

The goals of the division are as follows:

- To administer the Multidisciplinary Engineering Foundation Spiral Curriculum, including all courses with an EAS prefix
- To administer the First Year Engineering Program
- To oversee the Engineering Living/Learning Community
- To administer the B.S. in General Engineering program
- To promote scholarship in engineering education

First Year Engineering Program

Program Coordinator: Jean Nocito-Gobel, Ph.D.

Faculty: Representatives from undergraduate programs in the College

The First Year Engineering Program prepares students for upper-level study in their chosen discipline through a combination of specialized advising, the first-year engineering curriculum, extracurricular activities, and workshops. Students learn about the contributions and attributes of various engineering and applied science disciplines to help them finalize their choice of a major area of study. Workshops and tutoring sessions help students meet the challenges of a rigorous academic program in engineering or applied science. Plant trips and guest speakers provide an exciting bridge to the industrial world beyond the classroom walls.

The Multidisciplinary Engineering Foundation Spiral Curriculum

The Multidisciplinary Engineering Foundation Spiral Curriculum is a four-semester sequence of engineering courses (EAS prefix) matched closely with the development of students' mathematical sophistication and analytical capabilities and integrated with course work in the sciences. Students develop a conceptual understanding of engineering basics in a series of courses that stresses practical applications of these principles. Topics in these courses include electrical circuits, fluid mechanics, heat transfer, material balances, properties of materials, structural mechanics, and thermodynamics. Unlike the more traditional approach, each of the foundation courses includes a mix of these topics presented in a variety of disciplinary contexts. A solid background is developed by touching key concepts at several points along the spiral in different courses, adding depth and sophistication at each pass. Each foundation course also stresses the development of several essential skills, such as problem solving, oral and written communication, organizational skills, the design process, teamwork, project management, computer analysis methods, laboratory investigation, data analysis, and model development. Students will build substantial depth in some of the foundation areas in subsequent courses, while other topics may not be further developed, depending on their chosen discipline. Thus, the foundation courses serve both as the basis for depth in disciplinary study and as part of a broad multidisciplinary background.

First Semester

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
E 105 Composition
EAS 107P Introduction to Engineering (Project-Based)
EAS 109 Project Planning and Development
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I

Second Semester

E 110 Composition and Literature
EAS 112 Methods of Engineering Analysis
EAS 120 Chemistry with Applications to Biosystems
or
Laboratory Science Course (a four-credit science course, with laboratory, specified by degree program)
M 118 Calculus II
Plus one Core Curriculum competency 5.1 elective

During the sophomore year, engineering students begin taking courses in their chosen discipline, along with math, science, and additional multidisciplinary foundation courses.

B.S., General Engineering

Program Coordinator: Samuel D. Daniels, Ph.D.

The bachelor of science in general engineering (G.E.) is a degree program designed for those interested in a career involving engineering knowledge but with more flexibility than is possible in a specific engineering discipline. It provides an opportunity for a student to combine engineering with any other undergraduate discipline within the University, such as the following areas:

- business
- communication
- legal studies
- science or math
- teaching and education

It also provides the opportunity for including elements of two different engineering disciplines in one degree program.

Career opportunities depend on the areas of study

selected and might include

- engineering and technical services
- technical management and sales
- engineering-related business activities
- music
- science-related activities
- computer-related activities
- technical writing
- medical services
- education

The Degree Program

The bachelor's degree program in general engineering requires completion of 121 credits. Students can use electives (including engineering electives) to focus on an area of interest within engineering or to combine engineering with other areas. As part of the program, students must select a minor from any recognized program at UNH.

Undecided Option

Students who wish to earn an engineering degree in a designated discipline (chemical, civil, computer, electrical, mechanical, system) but who are undecided about their choice should start with general engineering and change majors when they have decided on an area of specialization. For most choices, making a decision by the end of the first year of study will result in a smooth transition.

Required Courses

Freshman Year

CH 115/117 General Chemistry I and Laboratory
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering (Project-Based)
EAS 109 Project Planning and Development
EAS 112 Methods of Engineering Analysis
EAS 120 Chemistry with Applications to Biosystems
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I
M 118 Calculus II
Plus one University Core Competency 5.1 elective

Sophomore Year

EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 222 Fundamentals of Mechanics and Materials
EAS 224 Fluid-Thermal Systems
CS 110 Introduction to C Programming
or
Programming Elective
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times
M 203 Calculus III
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
Plus one University Core Competency 1.2 elective

Junior Year

E 300 Writing Proficiency Examination
EAS 230 Fundamentals and Applications of Analog Devices
EAS 232 Project Management and Engineering Economics
EAS 345 Applied Engineering Statistics
or
M 204 Differential Equations
Plus one Engineering elective, two TCoE Electives, one University Core Competency 4.2 elective, one University Core Competency 6 elective, and two Electives for Minor

Senior Year

EAS 415 Professional Engineering Seminar
Plus one University Core Competency 5.2 elective, one University Core Competency 5.3 elective, one Engineering elective, three Electives for Minor and two electives

Additional Requirements

Students must select a minor area of study from any department at UNH. Electives designated as "Elective for Minor" may be used to satisfy the minor requirements. In some cases, courses required for the

minor include courses that are specifically listed as required in general engineering. For example, the calculus sequence counts toward a minor in math, so only three of the electives are needed to complete the math minor. In such a case, the remaining "Electives for Minor" choices may be used as free electives.

In order to assure depth of study, at least five of the elective courses in the program should be at or above the 300 level and should have prerequisites.

Teaching Certification

There is a growing need for primary and secondary teachers in math and science. In addition, many high schools have begun offering engineering courses for their students, using curricula such as the Project Lead The Way program. Students completing the General Engineering program gain a broad understanding of math and science and of the application of these subjects in engineering work. This background, along with generous elective choices, provides an excellent opportunity to prepare for the teaching profession.

Within the state of Connecticut, certification to teach at the primary or secondary level requires substantial undergraduate course work in the content area for which certification is sought. The General Engineering program requires significant study of math and science, as well as the application of math and science in the EAS courses. By selecting electives wisely, in consultation with an Education Department adviser, a student can readily earn the necessary credits to satisfy the content requirements for math and a science area. Possible certification areas include math, chemistry, physics, and general science.

Graduates of the General Engineering program may apply for entry to the UNH Master of Science in Education (M.S.E.D.) program, which will allow them to complete the master's degree in education and earn a teaching certification in one year after graduation. Eligible students may apply for accelerated entry into the M.S.E.D. program and take three education courses as part of their undergraduate program. This accelerated program is designed to facilitate a smooth transition into the graduate program and to introduce the student to the teaching profession during the junior and senior years. Students interested in this option are assigned a co-adviser from the Education Department to assure compliance with the rigorous policies for certification.

Quality Engineering Option

The Quality Engineering option prepares students for jobs in the areas of quality and process improvement, popularly applied in the business, service, government, and retail industries. Students learn about concepts, theories, tools, and techniques, including process mapping, sampling techniques, statistical process control (SPC), experimental design applicable when implementing lean and six sigma projects, quality audit programs, SPC monitoring systems, and quality assurance. This option can be combined with other IE and SE courses to form an industrial engineering minor or may be included as a separate cluster.

SE 346 Probability Theory
SE 347 Statistical Analysis
(note: this would replace EAS 345)
IE 304 Production Control
IE 436 Quality Control

Bioengineering and Pre-med Options

An interest in bioengineering can be readily accommodated by the general engineering degree in several ways. Students may combine the minor in biology with electives in other areas, or they can minor in one of the engineering disciplines and select several biology electives. For example, to prepare for a career in the biomedical field, a minor in electrical, mechanical, or chemical engineering can be combined with general and human biology, anatomy and physiology, and cell biology. Faculty in the Engineering and Biology Departments would guide the student into specific courses based on career interests.

The rigor of an engineering program serves as an excellent preparation for medical school. Students choosing to pursue such a path should include courses in organic chemistry as well as biology. These can be fit into the structure of the General Engineering program using the minor and TCoE electives.

Management Option

The minor in management includes course work in accounting, leadership, economics, business law, management, and marketing. This broad background in business is an excellent choice for students who wish to pursue a career on the business side of a technical field.

B.S., System Engineering

Program Coordinator: M. Ali Montazer, Ph.D.

System engineering, as a formal engineering discipline, traces its history to the 1950s but promises to play an even greater role in the 21st Century given the advances in information technology and the trend in globalization. It is one of the most flexible and broad-based disciplines in engineering and provides balanced solutions to diverse and complex problems primarily related to product development and commercialization processes. Given the global marketplace and the ever-shrinking levels of both natural and human resources, system engineering is poised to become a major engineering function in business/industry, government, service and non-profit organizations.

System engineers design, develop, facilitate and monitor the process of creating a product (or service) with the needs and concerns of the various constituencies in mind. This process incorporates critical consideration of a multitude of factors with special emphasis on quality, cost and time to market. The factor of quality encompasses considerations such as manufacturability, reliability, maintainability, reparability, safety, ergonomics and aesthetics, the environment, and the eventual disposal of the product. The factors of cost and time to market translate into procedures that are prerequisite to creating a product or service that can compete in the global marketplace.

System engineering is the integration of all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from product concept to production to operations, all with the needs of the customer in mind.

Mission and Educational Objectives

The mission of the System Engineering program is to prepare our students for growth and career opportunities in the field and/or advanced studies. The mission also includes recruiting a diverse student body; providing state-of-the-art education; and interacting with employers to ensure that graduates are ready, willing, and able to contribute to their chosen professions in various sectors of the economy. The program objectives are to prepare graduates who can demonstrate the following qualities and attributes:

- System thinkers
- Academic and technical competence to pursue professional careers in engineering and technology fields
- Ability to acquire and sustain gainful employment in the field commensurate with their education and career goals
- Will to excel at working on system engineering and related projects and jobs
- Ability to pursue advanced and graduate studies and engage in career-long education
- Will to contribute to the profession and the society at large through professional societies, community service, and civic activities
- Are ethical and responsible citizens

The highly interdisciplinary System Engineering program at the University of New Haven is designed and developed with the needs of the customer as its main priority. Indeed, the program has been designed and developed as a team effort encompassing the various constituencies including future employers of program graduates, students, alumni, industry professionals, and the faculty.

In addition to the University Core Curriculum requirements, the program combines strong theoretical foundations in science, mathematics (with the Multidisciplinary Engineering Foundation Spiral Curriculum) and system engineering. System engineering-related topics are integrated with computer applications to prepare a graduate to enter the workforce in virtually all industries and economic sectors, including, high tech manufacturing, consultancy,

transportation, service, and government.

The program consists of 127 credits plus a required internship. The credits include the final year-long 6-credit industry-sponsored and team-based design project. Students are expected to work with their academic adviser to plan their course work and project well in advance in order to experience an optimal final project assignment. Students are required to earn a cumulative quality point ratio of no less than 2.0 in all system engineering courses and technical electives. The B.S.S.E. curriculum is as follows:

Required Courses

Freshman Year

BI 121 General and Human Biology with Laboratory (or EAS 120)
CH 115/117 General Chemistry I with Laboratory
E 105 Composition
E 110 Composition and Literature
EAS 107P Introduction to Engineering (Project-Based)
EAS 109 Project Planning and Development
EAS 112 Methods of Engineering Analysis
EAS 120 Chemistry with Applications to Biosystems (or BI 121)
FE 001 Freshman Experience (required for all first-time day-division freshmen)
M 117 Calculus I
M 118 Calculus II

Plus one University Core Competency 5.1 elective

Sophomore Year

EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 222 Fundamentals of Mechanics and Materials
EAS 224 Fluid-Thermal Systems
SE 288 System Engineering Concepts
SE 346 Probability Analysis
M 203 Calculus III
M 204 Differential Equations
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Junior Year

CS 215 Introduction to Databases
E 300 Writing Proficiency Examination
EAS 230 Fundamentals and Applications of Analog Devices
EAS 232 Project Management and Engineering Economics
SE 347 Statistical Analysis
SE 402 Operations Research I
SE 403 Operations Research II
SE 407 Reliability and Maintenance
SE 435 Simulation and Applications Communication
SE 488 System Engineering Design Process

Plus one University Core Competency 1.2 elective

Senior Year

EAS 415 Professional Engineering Seminar
SE 428 Six Sigma Quality Plan
SE 441 Supply Chain and Logistics
SE 449 Lean Principles and Practices
SE 498 System Engineering Design I
SE 499 System Engineering Design II
University Core Competency 5.2 elective
HS 101 Foundations of the Western World
or
HS 102 The Western World in Modern Times

Plus two TCoE Electives and one University Core Competency 6 elective

Students will choose, with the assistance and approval of their academic adviser, the appropriate courses to fulfill the technical elective requirements of the program. Students are also expected to work with their adviser to select the University Core Curriculum courses in such a way to best support their career goals and professional development.

Internship Requirement

The internship program is intended to enrich the academic experience of our students in bridging the theory and practice gap and by providing the students the opportunity to see firsthand how an engineering enterprise works. The internship must involve a partnership consisting of student, engineering faculty, and employer/organization in order to provide the intern with the optimal experience. An

internship assignment with a minimum of 300 hours performing relevant engineering duties is required prior to graduation. Students must complete the equivalent of sophomore-level course work (about 60 credits) toward the bachelor's degree in system engineering before an internship is attempted. The ideal internship assignment is the one that leads to the final program design project for the student intern.

The internship carries no credit for the degree. The requirement may be satisfied utilizing a co-op position, approved summer employment and part-time or full-time positions that are approved by the student's employer and by the department/internship coordinator as being relevant to the goals of the system engineering discipline. A waiver (or substitution) of the internship requirement may be granted for those students who are employed in the field, subject to a formal review by the program coordinator. The request for such a waiver must be submitted to the program coordinator at least one year prior to the anticipated graduation date.

Accreditation

The bachelor's degree program in system engineering is designed to meet the requirements and standards of the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). Accreditation will be sought as soon as the eligibility requirements are met.

Minor in Industrial Engineering

Students enrolled in degree programs in the Tagliatela College of Engineering may opt to take a minor in industrial engineering by completing 18 credits. The program for the minor consists of the following required and elective courses:

IE 243 Work Design
IE 304 Production Control
SE 346 Probability Analysis
SE 347 Statistical Analysis
Plus two 300-level (or higher) industrial or system engineering courses (6 credits) chosen with the program adviser.

Logistics Certificate

Logistics is a discipline that has become critical to the efficient development and operational support of complex, costly systems. Its subdivisions include customer requirements planning, design-to-cost concepts, configuration control, life-cycle analysis, transportation and distribution, reliability, and field support networks. Modern logistics is the science that ensures that needs are met when they occur, at a reasonable resource expenditure. UNH offers the following undergraduate certificate as well as a graduate certificate in logistics.

The undergraduate certificate sequence consists of five three-credit courses followed by a one-credit capstone logistics seminar. This course sequence provides students with a working knowledge of logistics and covers topics included in the Certified Professional Logistician examination of the Society of Logistics Engineers. These undergraduate-level courses are designed for professionals who either do not hold a college degree or who have earned degrees in nontechnical fields of study. Prerequisite courses in mathematics, computer science, economics, and statistics may be needed by students who lack appropriate educational background.

The six courses required for the logistics certificate are as follows:

LG 300 Defense Sector Logistics
LG 310 Introduction to Logistics Support Analysis
LG 320 Reliability and Maintainability Fundamentals
LG 410 Life Cycle Concepts
LG 440 Data Management in Logistics Systems
LG 490 Logistics Seminar

HENRY C. LEE COLLEGE OF CRIMINAL JUSTICE AND FORENSIC SCIENCES

Richard H. Ward, D.Crim., Dean

William M. Norton, Ph.D., J.D., Associate Dean

The Henry C. Lee College of Criminal Justice and Forensic Sciences provides educational services for students who wish to major in degree programs in the public safety and security areas. Students in the Henry C. Lee College of Criminal Justice and Forensic Sciences typically pursue careers in areas such as criminal justice, forensic science, fire science, arson investigation, corrections, law, paralegal and related areas. The school provides a broad professional education, which often incorporates classroom learning with laboratory and field experience. The school attracts students of varied ages and levels of experience, from recent high school graduates to seasoned industry professionals. It also serves professionals seeking programs designed to meet requirements of national and/or regional accreditations and licensures.

Graduate degree programs and certificates are available in various disciplines through the Graduate School.

University Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the University Core Curriculum on page 15.

Programs and Concentrations

Undergraduate Programs

Bachelor of Science

Criminal Justice
- Corrections
- Crime Analysis
- Forensic Psychology*
- International Justice and Security
- Investigative Services
- Juvenile and Family Justice
- Law Enforcement Administration
- Victim Services Administration

Fire Science
- Fire/Arson Investigation
- Fire Administration
- Fire Science Technology

Fire Protection Engineering

Forensic Science

Legal Studies
- Public Affairs
- Dispute Resolution
- Paralegal Studies

*Consent for approval of this concentration is being sought from the Connecticut Department of Higher Education

Associate in Science

Criminal Justice
Fire and Occupational Safety
Legal Studies

Certificates

Crime Analysis
Fire/Arson Investigation
Fire Prevention
Forensic Computer Investigation
Hazardous Materials
Industrial Fire Protection
Information Protection and Security
Law Enforcement Science
Paralegal Studies
Private Security
Victim Services

Graduate Programs

Master of Science

Criminal Justice
Fire Science
Forensic Science
National Security and Public Safety

Graduate Certificates

Arson Investigation
Criminal Justice/Security Management
Fire Science/Administration and Technology
Forensic Science/Advanced Investigation
Forensic Science/Criminalistics
Forensic Science/Fire Science
Forensic Computer Investigation
Forensic Psychology
Information Protection and Security
National Security
National Security Administration
Public Safety Management
Victim Advocacy and Service Management

Criminal Justice

Chair: Mario T. Gaboury, Ph.D., J.D.

Professors Emeriti: Thomas A. Johnson, D.Crim., University of California, Berkeley; David A. Maxwell, J.D., University of Miami, CPP; L. Craig Parker, Jr., Ph.D., State University of New York at Buffalo; Gerald D. Robin, Ph.D., University of Pennsylvania

Professors: Mario T. Gaboury, Ph.D., Pennsylvania State University, J.D., Georgetown University; Lynn Hunt Monahan, Ph.D., University of Oregon; William M. Norton, Ph.D., Florida State University, J.D., University of Connecticut; William L. Tafoya, Ph.D., University of Maryland

Associate Professors: James J. Cassidy, Ph.D., Hahnemann University Graduate School, J.D., Villanova School of Law; Robert D. Keppel, Ph.D., University of Washington; James O. Matschulat, M.B.A., St. John's University; James Monahan, Ph.D., Florida State University; Martin J. O'Connor, J.D., University of Connecticut, M.Div., Yale Divinity School

Assistant Professors: James M. Adcock, Ph.D., University of South Carolina; Leila Dutton, Ph.D., University of Rhode Island; Michael P. Lawlor, J.D., George Washington University, Connecticut State Representative; Donna Decker Morris, J.D., Yale University; Fadia Narchet, Ph.D., Florida International University; Christopher M. Sedelmaier, Ph.D., Rutgers University; Tracy L. Tamborra, M.S., University of New Haven

Practitioners-in-Residence: William H. Carbone, M.P.A., University of New Haven, Executive Director, Judicial Branch, Court Support Services Division, State of Connecticut; The Honorable Martin Looney, J.D., University of Connecticut

Senior Lecturer: Ernest W. Dorling, M.P.A., Troy State University, European Campus

Lecturer: Daniel Maxwell, M.S., M.P.A., University of New Haven

Clinical Instructor: Joseph R. Polio, M.S., University of New Haven

Criminal Justice

Coordinator of Corrections:
Lynn Hunt Monahan, Ph.D.
Coordinator of Crime Analysis:
Christopher M. Sedelmaier, Ph.D.
Coordinator of Forensic Psychology:
Fadia M. Narchet, Ph.D.
Coordinator of International Justice and Security:
James Monahan, Ph.D.
Coordinator of Investigative Services:
James M. Adcock, Ph.D.
Coordinator of Juvenile and Family Justice:
Lynn Hunt Monahan, Ph.D.
Coordinator of Law Enforcement Administration:
William M. Norton, Ph.D., J.D.
Coordinator of Victim Services Administration:
Mario T. Gaboury, Ph.D., J.D.

The Criminal Justice program at the University of New Haven provides students with a comprehensive and professional understanding of crime and the administration of justice. The goal of the program is to prepare students for professional careers in criminal

justice, public service, and social service organizations, as well as for future study in graduate and professional fields. The program meets these goals through its highly qualified full-time faculty, who both teach and conduct research in the field. The full-time faculty members are supported by part-time faculty members drawn from the professional community who teach specialized courses in their areas of expertise.

The Criminal Justice program of study follows the University's mission to provide engaged learning opportunities, including the utilization of internships, service learning, and individual student research learning opportunities. Through this engaged learning model students develop an understanding of both theoretical and practical issues of crime and the administration of justice.

A full range of career opportunities is available in criminal justice at all levels of government and within the private sector. Because of its interdisciplinary approach, combined with the University's engaged learning commitment, the study of criminal justice fills the needs of students seeking careers in teaching, research, and law, and the needs of criminal justice professionals seeking academic and professional advancement.

The Department offers courses from the associate to the master's level, as well as certificates. Complete information about the master of science degree in criminal justice is available in the Graduate School Catalog.

Undergraduate criminal justice concentrations in law enforcement, corrections, crime analysis, investigative services, juvenile and family justice, forensic psychology, international justice and security, and victim services administration are available in the criminal justice program.

The Criminal Justice Club

The American Criminal Justice Association (ACJA) is a national professional and pre-professional organization with goals that include improved technology, training, and service for the benefit of the criminal justice system. UNH's local student chapter of ACJA is the Psi Omega chapter. This club offers students a variety of activities including community service as well as the opportunity to meet and work with practitioners in the field. Students also meet others with similar interests and are eligible to participate in regional and national programs and activities.

Alpha Tau is the local chapter of Alpha Phi Sigma, the National Criminal Justice Honor Society. Alpha Tau's purpose is to recognize and promote academic excellence among undergraduate and graduate students. The local chapter was formed in 1998 and embraces the full spectrum of criminal justice students from criminal justice and forensic science to pre-law and the related social sciences.

Undergraduate students who have completed 60 credits and at least four criminal justice courses and who have at least a 3.4 cumulative G.P.A. are eligible for membership. Graduate students who have a 3.4 cumulative G.P.A. and who have completed at least 12 credits of graduate work, or 9 credits of graduate work and at least 3 additional undergraduate credits, are eligible for membership.

The Department participates in the cooperative education program, which enables students to combine their education with practical, paid work experience in their career field. For further details see "Office of Internships and Employer Relations," which appears earlier in this catalog, or contact the co-op coordinator in The Henry C. Lee College of Criminal Justice and Forensic Sciences.

B.S., Criminal Justice

Required Courses

Students earning the B.S. degree in criminal justice are required to complete at least 122 credits, including the University Core Curriculum and the common courses for criminal justice majors listed below:

CJ 100 Introduction to Criminal Justice
CJ 102 Criminal Law
CJ 201 Principles of Criminal Investigation
CJ 205 Introduction to Forensic Psychology
CJ 217 Introduction to Criminal Procedure I
CJ 250 Scientific Methods in Criminal Justice
CJ 251 Quantitative Applications in Criminal Justice

CJ 311 Criminology
CJ 400 Criminal Justice Problems Seminar
CJ 500A Criminal Justice Pre-Internship
CJ 500B Criminal Justice Internship

Concentration in Corrections

This concentration prepares students for careers with federal, state, local, and private correctional agencies and institutions. It is concerned with the treatment of offenders, administration, planning, and research. The curriculum emphasizes law, social and behavioral sciences, and research methodology.

Students earning the B.S. degree in criminal justice with a concentration in corrections must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

CJ 209 Correctional Treatment Programs
CJ 220 Legal Issues in Corrections
CJ 408 Child and Family Intervention Strategies
CJ 409 Adult Intervention Strategies
CJ 412 Substance Abuse and Addictive Behavior

Plus two restricted electives

Concentration in Crime Analysis

This concentration focuses on the application of advanced computer and geographical information systems (GIS) in the collection and analysis of crime data. Data from local, state, and federal agencies are considered. Students are encouraged to join the International Association of Crime Analysis. Graduates will enter the field of Crime Analysis as civilians or sworn officers, depending on their career goal. This program also appeals to international students interested in applying such technology to their country's police system. Students are required to complete a research project as well as present their findings at a departmental crime research forum.

Students earning a B.S. degree in criminal justice with a concentration in crime analysis must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

CJ 312The Police and Crime Control
or
CJ 333 Police Civil Liability
CJ 402 Police in Society
CJ 555 Crime Prevention Through Environmental Design
CJ 556 Problem-Oriented Policing
CJ 557 Crime Mapping and Analysis
E 230 Public Speaking
EN 540 Introduction to Geographical Information Systems

Plus two restricted electives

Concentration in Forensic Psychology

The forensic psychology concentration prepares students for professional and graduate careers in various criminal justice and mental health settings. All courses focus on new developments and best practices from a cross-disciplinary perspective. The program provides a wide array of courses covering a broad spectrum of topics in forensic psychology, including areas such as experimental research, mental health law, investigative psychology and clinical services.

Students earning a B.S. degree in criminal justice with a concentration in forensic psychology must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

CJ 345 Police and Investigative Psychology
CJ 357 Legal Psychology
CJ 365 Law, Psychology and the Mental Health System
CJ 408 Child and Family Intervention Strategies
or
CJ 409 Adult Intervention Strategies
CJ 475 Senior Seminar in Forensic Psychology
P 216 Psychology of Human Development
P 336 Abnormal Psychology
P 370 Psychology of Personality

Plus two restricted electives

Concentration in International Justice and Security

The concentration in international justice and security is designed to attract a new type of student, namely one with interests in serving in federal security agencies including the State Department. The pro-

gram has several distinct features: a minimum of two semesters in a foreign language of choice, and specialized criminal justice, fire science and open electives. Finally, students are required to do a semester abroad in their language country, taking electives of their choosing. Such experiences in total provide a superior undergraduate education to those anticipating a federal career track or as preparation for a strong graduate program. The University concentration has established a Federal Agent Advisory Board, composed of active and retired federal agents who provide counsel on curriculum and student career mentoring.

Students earning the B.S. degree in criminal justice with a concentration in international justice and security must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

CJ 105 Introduction to Security
CJ 425 White Collar Crime Investigation
CJ 520 Computer Crime: Legal Issues and Investigation Procedures
CJ 524 Network Security, Data Protection and Telecommunications
CJ 535 Global Perspectives on Crime and Justice
FS 106 Emergency Scene Operations
FS 204 Fire Investigation I
LS 410 Counterterrorism and the Law
PS 222 United States Foreign Policy
PS 241 International Relations

Concentration in Investigative Services

This concentration provides an interdisciplinary educational program for those entering investigative service work. It is geared toward enhancing the scientific knowledge of those students seeking investigative positions in various enforcement agencies. The curriculum emphasizes law enforcement, evidence and forensic science.

Students earning the B.S. degree in criminal justice with a concentration in investigative services must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

FOR 215 Introduction to Forensic Science
CJ 218 Criminal Procedure II and Evidence
FOR 303 Forensic Science Laboratory I
FOR 415 Crime Scene Investigation
CJ 420 Advanced Investigative Techniques
or
CJ 425 White Collar Crime Investigation

Plus one restricted elective

Concentration in Juvenile and Family Justice

This concentration prepares students for careers with federal, state, local, and private correctional agencies and with service agencies whose mission brings them into regular contact with the justice system. The curriculum is geared to preparing service providers with knowledge of law and of social and behavioral sciences as well as communication skills with children, adolescents, and people of diverse cultural backgrounds.

Students earning a B.S. degree in criminal justice with a concentration in juvenile and family justice must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

CJ 209 Correctional Treatment Programs
CJ 221 Juvenile Justice System
CJ 408 Child and Family Intervention Strategies
CJ 409 Adult Intervention Strategies
CJ 411 Victimology

Plus two restricted electives

Concentration in Law Enforcement Administration

This concentration prepares students for careers in federal, state, and local law enforcement agencies, public and private security forces, planning agencies, and other related settings. The curriculum focuses on the roles, activities, and behaviors of people with regard to maintaining law and order, providing needed services, protecting life and property, and planning and research.

Students earning the B.S. degree in criminal justice with a concentration in law enforcement administration must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

FOR 215 Introduction to Forensic Science
CJ 218 Criminal Procedure II and Evidence
CJ 221 Juvenile Justice System
CJ 333 Police Civil Liability
CJ 402 Police in Society

Plus two restricted electives

Concentration in Victim Services Administration

This concentration provides students with an interdisciplinary, practice-oriented educational program. It is prepares graduates for entry into a wide variety of positions in law enforcement, criminal justice, the courts, corrections, and victim services programs as well as professional settings involving work with victims of crime, their families, and the community at large. The curriculum encourages a broad-based training experience focusing on the enhancement of the appropriate involvement of victims in the justice system and the provision of services to victims and survivors.

Students earning the B.S. degree in criminal justice with a concentration in victim services administration must complete the University Core Curriculum, the common courses for criminal justice majors listed above, and the following:

CJ 210 Ethnic and Gender Issues in Criminal Justice
CJ 221 Juvenile Justice System
CJ 315 Domestic Violence
CJ 411 Victimology
CJ 413 Victim Law and Service Administration

Plus two restricted electives

A.S., Criminal Justice

Students completing the first two years of the bachelor of science degree program in criminal justice with the law enforcement administration concentration or the corrections concentration (61 credits) are eligible to receive the associate in science degree. Interested students should contact their adviser.

Minor in Criminal Justice

To minor in criminal justice, students must complete 18 credits of criminal justice courses, including CJ 100 Introduction to Criminal Justice.

Criminal Justice Certificates

Adviser: Mario Gaboury, Ph.D., J.D.

The Department offers certificates in crime analysis, law enforcement science, private security, and victim services. Students must complete 12–18 credits of required courses to earn a certificate. Credits earned for a certificate may be applied toward the requirements for a degree program at a later date.

A student must successfully complete all required courses as outlined below with a minimum G.P.A. of 2.0 to be awarded the certificate.

Crime Analysis Certificate

This certificate focuses on the analysis of crime and criminal behavior. Geographic information systems and computer-assisted statistical packages are used to assist in the study of crime analysis. All students are required to take 21 credits, including the courses listed below:

CJ 498 Research Project
CJ 555 Crime Prevention Through Environmental Design
CJ 556 Problem-Oriented Policing
CJ 557 Crime Mapping and Analysis
EN 540 Introduction to Geographical Information Systems

Plus one CJ elective, and one environmental science elective

Forensic Computer Investigation Certificate

Adviser: William L. Tafoya, Ph.D.

This certificate is designed for those professionals who wish to enhance their knowledge and skills in forensic computer investigation. Students interested in enrolling in the courses in this certificate must obtain consent of the instructor and/or the certificate adviser prior to registration. Alternate course selections may be permitted with the consent of the certificate adviser. Four courses (12 credits) are required for completion of the certificate:

CJ 520 Computer Crime: Legal Issues and Investigative Procedures
CJ 524 Network Security, Data Protection, and Telecommunications

Plus two of the following, with consent of adviser:

CJ 201 Principles of Criminal Investigation
CJ 217 Criminal Procedure I
CJ 218 Criminal Procedure II and Evidence
FOR 415 Crime Scene Investigation
CJ 420 Advanced Investigative Techniques
CJ 450 Special Topics
CJ 498 Research Project
CJ 522 Computers, Technology, and Criminal Justice Information Management Systems
CJ 523 Internet Vulnerabilities and Criminal Activity

Information Protection and Security Certificate

Adviser: William L. Tafoya, Ph.D.

This certificate prepares individuals for assuming the responsibilities of protecting their agency or corporate information systems. The basics of information systems security as well as legal issues and cyber response strategies are reviewed. Computer gaming simulations as well as online attack and defense techniques are presented for student assignments.

Five courses (15 credits) are required for completion of the certificate:

CJ 525 Information Systems Threats, Attacks, and Defenses
CJ 526 Firewall and Secure Enterprise Computing
CJ 527 Internet Investigations and Audit-Based Computer Forensics
CJ 528 Computer Viruses and Malicious Code
CJ 529 Practical Issues in Cryptography

Law Enforcement Science Certificate

This certificate provides the fundamentals of criminal investigation techniques and procedures, particularly for those involved in or planning to enter investigative positions in law enforcement agencies in both the private and public sectors. All students are required to take 18 credits, including the courses listed below:

CJ 201 Principles of Criminal Investigation
FOR 215 Introduction to Forensic Science
FOR 227 Fingerprints with Laboratory
FOR 303 Forensic Science Laboratory
FOR 415 Crime Scene Investigation

Plus one CJ elective

Private Security Certificate

This certificate is a concentrated program of study in management security systems for private business and industry. All students are required to take 18 credits, including the courses listed below:

CJ 105 Introduction to Security
CJ 203 Security Administration
CJ 226 Industrial Security
CJ 410 Legal Issues in Private Security
FS 204 Fire Investigation I

Plus one CJ elective

Victim Services Certificate

Students matriculated in other concentration areas, as well as non-matriculated students, may elect to take the five courses listed below to earn a certificate in victim services administration. Although internships are not required of certificate students, an internship experience is strongly encouraged and will be facilitated at the student's request.

CJ 210 Ethnic and Gender Issues in Criminal Justice
CJ 221 Juvenile Justice System
CJ 315 Domestic Violence
CJ 411 Victimology
CJ 413 Victim Law and Service Administration

Forensic Science

Chair: Timothy Palmbach, M.S., J.D.

Professors: Howard H. Harris, Ph.D.; Henry C. Lee, Ph.D., Fredrick P. Smith, Ph.D.

Associate Professors: Azriel Gorski, Ph.D.; Virginia Maxwell, Ph.D., Timothy Palmbach, M.S., J.D.

Assistant Professor: Heather Coyle, Ph.D.

Lecturer: Peter Massey, M.S.

B.S., Forensic Science

Coordinator: Azriel Gorski, Ph.D.

Forensic science is a broad, interdisciplinary field in which biological and physical science methods are used to analyze and evaluate physical evidence related to matters of criminal and civil law. The objective of the degree is to provide an appropriate education and scientific background to men and women planning careers as physical evidence examiners in crime laboratories. The curriculum is also appropriate for individuals currently working in forensic science laboratories and is valuable for those in related areas whose professional work requires in-depth knowledge of science and scientific investigation methods. The curriculum provides sufficient flexibility to allow students to focus their studies in chemistry or in biology.

B.S., Forensic Science

The bachelor of science in forensic science is offered with a choice of two emphasis areas, chemistry or biology, to allow the student to major in forensic science and specialize in an area of interest.

Required Courses

Students earning the B.S. degree in forensic science must complete 125–126 credits, including the University Core Curriculum and the following courses:

CJ 100 Introduction to Criminal Justice
CJ 102 Criminal Law
FOR 200 Professional Practices in Forensic Science
FOR 216 Introduction to Forensic Science for Majors
FOR 403 Forensic Biology with Laboratory
FOR 404 Criminalistics with Laboratory
FOR 415 Crime Scene Investigation
FOR 416 Seminar in Forensic Science
FOR 498 Research Project
or
FOR 502 Forensic Science Internship
BI 253–254 General Biology for Science Majors with Laboratory I and II
CH 115–116 General Chemistry I and II
CH 117–118 General Chemistry Laboratory I and II
CH 201–202 Organic Chemistry I and II
CH 203–204 Organic Chemistry Laboratory I and II
CH 221 Instrumental Methods of Analysis with Laboratory
CS 107 Computers and their Applications
E 230 Public Speaking and Group Discussion
M 117–118 Calculus I and II
M 228 Statistics
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
PL 222 Ethics

Plus four electives chosen through discussion with adviser.

Chemistry-emphasis students additionally complete the following:

M 203 Calculus III
CH 331/333 Physical Chemistry I with Laboratory
CH 332/334 Physical Chemistry II with Laboratory

Biology-emphasis students additionally complete the following:

BI 306 Genetics
BI 311 Molecular Biology with Laboratory
BI 461 Biochemistry with Laboratory

Legal Studies

Director: Donna Decker Morris, J.D.

From the principles in the U.S. Constitution to regulation of the food we eat, law permeates our society. With the globalization of the economy, law and regulation have become increasingly important to business. At the same time, new forms of dispute resolution are being developed in government, business, and industry as alternatives to the courtroom. Legal policy will increasingly shape our future. Legal studies is a unique and exciting undergraduate degree program designed to prepare graduates to be part of that future — and to help shape it.

B.S., Legal Studies

The legal studies major provides students with an understanding of fundamental principles of law and analyzes the role and function of the American legal

system within a societal and political context. The interdisciplinary course of study develops critical thinking and writing skills and prepares students for law-related careers, law school or graduate school. Concentrations allow students to focus on particular career aspirations and interests. In addition, an optional international track encourages study abroad.

A two-semester internship in the final year of study combines classroom learning with on-the-job experience, enhancing employment opportunities after graduation. Placements are geared to the student's area of concentration.

Students earning a B.S. degree in legal studies must complete a minimum of 125 credits, including the University Core Curriculum, common courses for legal studies majors, and designated courses for a legal studies concentration.

Following are common courses required for the major in legal studies:

LS 100 Introduction to Legal Concepts
PS 122 State and Local Government
LS 240 Legal Research and Writing I
LS 241 Legal Research and Writing II
LS 201 Legal Ethics and Professional Responsibilities
LS 238 Civil Procedure I
LS 330 Legal Investigation
PS 332 Constitutional Law
LS 301 Administrative Law and Regulation
LS 500 Pre-Internship
LS 501–502 Legal Studies Internship I and II

Legal Studies majors are also required to take the following courses as restricted electives, some of which may be used to satisfy University Core Curriculum requirements:

CO 100 Human Communication
or
E 230 Public Speaking and Group Discussion
E 220 Writing for Business and Industry
or
E 225 Technical Writing and Presentation
or
E 251 Narrative Nonfiction
P 111 Introduction to Psychology
PL 222 Ethics
PS 121 American Government and Politics

Plus one of the following sequences:

P 301 Statistics for the Behavioral Sciences and
P 305 Experimental Methods in Psychology or
CJ 250 Scientific Methods in Criminal Justice
and
CJ 251 Quantitative Applications in Criminal Justice

Concentrations

Students select an area of concentration for the elective portion of the program. The concentrations consist of five courses that focus on a specific approach to the field of legal studies. Course selection is made with the assistance of the program adviser. Only the paralegal studies concentration is designed to prepare students to become paralegals.

Concentration in Public Affairs

The public affairs concentration analyzes the application of law to public policy concerns, while developing critical thinking, legal research, and writing skills. Government regulation, vulnerable populations, and international, multicultural, and emerging issues are emphasized. This concentration prepares students for further education in law school, graduate school, or for careers in law-related fields and regulatory affairs in federal, state, or local governments, business, industry, and non-profit organizations.

Concentration Requirements

PA 404 Public Policy Analysis

Plus four of the following, or related courses, as approved by program adviser:

LS 401 Alternative Dispute Resolution: Models and Practice
LS 405 Environmental Law
LS 410 Counter-terrorism and the Law
LS 430 Cyberlaw
CJ 100 Introduction to Criminal Justice
CJ 102 Criminal Law
CJ 209 Correctional Treatment Programs
CJ 210 Ethnic and Gender Issues in Criminal Justice
CJ 221 Juvenile Justice System
CJ 400 Criminal Justice Problems Seminar
CJ 413 Victim Law and Service Administration
CO 420 Communication and the Law

MR 330 Coastal Resources Management
PS 216 Urban Government and Politics
PS 224 Public Attitudes and Public Policy
PS 228 Public Interest Groups
PS 230 Anglo-American Jurisprudence
PS 231 Judicial Behavior
PS 232 The Politics of the First Amendment

Plus eight electives

Concentration in Dispute Resolution

Students in the dispute resolution concentration will explore alternative methods for resolving disputes traditionally resolved through the civil or criminal legal systems. This concentration provides students with an understanding of the theories and practices of alternative dispute resolution and an introduction to practical skills in negotiation, mediation, and facilitation. Graduates are prepared for law-related, alternative dispute resolution careers in the judicial system, government agencies, and the private sector, or for further education in law school or graduate school.

Concentration Requirements

LS 401 Alternative Dispute Resolution: Models and Practice

Plus four of the following, or related courses, as approved by program adviser:

CO 100 Human Communication*
CO 410 Management Communication Seminar
CO 205 Intercultural Communication
P 321 Social Psychology
SW 340 Group Dynamics

Plus eight electives

*Must be in addition to course selected to fulfill common course requirement for the major

Concentration in Paralegal Studies

This concentration is designed to prepare students for careers as paralegals in private law firms, government agencies, or corporations. A paralegal performs specifically delegated substantive legal work under the supervision of an attorney. Graduates may also pursue careers in law-related areas of the insurance industry, banking and securities, businesses, nonprofit agencies, or in federal, state, or local governments. Concentration electives allow students to focus on areas such as investigations, criminal law, general civil law, or law and financial issues. As part of a high-quality liberal arts education, the concentration also enables students to pursue broad career opportunities or graduate school. Development of critical thinking, research, and writing abilities is emphasized, along with practical paralegal skills.

Concentration Requirements

LS 239 Civil Procedure II: Litigation

Plus four of the following, or related courses, as approved by program adviser:

LS 226 Family Law
LS 244 Estates and Trusts
LS 326 Real Estate Law
LS 430 Cyberlaw
A 101 Introduction to Financial Accounting
A 102 Introduction to Managerial Accounting
A 435 Federal Income Taxation I
CJ 100 Introduction to Criminal Justice
CJ 102 Criminal Law
CJ 201 Principles of Criminal Investigation
CJ 420 Advanced Investigative Techniques
FOR 215 Introduction to Forensic Science
FOR 415 Crime Scene Investigation
LA 101 Business Law and the Regulatory Environment

Plus eight electives

A.S., Legal Studies

The associate degree program in legal studies prepares students to work as paralegals in law firms and legal departments or in law-related positions in corporations, banks, and local, state, and federal governments. A paralegal performs specifically delegated substantive legal work under the supervision of an attorney who is responsible for the paralegal's work. Students may also continue their studies toward a bachelor's degree.

Students are required to complete 60 credits, including the University Core Requirements for the associate degree and the following courses:

LS 100 Introduction to Legal Concepts
LS 201 Legal Ethics and Professional Responsibility
LS 238 Civil Procedure I
LS 239 Civil Procedure II: Litigation
LS 240 Legal Research and Writing I
LS 241 Legal Research and Writing II
LS 330 Legal Investigation

Plus three legal studies electives; PL 222 Ethics; CO 100 Human Communication or E 230 Public Speaking and Group Discussion; and one elective

Successful completion of the requirements for an associate degree in legal studies includes the courses required for the paralegal studies certificate described in the Institute of Law and Public Affairs section below. The certificate is awarded via the Institute.

Minor in Legal Studies

Students may minor in legal studies by successfully completing LS 100 Introduction to Legal Concepts plus five additional legal studies courses. A minor in legal studies does not prepare students to become paralegals, unless the requirements for a paralegal certificate are satisfied.

The Institute of Law and Public Affairs

Director: William M. Norton, J.D., Ph.D.

The Institute of Law and Public Affairs has been established to provide undergraduates with specific training in the areas of the paralegal profession, public policy, and public affairs. Students with an undergraduate major in any of the colleges of the University may attain paraprofessional standing in paralegal studies or public affairs by completing a minor in the Institute. The term paraprofessional applies to those with special training in a professional field who do not yet possess the terminal degree normally required in the profession. In many instances, paraprofessional standing is a step toward the accomplishment of the final degree.

Minor in Public Affairs

The public affairs minor in the Institute of Law and Public Affairs is directed toward providing training for civil service positions at all levels of government. The goal of such training is to provide more effective public administrators and to introduce creativity into the profession of public service. The public affairs minor takes a problem-solving approach to the discipline as students conduct basic, in-depth research on problems of governmental agencies. Students in this minor develop valuable insights into the nature of the public policy process from the vantage point of the bureaucracy. Courses are selected in consultation with a faculty adviser.

Paralegal Studies Certificate

Adviser: Donna Decker Morris, J.D.

The paralegal studies certificate requires 18 credits of designated legal studies courses, each with a grade of C minus or better. A student must successfully complete all required courses as outlined below with a minimum G.P.A. of 2.0 to be awarded the certificate. As a prerequisite, students entering the program must have completed, or complete concurrently with the paralegal studies courses, 42 other undergraduate credits, which may be from the University of New Haven or another institution and which satisfy ABA guidelines. The University of New Haven has conducted this certificate program since 1971, providing paralegal education to both traditional and part-time evening students. A paralegal performs specifically delegated substantive legal work under the supervision of an attorney who is responsible for the paralegal's work. The following courses are required for the certificate:

LS 100 Introduction to Legal Concepts
LS 238 Civil Procedure I
LS 240 Legal Research and Writing I
LS 241 Legal Research and Writing II

Plus two of the following, or related courses, as approved by the program adviser:

LS 226 Family Law
LS 239 Civil Procedure II: Litigation

LS 244 Estates and Trusts
LS 301 Administrative Law and Regulation
LS 326 Real Estate Law
LS 328 Legal Management and Administrative Skills
LS 330 Legal Investigation

Department of Fire Science and Professional Studies

Chair: Robert E. Massicotte, Jr., M.S.

Professor: Howard J. Cohen, Ph.D., University of Michigan

Associate Professor: Martin J. O'Connor, J.D., University of Connecticut

Assistant Professors: Sorin Iliescu, M.S., University of New Haven; Robert E. Massicotte, Jr., M.S., University of New Haven; Nelson Dunston, M.S., University of Maryland

Lecturer: Bruce Varga, M.S., University of New Haven

The Department of Fire Science and Professional Studies offers several degree programs for students interested in the specific employment-related areas of fire science (technology, administration, and fire/arson investigation) and fire protection engineering. A number of certificates are also offered in these fields.

Fire Science

Chair: Robert E. Massicotte, Jr., M.S.

The United States continues to be among those countries worldwide that suffer the highest degree of destruction to life and property from fire. The arson/fraud fire problem continues to contribute to these statistics at an alarming rate.

Concern over this unnecessary loss of life and property has triggered a rapidly growing need for professionals in fire science. The municipal fire service is only one part of the demand for individuals with specialized education in this multi-disciplined field. Career opportunities in the public sector include those for municipal firefighters, fire inspectors, fire investigators, fire technicians, and fire protection engineers. Private sector careers include those of industrial firefighters, fire protection specialists, fire protection engineers, fire investigators, and loss control consultants. Government, industry, fire equipment manufacturers and vendors, and the insurance industry are all potential employers.

The University of New Haven offers five undergraduate degrees and four certificate programs designed for those entering the exciting field of fire science. A combination of classroom lectures, laboratory sessions, case studies, and field trips gives students the broadest possible exposure in this area of study. Internships allow students to obtain real-life work experience in this specialized field.

The University also offers graduate certificate programs and a master's degree in fire science for those completing their bachelor's degrees.

Fire Science Club

The Fire Science Club is the campus activities organization for students with interests in fire science and related fields. This very active group organizes field trips, fire safety and substance abuse programs, and other activities, both on and off campus, throughout the school year.

Student Branch of the Connecticut Valley Chapter of SFPE

The Student Branch of the Connecticut Valley Chapter of the Society of Fire Protection Engineers is the professional society on campus for fire science students. The Student Branch works closely with the Fire Science Club to provide programs and field trips with a strong technical basis.

B.S., Fire Science

The bachelor of science in fire science is offered with a choice of three concentrations to allow the student to major in fire science and specialize in an area of

interest. The concentration areas are fire/arson investigation, fire administration, and fire science technology.

Required Courses

Students earning the B.S. degree in fire science are required to complete at least 122 credits including the University Core Curriculum and the common courses for fire science listed below, some of which fulfill requirements of the University Core Curriculum.

FS 102 Principles of Fire Science Technology
FS 201 Essentials of Fire Chemistry and Physics with Laboratory
FS 205 Fire Protection Hydraulics and Water Supply
FS 207 Fire Prevention
FS 301 Building Construction for Fire Protection
FS 302 Chemistry of Hazardous Materials
FS 304 Fire Protection Systems
FS 325 Fire/Life Safety Codes
FS 404 Special Hazards Control
FS 501 Internship

Plus electives chosen with the adviser

Concentration in Fire/Arson Investigation

This concentration prepares students for careers in fire investigation, arson/fraud detection, and code enforcement in both the public and private sectors. The curriculum provides the educational background to determine the cause and origin of fires. It also provides an in-depth study of the laws regarding fire investigations and evidence collection. Students choosing this concentration will complete the requirements for a minor in criminal justice. Students earning the B.S. in fire science with a concentration in fire/arson investigation must complete 123 credits including the University Core Curriculum, the common courses for fire science majors listed above, and the courses listed below, some of which fulfill requirements of the University Core Curriculum.

FS 203 Risk Management and Insurance for Fire Science
FS 204 Fire Investigation I
FS 313 Fire Investigation II
FS 314 Fire Investigation II Laboratory
FS 408 Fire Protection Law
FS 409 Arson for Profit
CH 105 Introduction to General and Organic Chemistry I with Laboratory
CJ 100 Introduction to Criminal Justice
CJ 102 Criminal Law
CJ 201 Principles of Criminal Investigation
FOR 215 Introduction to Forensic Science
CJ 217 Criminal Procedure I
CJ 218 Criminal Procedure II and Evidence
CJ 221 Juvenile Justice System
or
FOR 415 Crime Scene Investigation
M 109 Intermediate Algebra
or
M 127 Finite Mathematics
P 111 Introduction to Psychology
P 336 Abnormal Psychology

Concentration in Fire Administration

This concentration prepares students for careers in municipal, private, or industrial fire departments. The curriculum provides the educational background to advance through the ranks and become the future leaders of the fire service.

Students earning the B.S. degree in fire science with a concentration in fire administration must complete a minimum of 122 credits including the University Core Curriculum, the common courses for fire science majors listed above, and the courses listed below, some of which fulfill requirements of the University Core Curriculum.

CH 105 Introduction to General and Organic Chemistry I with Laboratory
FS 106 Emergency Scene Operations
FS 204 Fire Investigation I
FS 209 Occupational Safety and Health for the Fire Service
FS 303 Process and Transportation Hazards
FS 307 Municipal Fire Administration
FS 405 Emergency Incident Management
FS 408 Fire Protection Law
M 109 Intermediate Algebra
or
M 127 Finite Mathematics
P 111 Introduction to Psychology

PA 101 Introduction to Public Administration
PA 302 Public Administration Systems and Procedures
or
PA 305 Institutional Budgeting and Planning
PA 408 Collective Bargaining in the Public Sector

Plus one fire science elective

Concentration in Fire Science Technology

This concentration focuses on the technological aspects of fire science. Fire control by design, construction, and fixed fire suppression systems is stressed. A combination of fire science and engineering courses prepares students to apply basic engineering principles to the fire problem. Fire prevention and code compliance are stressed in this program. Careers in this field are mainly in the private sector; however, these skills are becoming more important in all areas, as the fire service prepares to meet the technical challenges of the future.

Students earning the B.S. degree in fire science with a concentration in fire science technology must complete 126 credits including the University Core Curriculum, the common courses for fire science majors listed above, and the courses listed below, some of which fulfill requirements of the University Core Curriculum.

FS 203 Risk Management and Insurance for Fire Science
FS 308 Industrial Fire Protection I
FS 311 Fire Protection Fluids and Systems
FS 312 Fire Protection Fluids and Systems Laboratory
FS 425 Fire Protection Plan Review
FS 460 Fire Hazards Analysis
CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
EAS 107P Introduction to Engineering
EAS 109 Project Planning
EAS 112 Methods of Engineering Analysis (in place of CS 107)
EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 230 Fundamentals and Applications of Analog Devices
M 117 Calculus I
M 118 Calculus II
MG 115 Fundamentals of Management
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Plus three fire science electives

B.S., Fire Protection Engineering

Coordinator: Nelson Dunston, M.S.

The role of a fire protection engineer is to safeguard life and property from the devastating effects of fire and explosions by applying sound, multi-disciplined engineering principles to the fire protection problem. Through a combination of engineering and fire science courses, students learn how to design, construct, and install fire protection systems that prevent or minimize potential losses from fire, water, smoke, or explosions.

Graduates of the fire protection engineering program are qualified to design, evaluate, or test systems responsible for the reduction of fire losses. They are also prepared to analyze the fire protection defenses of various structures and operations and recommend cost-effective methods of improving the level of protection that is provided.

Careers in this field may be in the private or the public sector. Government, insurance companies, industry, manufacturers, and consultants are prospective employers of fire protection engineers.

Required Courses

Students earning the B.S. degree in fire protection engineering must complete 128 credits including the University Core Curriculum and the courses listed below, some of which fulfill requirements of the University Core Curriculum.

FS 102 Principles of Fire Science
FS 201 Essentials of Fire Chemistry and Physics
FS 205 Fire Protection Hydraulics and Water Supply
FS 304 Fire Protection Systems
FS 311 Fire Protection Fluids and Systems
FS 312 Fire Protection Fluids and Systems Laboratory

FS 404 Special Hazards Control
FS 425 Fire Protection Plan Review
FS 450 Fire Protection Heat Transfer
FS 460 Fire Hazards Analysis
EAS 107P Introduction to Engineering (Project-based)
EAS 109 Project Planning
EAS 112 Methods of Engineering Analysis
EAS 120 Chemistry with Applications to Biosystems
EAS 211 Introduction to Modeling of Engineering Systems
EAS 213 Materials in Engineering Systems
EAS 222 Fundamentals of Mechanics of Materials
EAS 224 Fluid-Thermal Systems
EAS 230 Fundamentals and Applications of Analog Devices
EAS 232 Project Management and Engineering Economics

Plus four fire science or engineering electives chosen with the adviser

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
M 204 Differential Equations
PH 150 Mechanics, Heat, and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
E 225 Technical Writing and Presentation
EC 133 Principles of Economics

A.S., Fire and Occupational Safety

This two-year associate in science degree offers students a well-rounded, basic program in the field of fire science with a focus on the private sector fire protection industry. The program provides the student with two fire science and free electives, thereby allowing the student to customize the program to individual career goals.

FS 102 Principles of Fire Science Technology
FS 201 Essentials of Fire Chemistry and Physics with Laboratory
FS 203 Risk Management and Insurance for Fire Science
FS 205 Fire Protection Hydraulics and Water Supply
FS 207 Fire Prevention
FS 209 Occupational Safety and Health for the Fire Service
FS 303 Process and Transportation Hazards
FS 308 Industrial Fire Protection
CH 105 Introduction to General and Organic Chemistry with Laboratory
M 109 Intermediate Algebra
or
M 127 Finite Mathematics

Plus two fire science electives, and two electives chosen with the adviser

Minor in Fire Science

Students wishing to minor in fire science should contact the director of the program. A minimum of 19 credits is required. The courses listed below are required unless a substitution is approved by the director of Fire Science.

Required Courses

FS 102 Principles of Fire Science Technology
FS 201 Essentials of Fire Chemistry and Physics with Laboratory
FS 204 Fire Investigation I
FS 207 Fire Prevention
FS 301 Building Construction for Fire Protection
FS 303 Process and Transportation Hazards

Fire Science Certificates

The Fire Science Department offers certificates in fire/arson investigation, fire prevention, industrial fire protection, and hazardous materials. To earn a certificate, students must complete from 16 to 19 credits. Credits earned for a certificate may be applied to an associate or bachelor's degree in fire science.

A student must successfully complete all required courses as outlined below with a minimum G.P.A. of 2.0 to be awarded the certificate.

Fire/Arson Investigation Certificate

The fire/arson investigation certificate provides individuals in either the public or private sector with the fundamentals required to determine the cause and origin of fires. Investigative techniques and arson determination are included in this certificate program. Students are required to complete 19 credits, including the courses listed below.

Required Courses

FS 102 Principles of Fire Science Technology
FS 203 Risk Management and Insurance for Fire Science
FS 204 Fire Investigation I
FS 313 Fire Investigation II
FS 314 Fire Investigation II Laboratory
FS 408 Fire Protection Law
FS 409 Arson for Profit

Fire Prevention Certificate

The fire prevention certificate provides the fundamentals of fire protection and prevention to the individual interested in fire inspection and/or code compliance. The certificate is applicable to both the public and private sectors, with an emphasis on property loss control. Students are required to complete 19 credits, including the courses listed below.

Required Courses

FS 102 Principles of Fire Science Technology
FS 201 Essentials of Fire Chemistry and Physics with Laboratory
FS 207 Fire Prevention
FS 303 Process and Transportation Hazards
FS 325 Fire/Life Safety Codes
FS 404 Special Hazards Control

Industrial Fire Protection Certificate

The industrial fire protection certificate provides the individual interested in industrial property loss control with the fundamentals related to this field. While focusing on the private sector, these principles are equally important to those in the public sector who interact with those responsible for the protection of commercial and industrial properties. Students are required to complete 18 credits, including the courses listed below.

Required Courses

FS 102 Principles of Fire Science Technology
FS 203 Risk Management and Insurance for Fire Science
FS 207 Fire Prevention
FS 308 Industrial Fire Protection I
FS 309 Industrial Fire Protection II
FS 404 Special Hazards Control

Hazardous Materials Certificate

The hazardous materials certificate is designed to provide the fundamentals required for dealing with the manufacture, storage, handling, and shipping of hazardous materials. The principles covered by this certificate are equally appropriate to the public and the private sectors. Students must complete 16 credits for this certificate, including the following:

Required Courses

FS 102 Principles of Fire Science Technology
FS 201 Essentials of Fire Chemistry and Physics with Laboratory
FS 302 Chemistry of Hazardous Materials
FS 303 Process and Transportation Hazards
PH 303 Radioactivity and Radiation

UNIVERSITY COLLEGE

Arthur D. Goon, M.S., Dean
Christie Boronico, Ph.D., Associate Dean
Michelle Mason, M.S., M.B.A., Assistant Dean
Jane Sangeloty, B.A., Assistant Dean

UNIVERSITY COLLEGE

University College was created in 2007 to reflect UNH's continued dedication to meeting the educational needs of adult students and the region's corporate communities, and to partner with the University's local and regional community. Programs and courses are designed specifically with adult learners in mind, focusing on academic excellence, convenience and flexibility. All the degree, customized training, and certificate programs are the domain of the appropriate academic college within the University of New Haven, thereby ensuring the academic quality and integrity of the programs.

The mission of University College is stated below.

Mission Statement

- Recognizing the distinctive needs of adult and nontraditional students, provide opportunities to earn a college degree, to continue lifelong learning, to seek professional development and to study English as a Second Language.
- In partnership with the other University of New Haven colleges, offer high-quality academic programs and services uniquely designed for adult learners.
- Provide the resources and support necessary for adult students to achieve individual academic success and to enhance the academic experience.
- Develop and maintain a supportive learning environment that is responsive to the unique challenges faced by adult learners and that enables them to achieve academic success.
- As a metropolitan university in the New Haven area, respond in innovative ways to meet the emerging educational and training needs of educators, businesses, public and social agencies, and our multi-faceted communities.
- Working with local communities, business and industry, and government, build partnerships to facilitate the development of educated and trained adults who are equipped to meet the needs and demands of current employment and new competition.

Center for Adult and Professional Studies (CAPS)

Undergraduate degree and certificate programs for adult learners are administered through the Center for Adult and Professional Studies (CAPS). UNH offers the following accelerated bachelor's degree programs:

- Accounting (B.S.)
- Business Administration (B.S.)
- Dental Hygiene (B.S.)*
- Fire Science (B.S.)*
- Public Administration (B.S.)
- Liberal Studies (B.A.)
- Paralegal Certificate*

**Pending approval*

Undergraduate part-time students can also enroll in other degree programs. Some programs can be completed exclusively in evening study while others may require some day classes. Students can complete the University's core competency requirements in the evening accelerated format.

Additionally, CAPS is responsible for developing K–12 partnerships and programs, including such programs as High School Academy and College Before College, as well as community outreach programs, summer programs, and camps.

Graduate Admissions Office

The Graduate Admissions Office is responsible for the centralized recruitment and admissions processing for the more than 25 master's degree programs and more than 30 graduate certificate programs offered by the University.

Center for Graduate and Adult Student Services

The Center for Graduate and Adult Student Services provides support for graduate and adult students related to orientation, registration, financial aid and student billing in cooperation with those specific offices and the Student Affairs Office. The Center for Graduate and Adult Student Services also works with graduate program coordinators and the Graduate Admissions and Financial Aid offices to place students into graduate assistantship positions. The Center also assists graduate students seeking housing. A new adult student lounge is available on the second floor of Echlin Hall.

Southeastern Center

The Southeastern Center has been serving the educational needs of businesspeople and residents in Southeastern Connecticut and Rhode Island for nearly three decades.

Located on the campus of Mitchell College in New London, The Southeastern Center offers academic degree programs for the working adult who is interested in career advancement. Innovative programs allow students to complete their degrees quickly without sacrificing quality, and without getting in the way of work and personal pursuits.

For further information please contact the UNH Southeastern Center at 469 Pequot Avenue, New London, CT 06320, or phone 860.701.5454.

Center for Corporate Education

The Center for Corporate Education provides customized corporate training to area and regional business and industry. Additionally, the Center for Corporate Education provides administrative support for existing and potential degree and certificate programs that are taught in cohorts, including the Executive M.B.A., M.B.A. for Emerging Leaders, the Master of Science in Engineering Management (M.S.E.M.), and the Master of Arts in Industrial/Organizational Psychology (M.A.I.O.P.).

International Credential Assessment and Services

University College is responsible for coordinating the review of international course syllabi for the purpose of awarding university credit and the transcription of completed course work in conjunction with Cultural Experiences Abroad (CEA). A faculty committee has been established to review and assess course syllabi of international courses.

ELS Language Center

Intensive English programs are offered through the ELS Language Center on the main campus. The goal of the ELS Center is to prepare students to use all four language skills for professional endeavors and academic study in English-speaking environments. Completion of the appropriate programs will prepare students for undergraduate and graduate level study.

The Office of Experiential Education

The Office of Experiential Education at the University of New Haven supports students and faculty in developing and participating in Experiential Education opportunities. The Office of Experiential Education encourages students to experience L.I.F.E., which stands for **L**earning through faculty-mentored undergraduate research, **I**mmersion through work-integrated learning opportunities, **F**ulfillment through academic service learning, and **E**xperience the world through international study. We support students, staff and faculty in discovery-based learning across the curriculum: expanding intellectual curiosity, enhancing personal growth, and advancing professional development.

Faculty-Mentored Undergraduate Research

We recognize the value of learning through research and encourage students to work with faculty mentors who can help them develop a research agenda to compliment their academic program.

Work-Integrated Learning

Work-integrated learning includes internships, co-op's, practicum, and field study. Our office supports students and faculty in their collaboration with community partners to identify and develop these experiences with academic standards in mind.

Academic Service Learning

The Academic Service Learning Office assists faculty who enhance the learning experience of students through community service projects that support learning objectives in the classroom.

International Studies

We provide advising and support, encouraging our students to experience the world through study abroad, including short-term faculty-led study abroad.

Study Abroad

The Office of Study Abroad at the University of New Haven is committed to providing all UNH students with high-quality international academic opportunities that allow them to develop the insight and skills needed to become productive and successful members of the global community. We offer advising for students working with third-party providers and opportunities to study through UNH faculty-led initiatives. For information on study abroad opportunities, visit our website at www.newhaven.edu/academics/10837/studyabroad/ or contact us by email at studyabroad@newhaven.edu.

The Study Abroad Office is located in Kaplan Hall, Room 210. For more information call 203.931.2919.

University College Contact Information

University College is located on the second floor of Echlin Hall. Hours are 8:30 a.m. to 7:00 p.m. Monday through Thursday; 8:30 a.m. to 4:30 p.m. on Friday; and 8:30 a.m. to noon on Saturday. You can reach us at 203.932.7180 or universitycollege-@newhaven.edu.


UNIVERSITY OF NEW HAVEN
CONNECTICUT

COURSES

Course descriptions are arranged alphabetically by the course prefix codes as listed below. For the purpose of brevity, course descriptions do not follow traditional rules of grammar and may consist of sentence fragments.

A

A	Accounting
AR	Arabic
AT	Art/Visual Arts

B

BA	Business Administration
BI	Biology

C

CE	Civil Engineering
CEN	Computer Engineering
CH	Chemistry
CJ	Criminal Justice
CM	Chemical Engineering
CN	Chinese
CO	Communication
CS	Computer Science

D

DH	Dental Hygiene
DI	Dietetics

E

E	English
EAS	Engineering and Applied Science
EC	Economics
ED	Education
EE	Electrical Engineering
EN	Environmental Science

F

FE	Freshman Experience
FI	Finance
FOR	Forensic Science
FR	French
FS	Fire Science

G

GLS	Global Studies
GR	German

H

HS	History
HTM	Hotel and Tourism Management
HU	Humanities

I

IB	International Business
ID	Interior Design
IE	Industrial Engineering
IT	Italian

J

J	Journalism

L

LA	Business Law
LG	Logistics
LS	Legal Studies

M

M	Mathematics
ME	Mechanical Engineering
MG	Management
MK	Marketing
MM	Multimedia
MR	Marine Biology
MU	Music

P

P	Psychology
PA	Public Administration
PH	Physics
PL	Philosophy
PS	Political Science

Q

QA	Quantitative Analysis

R

RU	Russian

S

SC	Science
SE	System Engineering
SO	Sociology
SP	Spanish
SW	Social Welfare

T

T	Theatre Arts

ACCOUNTING

A 101 Introduction to Financial Accounting
Deals primarily with reporting the financial results of operations and financial position to investors, managers, and other interested parties. Emphasizes the role of accounting information in decision-making. 3 credits.

A 102 Introduction to Managerial Accounting
Prerequisite: A 101. The application of accounting in relation to current planning and control, evaluation of performances, special decisions, and long-range planning. Stress is on cost analysis. Additional topics include income tax planning, product costing, and quantitative techniques. 3 credits.

A 220 Intermediate Financial Accounting I
Prerequisite: A 101. A rigorous examination of financial accounting theory and practice applicable to the corporate form of business organization. With an emphasis on reporting corporate financial status and results of operations, the course includes the principles governing and the procedures for implementing accounting valuations for revenue, expense, gain, loss, current assets, and deferred charges. 3 credits.

A 221 Intermediate Financial Accounting II
Prerequisite: A 220. Continues the emphasis on corporate financial reporting established in A 220. The principles and procedures applicable to accounting valuations for current liabilities, long-term liabilities, deferred credits, and stockholder's equity are examined. Special attention is directed to preparing the cash-flow statement. 3 credits.

A 250 Accounting Information Systems
Prerequisite: A 101. This course provides a thorough introduction to basic systems theory, a firm working knowledge of systems analysis and design techniques, and an examination of various transaction cycles in the accounting system. Emphasis is on EDP environments. 3 credits.

A 323 Cost Accounting
Prerequisite: A 102. An in-depth examination of the accounting principles and procedures underlying the determination of product costs for manufacturing concerns. Emphasis on job order costing systems. Other topics are budgets, standard costing, and CVP analysis. 3 credits.

A 422 Intermediate Financial Accounting III
Prerequisite: A 221. Advanced topics include income tax allocation, pensions and leases, accounting changes, price-level changes, installment sales and consignments, and revenue recognition. 3 credits.

A 431 Advanced Financial Accounting
Prerequisites: A 221 and senior standing. Advanced topics in financial reporting, including partnership accounting, consolidations, cost and equity methods, and purchase versus pooling methods. 3 credits.

A 433 Auditing and Assurance Services
Prerequisites: A 422, A 250, and senior standing. A general examination of the role and function of the independent auditor in the performance of the attest function. Emphasis is placed on current auditing pronouncements, the audit report, statistical sampling, evaluation of internal control, and the determination of the scope of an audit. Rules and standards of compilation and review reports are presented. 3 credits.

A 435 Federal Income Taxation I
Prerequisites: A 102 and senior standing. An introduction to the federal income tax law including objectives, history, and sources of tax law and administration. Course coverage is devoted to different types of taxpayers including individuals, corporations, partnerships, limited liability entities, subchapter S corporations, and trusts and estates. The course explores income tax concepts of accounting methods and periods, income, deduction losses, property transactions, fringe benefits, and retirement plans. 3 credits.

A 436 Federal Income Taxation II
Prerequisites: A 102 and A 435. Advanced studies in taxation including the tax consequences of the formation, operation, and termination of corporations, partnerships, and limited liability companies. Course coverage is devoted to the alternative minimum tax, related party transactions, estate and gift taxation, financial tax accounting concepts, and ethical responsibilities in tax practice. 3 credits.

A 450–459 Special Topics
Prerequisite: A 102. Junior-level standing required unless specified

in course schedule description. Selected topics in accounting or taxation of special or current interest. 3 credits.

A 597 Practicum
Prerequisites: A 220 and minimum 3.0 GPA in the major. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Completed under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

A 598 Internship
Prerequisites: A 422 and junior standing. On-the-job experience performing accounting in selected organizations. 3 credits.

A 599 Independent Study
Prerequisites: A 102 and junior standing. A planned program of individual study under the supervision of a faculty member. 3 credits.

ARABIC

AR 101 Elementary Arabic I
This course introduces students to the basic skills of reading, writing, speaking, and listening in Modern Standard Arabic. Students will learn Arabic letters and sounds, write and create words and sentences, and be able to hold a basic conversation in Arabic. 3 credits.

AR 102 Elementary Arabic II
Prerequisite: AR 101 or permission of instructor. This course builds upon the language, listening, and writing skills developed in AR 101. Students will advance their knowledge of Arabic letters and sounds, words and sentences, and basic conversation. 3 credits.

AR 450–459 Special Topics in Arabic
Special topics of selected or current interest in the study of Arabic. 3 credits.

ART/VISUAL ARTS

AT 101–102 Introduction to Studio Art I and II
Foundational study in the visual arts designed to heighten the student's aesthetic awareness and to provide an introduction to the study of drawing, painting, and design using a variety of materials. 3 credits each.

AT 105 Basic Drawing I
A basic-foundation course that includes a disciplined study in the fundamentals of drawing, such as nature studies, perspective, and exercises in coordination of hand and eye. 3 credits.

AT 106 Basic Drawing II
A continuation of AT 105 with emphasis on perspective and depiction of three-dimensional space and form by two-dimensional means. Study of architectural forms, natural objects, and landscapes. 3 credits.

AT 122 Graphic Design Production
Prerequisite: AT 100-level course or consent of the instructor. Studio introduction to the technical skills of graphic design including copyfitting type specification, typesetting, layout, and mechanical preparation. 3 credits.

AT 201 Painting I
Problems in pictorial composition involving manipulation of form and color. Various techniques of applying pigment are explored as well as mixing pigments, stretching and priming canvases. 3 credits.

AT 202 Painting II
A continuation of AT 201 with further exploration of two-dimensional pictorial arrangements of form and color for greatest visual effectiveness. Students will be encouraged to develop their own personal idiom in the medium. 3 credits.

AT 203 Graphic Design I
Basic theoretical design studies concentrate on the development of a design vocabulary consisting of an understanding of form, proportion, composition, rhythm, juxtaposition, progression, and balance. 3 credits.

AT 204 Graphic Design II
Prerequisite: AT 203. An investigation of formal aspects of composition, organic and geometric form, graphic translation, and color. Emphasis on concept development, sequencing, and visual logic. 3 credits.

AT 209–210 Photography I and II
Introduction to the technical and aesthetic aspects of black and white photography. Camera controls, exposure, development, and printmaking will be covered along with a simultaneous investigation into photographic design, historical tradition, and media use. Photography II puts special emphasis on each student's creating a body of work that possesses a cohesiveness of vision. Further investigation of pho-

tographic technique. Laboratory fee; 3 credits each.

AT 211 Basic Design I
A basic-foundation course that includes exploration of two-dimensional visual elements — line, color, light and dark, shape, size, placement, and figure-ground, and their effective uses. For those wishing a basic art understanding. 3 credits.

AT 212 Basic Design II
A continuation of AT 211, with concentration on three-dimensional elements of design including positive and negative volumes, surfaces, structural systems, and other elements, employing a variety of materials. 3 credits.

AT 213 Color
An intensive exploration of color perception and interaction with manipulation of form and color for greatest effectiveness in pictorial compositions. 3 credits.

AT 221 Typography I
Prerequisites: AT 203, AT 211. An introduction to the form, language, terminology, and use of typography. Letters, words, and text arrangements form the components in these theoretical studies, which lead to simple communication exercises. 3 credits.

AT 222 Typography II
Prerequisite: AT 221. Exploration of typographic structures and hierarchies as well as formal aspects of text. The typographic principles are applied to complex communication problems such as publication design and information graphics. 3 credits.

AT 225 Photographic Methods
Prerequisite: AT 209. An exploration of ideas, experiments, and investigations in alternative photographic processes. Includes toning, cyanotype printing, gum bichromate, platinum, and palladium. Also covered will be negative manipulation, hand-applied color, and pinhole cameras. Laboratory fee; 3 credits.

AT 231 History of Art I
Western art from cave art through the Middle Ages to Gothic. This course seeks to understand expressive, social, cultural, political, and economic aspects of the cultures in which specific art styles and visual developments emerged. This course forms the basic vocabulary for History of Art II. Includes economic and technological changes in the societies and their reflections in art. Appropriate for business and engineering students. 3 credits.

AT 232 History of Art II
Western art from the Renaissance to the twentieth century in Europe and America; a continuation of AT 231. 3 credits.

AT 302 Figure Drawing
Prerequisite: AT 105 or consent of the instructor. Study of drawing, which concentrates on the human figure. 3 credits.

AT 304 Sculpture I
The exploration of three-dimensional materials for maximum effectiveness in expressive design. Experimentation with clay, plaster, wood, stone, canvas, wire screening, metal, found objects. A basic understanding of major fundamental methods: casting and carving. Laboratory fee; 3 credits.

AT 305 Sculpture II
A continuation of AT 304 with further exploration of three-dimensional materials and the possibilities they present for creative visual statements. Laboratory fee; 3 credits.

AT 309 Photographic Design
Prerequisite: AT 209. Introduction to basic materials and techniques of black and white photography used in graphic design. The relation between image and type as well as sequencing and the extended print will be explored along with collage and basic bookmaking. Laboratory fee; 3 credits.

AT 310 Photographic Lighting
Prerequisite: AT 209. Aesthetic and technical understanding of light. Use of natural and artificial lighting systems and methods for working with both color and black and white film. Emphasis on the portrait and still-life image as well as creative problem solving. Laboratory fee; 3 credits.

AT 311 Color Photography
Prerequisite: AT 209. Theory and practice of color photography. Study of current color photographic materials and processes. Laboratory fee; 3 credits.

AT 315 Printmaking
The expressive potential of the graphic image through the techniques of monoprints, etching, silkscreening, and photo/computer-scanned printing processes. Laboratory fee; 3 credits.

AT 322 Illustration
A solid foundation in the techniques of creative illustration. Various media and their expressive

possibilities will be studied: charcoal, pencil, pen and ink, wash, colored pencils, acrylic. Focuses on application of these techniques. 3 credits.

AT 331 Contemporary Art
Focus on art since 1945. The developments of the present stem from ideas emanating from the 1870s, especially Impressionism. This course seeks to understand these connections. Emphasis on economic, historical, and technological developments. Appropriate for business, communication, history, and engineering students. 3 credits.

AT 333 Survey of Afro-American Art
Artistic creation by African-Americans in the United States from the Colonial period to the present. Consideration of African cultural influences. Analysis of modern trends in the work of black artists. 3 credits.

AT 401 Studio Seminar I
Prerequisites: AT 101–102, AT 201, AT 302 or AT 209, and art electives. Drawing on development through their previous study, students will concentrate on major projects in the areas of their choice. 1–4 credits.

AT 402 Studio Seminar II
Prerequisite: AT 401. Continuation of Studio Seminar I. 1–4 credits.

AT 403–429 Selected Topics
Selected topics of special or current interest in applied art or history of art. Credits vary.

AT 599 Independent Study
Prerequisites: consent of the instructor and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1–3 credits.

BUSINESS ADMINISTRATION

BA 100 Leadership in the Business Community
Leaders and their behavior as it pertains to the role of the leader within the organization are the focus for this participatory course. Theory and current research regarding leadership are discussed as well as the prerequisites, knowledge, and practices required for successful leadership. Student participation will be enhanced through use of videotape, role playing, writing activities, and presentations. 3 credits.

BA 450–459 Special Topics
Selected topics of special or current interest in the study of business administration. 3 credits.

BA 500 Experiential Learning Capstone
This class ensures student completion of the experiential learning components for College of Business programs. By the end of the course, students must have completed 16 points of activities from the College of Business Professional Enrichment Program during their tenure at the University of New Haven. They also must have successfully completed either a three-credit internship in the major field of study, a three-credit practicum in the major field of study, or one semester of study abroad (outside the U.S.) including at least six credits of business courses that are transferable into the major program of study. No credit.

BIOLOGY

"*" denotes courses usually scheduled every other academic year. "+" denotes courses offered at the discretion of the department.

BI 121–122 General and Human Biology with Laboratory I and II
An introduction to the study of biology, which integrates biological principles and human biology. Major topics covered are biochemistry, cell and molecular biology, genetics, anatomy and physiology, behavior, ecology, and evolution. The laboratory involves experimentation and demonstration of principles covered in lecture. BI 121 is a prerequisite for BI 122. Laboratory fee; 4 credits each term.

BI 125 Contemporary Issues in Biology with Laboratory
This course explores topics related to biological sciences. The goal is to foster an informed citizenship prepared for current biological debates. Students will learn the relevant biological principles in lecture and laboratory. The dynamic nature of scientific investigation may require adjustment and variation in the specific topics covered each year. Topics may include emerging diseases, cardiovascular health, reproduction, genetics, evolution, ecology, and conservation. Laboratory fee; 4 credits.

BI 250 Invertebrate Zoology with Laboratory
Prerequisite: BI 122 or BI 254.

A survey of invertebrate phyla focusing on taxonomy, evolutionary relationships, structure and function, physiological adaptations, and life modes. Laboratory includes examination of the structure and anatomy of representative taxa from the phyla, experiments and observations on behavior, and responses to varying environmental conditions. Laboratory fee; 4 credits.

BI 253–254 Biology for Science Majors with Laboratory I and II
Prerequisite or corequisite: M 109. A discussion of the principles of biological organization from the molecular level through the ecological. The basic course for biology and environmental studies majors. Laboratory fee; 4 credits each term.

BI 259–260 Vertebrate Anatomy and Physiology with Laboratory I and II
Prerequisite: BI 121, BI 122, BI 253, or BI 254. Examination of structure and function of vertebrate organ systems with an emphasis on human systems. Laboratory fee; 4 credits each term.

BI 261 Introduction to Biochemistry
Prerequisite: CH 105 or equivalent. An introduction to biochemistry including the study of pH, water bioenergetics, enzymes, and the structure, function, and metabolism of carbohydrates, proteins, lipids, and nucleic acids. A non-laboratory course for students in dental hygiene and dietetics. Not open to biology majors. 3 credits.

BI 301 Microbiology with Laboratory
Prerequisites: BI 121 or BI 253 and one college course in general chemistry. A history of microbiology and a survey of microbial life. Includes viruses, rickettsia, bacteria, blue-green algae, and fungi; their environment, growth, reproduction, metabolism, and relationship to humans. Laboratory fee; 4 credits.

***BI 303 Cells and Tissues with Laboratory**
Prerequisite: BI 121 or BI 253. Microscopic and chemical structures of normal tissues, organs, and their cellular constituents as related to function. Laboratory includes microscopic observation, tissue staining, and slide preparation. Laboratory fee; 4 credits.

BI 304 Immunology with Laboratory
Prerequisites: BI 121 or BI 253 and one college course in general chemistry. The nature of antigens and antibodies, formation and action of the latter, other immunologically active components of blood and tissues, and various immune reactions. Laboratory emphasizes current antibody methodology. Laboratory fee; 4 credits.

***BI 305 Developmental Biology with Laboratory**
Prerequisite: BI 122 or BI 254. A survey of developmental biology integrating classical embryology with modern concepts of cellular development. Laboratory includes examination of embryonic serial sections as well as modern cellular and molecular studies of development. Laboratory fee; 4 credits.

BI 306 Genetics
Prerequisite: BI 121 or BI 253. A survey of modern genetics that integrates the principles and concepts discovered in viruses, bacteria, and mammals including humans. Topics include organization of the chromosome, transmission genetics, DNA fingerprinting, linkage and mapping, mutations and chromosomal aberrations, organelle genetics, genetic engineering, population genetics, and evolution. 3 credits.

BI 308 Cell Biology with Laboratory
Prerequisites: BI 121 or BI 253, one college course in general chemistry, and one college course in general physics. Basic theories of physiology as applied to cells. Emphasis on cellular structure and function as well as cell-cell interactions in multicellular organisms. Laboratory will stress practical aspects and modern techniques. Laboratory fee; 4 credits.

BI 311 Molecular Biology with Laboratory
Prerequisite: BI 121 or BI 253, plus CH 115 and 117. An in-depth discussion of nucleic acids, the flow of information from nucleic acids to protein and the control of gene activity. Laboratory emphasizes the techniques of modern molecular biology. Laboratory fee; 4 credits.

BI 320 Ecology with Laboratory
Prerequisites: CH 116 and BI 254 (or BI 122 with permission of instructor). An investigation of the major subdisciplines of ecology including organismal, population, community ecosystem, and landscape ecology. Human impacts and environmental management and assessment are also considered. Laboratory includes designing ecological studies, field sampling tech-

niques, ecological analysis, using global positioning systems in ecological studies, and gathering information on the Internet. Several weekend field classes are required. Laboratory fee; 4 credits.

+BI 433 Medical Microbiology with Laboratory
Prerequisites: BI 301, CH 115. A study of the more common diseases caused by bacteria, fungi, and viruses, including their etiology, transmission, laboratory diagnosis, and control. Laboratory fee; 4 credits.

BI 461 Biochemistry with Laboratory
Prerequisites: CH 201, CH 202, CH 203, and CH 204. A survey of biochemistry including a discussion of pH, buffers, water, bioenergetics, oxidative phosphorylation, enzymology, metabolic regulation, and the structure, function, and metabolism of carbohydrates, proteins, lipids, nucleic acids, vitamins, and cofactors. Laboratory exercises are primarily designed to concentrate on various experimental techniques including electrophoresis, chromatography, spectrophotometry, centrifugation, and enzymology. Laboratory fee; 4 credits.

BI 493 Evaluation of Scientific Literature
Prerequisites: science major, junior or senior standing. In this seminar-format course, the student will be trained to present and critically analyze research papers. In the first part of the semester students will be instructed in critically reading and evaluating primary research articles. In the latter part of the semester the students will present primary research articles from the recent and historical literature and a review topic in a seminar format. Active class participation in seminars is mandatory. 3 credits.

BI 498 Internship
Prerequisites: biology or environmental science major, junior or senior standing. Supervised field experience for qualified students in areas related to biology and/or environmental science. Minimum of 150 hours of field experience required. 3 credits.

BI 501 Protein Biochemistry and Enzymology
Prerequisites: BI 461, CH 201–204. First in a series of advanced biochemistry courses; examines the relationship between protein structure and function. Topics include properties of proteins and amino acids, protein folding, enzyme kinetics, and enzyme regulation. 3 credits.

BI 503 Biochemistry of Nucleic Acid
Prerequisites: BI 461, CH 201–204. Second course in the advanced biochemistry course series; examines cellular metabolism, the transfer of chemical energy, and the biosynthesis of amino acids, carbohydrates, fatty acids, and nucleotides. 3 credits.

BI 506 Genomics
Prerequisite: BI 311. This course combines information from the most recent genomic projects with traditional genetic research methods to provide novel understanding of the role of the genome as the blueprint of life. Emphasis is placed on exploring the expression of genes in context of the activity and function of the whole genome. Topics include genome anatomy, functional genomics, regulation of the activity of the genome, genome evolution, proteomics, genome engineering, and computational genomics. 3 credits.

***BI 510 Environmental Health**
Prerequisites: BI 260 and a college chemistry course. The emphasis is on the health effects of environmental and occupational pollutants and on the spread and control of communicable diseases. Toxicological and epidemiological techniques are discussed. 3 credits.

BI 511 Molecular Biology of Proteins with Laboratory
Prerequisites: BI 311 and BI 461. Because the techniques for working with proteins are basic to the cell and molecular biologist, and extend beyond the understanding of basic protein biochemistry, this course provides a theoretical understanding of methods commonly utilized for protein/peptide analysis. In the laboratory students will isolate proteins from various tissues or expression systems and analyze them by one- and two-dimensional polyacrylamide gel electrophoresis. Laboratory fee; 4 credits.

BI 513 Molecular Biology of Nucleic Acids with Laboratory
Prerequisite: BI 503 or permission of the instructor. Examination of gene expression and the techniques available for manipulating DNA, RNA, and protein expression. Course utilizes an extensive laboratory component to instruct students in the practical and technical aspects of working with nucleic acids. Laboratory fee; 4 credits.

BI 520 Bioinformatics
Prerequisite: BI 311. Students become familiar with uses of computers in cellular and molecular biology and are introduced to the databases available for nucleic acid and protein sequences as well as literature citations. Students work with modeling software that looks for potential secondary structures within both protein and DNA sequences. 3 credits.

BI 590 Special Topics in Biology/Science
Course(s) covering topics in biology or science that are of special or current interest. 1–4 credits.

BI 595–596 Laboratory Research I and II
Prerequisites: biology major, consent of the department. Choice of a research topic, literature search, planning of experiments, experimentation, and correlation of results in a written report, under the guidance of a department faculty member. Three hours of work per week required per credit hour. Laboratory fee; 1–6 credits.

BI 599 Independent Study
Prerequisites: biology major, consent of the department. Weekly conferences with adviser. Three hours of work per week required per credit. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. A written report of the work carried out is required. 1–3 credits per semester up to 6 credits.

CIVIL ENGINEERING

CE 201 Statics
Prerequisites: PH 150, M 117. Composition and resolution of forces in two and three dimensions. Equilibrium of forces in stationary systems. Analysis of trusses, frames, and machines. Centroids and second moments of areas, distributed forces and friction. 3 credits.

CE 202 Strength of Materials I
Prerequisite: CE 201. Elastic behavior of structural elements under axial, flexural, and torsional loading. Shear and bending moment diagrams. Stress in and deformation of members, including beams, columns, and connections. 3 credits.

CE 203 Elementary Surveying
Prerequisite: M 115 or consent of instructor. Theory and practice of surveying measurements using tape, level, and transit. Field practice in traverse surveys and leveling. Traverse adjustment and area computations. Adjustment of instruments, error analysis. 3 credits.

CE 205 Statics and Strength of Materials
Prerequisite: PH 150. Effects and distribution of forces on rigid bodies at rest. Various types of force systems, friction, center of gravity, centroids, and moments of inertia. Relation between externally applied loads and their internal effects on nonrigid, deformable bodies. Stress, strain, Hooke's law, Poisson's ratio, bending and torsion, shear and moment diagrams, deflection, combined stress, and Mohr's circle. 4 credits.

CE 206 Engineering Geology
Introduction to relationship of geologic processes and principles to engineering problems. Topics include engineering properties of rock as a construction and foundation material, soil formation and soil profiles, and subsurface water. 3 credits.

CE 218 Civil Engineering Systems
Prerequisites: EAS 222 or CE 205 (may be taken concurrently), M 118. An introduction to civil engineering design. Analyze needs, determine capacities, and develop design alternatives for civil engineering systems. Structures, water and wastewater facilities, geotechnical and transportation systems are studied. 3 credits.

CE 301 Transportation Engineering
Prerequisite: M 117. A study of planning, design, and construction of transportation systems including highways, airports, railroads, rapid transit systems, and waterways. 3 credits.

CE 302 Building Construction
Introduction to the legal, architectural, structural, mechanical, and electrical aspects of building construction. Principles of drawing and specification preparation and cost estimating. 3 credits.

CE 304 Soil Mechanics
Prerequisite: EAS 222 or CE 205. Soil classifications. Methods of subsurface exploration. Design princi-

ples are related to the potential behavior of soils subjected to various loading conditions. Seepage analysis. 3 credits.

CE 306 Hydraulics
Prerequisites: EAS 222 and M 204 or consentof instructor. The mechanics of fluids and fluid flow. Fluid statics, laminar and turbulent flow. Energy, continuity, and momentum. Analysis and design of pipes and open channels. Orifices and weirs. 3 credits.

CE 309 Water Resources Engineering
Prerequisite: CE 306. Study of principles of water resources engineering including surface and ground water hydrology. Design of water supply, flood control, and hydroelectric reservoirs. Hydraulics and design of water supply distribution and drainage collection systems including pump and turbine design. Principles of probability concepts in the design of hydraulic structures. General review of water and pollution control laws. 3 credits.

CE 312 Structural Analysis
Prerequisite: EAS 222 or CE 205. Basic structural engineering topics on the analysis of beams, trusses, and frames. Topics include load criteria and influence lines; force and deflection analysis of beams and trusses; analysis of indeterminate structures by approximate methods, superposition, and moment distribution. Computer applications and a semester-long design-analysis project requiring engineering decisions. 4 credits (two hours lecture, two hours discussion).

CE 315 Environmental Engineering
Prerequisites: CH 115, CH 117, CE 306. Introduction to water supply and demand. Water quantity and quality. Design and operation principles of water and wastewater treatment, disposal, and reuse systems. Collection, recycling, and disposal practices of solid wastes. Fundamentals of air pollution and air pollution control. 3 credits.

CE 323 Mechanics and Structures Laboratory
Prerequisite: CE 312 (may be taken concurrently). Experiments covering mechanics and structural engineering. The responses of metals and wood to different loading conditions are examined. Laboratory instrumentation is studied. Laboratory procedures, data collection, interpretation, and presentation are emphasized. 2 credits.

CE 327 Soil Mechanics Laboratory
Prerequisite: CE 304 (may be taken concurrently). Experiments and laboratory testing in geotechnical engineering. Lab testing includes classification, density, hydraulic conductivity, shear strength, and consolidation tests. Laboratory procedures and data collection, interpretation, and presentation are discussed. 2 credits.

CE 328 Hydraulics and Environmental Laboratory
Prerequisite: CE 315 (may be taken concurrently). Fundamentals of data collection, analysis, and presentation. Principles of technical report writing. Laboratory methods in hydraulics and environmental engineering. Experiments include pipe and open channel flow; analysis of various hydraulics structures, pumps and other hydraulic machinery; titrimetric, gravimetric, and instrumental methods in water/wastewater quality testing. 2 credits.

CE 398 Internship
Prerequisite: 60 credits toward the B.S. degree. A partnership consisting of the student, faculty, and employers/organizations providing exposure to and participation in a working engineering environment. The internship will translate classroom knowledge to a professional work environment, and the student will work and learn with practicing engineers while gaining professional experience. A minimum of 300 hours performing related engineering duties is required. No credit.

CE 401 Foundation Design and Construction
Prerequisite: CE 304 or consent of instructor. Application of soil mechanics to foundation design, stability, settlement. Selection of foundation type — shallow footings, deep foundations, pile foundations, mat foundations. Subsurface exploration. 3 credits.

CE 403 City Planning
Prerequisite: senior standing or consent of instructor. Engineering, social, economic, political, and legal aspects of city planning. Emphasis placed on case studies of communities in Connecticut zoning. Principles and policies of redevelopment. 3 credits.

CE 404 Water and Wastewater Engineering
Prerequisite: CE 315. Physical, chemical, and biological aspects of water quality and pollution control. Study of unit operations and processes of water, wastewater, and wastewater residuals treatment. Emphasis on hydraulic and process design of water pollution control facilities. 3 credits.

CE 405 Indeterminate Structures
Prerequisites: EAS 112, CE 312, senior standing or consent of instructor. The analysis of statically indeterminate structures. Topics include approximate methods, moment distribution, conjugate beam, energy methods, influence lines, and an introduction to matrix methods. Computer applications and a project requiring structural engineering decisions. 3 credits.

CE 407 Professional and Ethical Practice of Engineering
Prerequisite: senior standing or consent of instructor. Principles of engineer-client, engineer-society, and owner-contractor relationships examined from ethical, legal, and professional viewpoints. Examination of codes of ethics and preparation of contract documents. 3 credits.

CE 408 Steel Design and Construction
Prerequisite: CE 312. Analysis, design, and construction of steel structures. Topics include tension, compression, and flexural members; connections; members subjected to torsion; beam-columns; fabrication, erection, and shop practice. Designs will be based on Load Resistance Factor Design (LRFD). 3 credits.

CE 409 Concrete Design and Construction
Prerequisite: CE 312. Analysis and design of reinforced concrete beams, columns, slabs, footings, retaining walls. Fundamentals of engineering shop drawings. 3 credits.

CE 410 Land Surveying
Prerequisite: CE 203 or consent of instructor. A study of boundary control and legal aspects of land surveying including deed research, evidence of boundary location, deed description, and riparian rights. Theory of measurement and errors, position precision, state plane coordinate systems, photogammetry. 3 credits.

CE 411 Highway Engineering
Prerequisite: CE 301 or consent of instructor. Highway economics and financing. Study of highway planning, geometric design, and capacity. Pavement and drainage design. 3 credits.

CE 412 Wood Engineering
Prerequisite: EAS 222 or CE 205. Study of the growth and structure of wood and their influence on strength and durability, preservation, and fire protection. The analysis and design of structural members of wood using the Allowable Stress Design method (ASD) including beams, columns, and connections. The design of wood structures. Discussion of Load Resistance Factor Design (LRFD). 3 credits.

CE 413 Masonry Engineering
Prerequisite: EAS 222 or CE 205. The design and analysis of brick and concrete masonry non-reinforced and reinforced structures. Strength, thermal, fire, and sound characteristics, testing, and specifications. 3 credits.

CE 414 Route Surveying
Prerequisite: CE 203. A continuation of elementary surveying covering principles of route surveying, stadia surveys, practical astronomy, aerial photography, and adjustments of instruments. Field problems related to classroom designs. 3 credits.

CE 415 Traffic Engineering
Prerequisite: CE 301 or junior status. Traffic flow theory including data collection, data analysis, freeways, multilane highways, signalized and unsignalized intersections, intersection signal coordination. Students learn how to use several computer programs to analyze traffic flow along roadways. Projects deal with actual locations in the area. 3 credits.

CE 450–459 Special Topics
Selected topics of special or current interest in the field of civil engineering. 1–3 credits.

CE 500 Senior Project I
Prerequisite: senior standing. An introduction to project planning and presentation. This course prepares the student for professional practice by teaching organizational skills, scheduling, technical writing for a lay audience, and oral presentation. Students begin working on their senior design project and use this preliminary work in their course assignments. Oral and written presentations will update the class on the progress of the project. 3 credits.

CE 501 Senior Project II
Prerequisite: CE 500. Supervised individual or group project. The project may be the preparation of a set of contract documents for the construction of a civil engineering facility, research work with a report, or a project approved by the faculty adviser. 3 credits.

CE 505 Solid Waste Management
Prerequisite: CE 315. Characteristics, volume, collection, and disposal of solid waste and refuse. Design of processing, recycling, and recovery equipment; landfill design and operation; resource recovery; incineration. 3 credits.

CE 520 Engineering Hydrology
Prerequisite: CE 309. Theory, methods, and applications of hydrology to contemporary engineering problems. Methods of data collection and analysis as well as design procedures are presented for typical engineering problems. Specific topics to be considered within this framework include the rainfall/runoff process, hydrograph analysis, hydrologic routing, urban runoff, storm water models, and flood frequency analysis. 3 credits.

CE 523 Open Channel Hydraulics
Prerequisite: CE 309. Basic theories of open channel flow are presented and corresponding equations developed. Methods of calculating uniform/steady flow; gradually varied flow; and rapid, spatially varied, unsteady flow are investigated. Flow through bridge piers, transitions, and culverts; backwater curves and the design of open channels. 3 credits.

CE 599 Independent Study
Prerequisites: consent of instructor and department chair. Opportunity for the student to explore an area of interest under the direction of a faculty member. Course must be initiated by the student and approved by the supervising faculty. 1–3 credits.

COMPUTER ENGINEERING

CEN 398 Internship
Prerequisite: junior standing. A partnership consisting of the student, faculty, and employers/organizations providing exposure to and participation in a working engineering environment. The internship will translate classroom knowledge to a professional work environment, as the student works and learns with practicing engineers while gaining professional experience. A minimum of 300 hours performing related engineering duties is required. No credit.

CEN 450–456 Special Topics
Special topics of selected interest in the study of computer engineering. 3 credits.

CEN 457 Design Preparation
Prerequisite: senior standing. This course offers the student time and guidance in selecting a topic for the senior design course (CEN 458), which follows this one. Suitable design projects may be suggested by the student, the faculty, or contacts in industry. Projects involving both hardware and software are encouraged. Each student carries out a literature search on the topic, prepares a written proposal with a plan of action for the project, obtains approval from the faculty adviser, makes oral reports of work in progress, and presents a formal project proposal. 3 credits.

CEN 458 Senior Design Laboratory
Prerequisite: CEN 457. Students complete the design planned in CEN 457. This course provides students with experience at a professional level with engineering projects that involve analysis, design, construction of prototypes, and evaluation of results. Projects involving both hardware and software are encouraged. A final report presentation and a formal written report are required. 3 credits.

CEN 599 Independent Study
Prerequisites: consent of instructor and department chair. Opportunity for the student to explore an area of interest under the direction of a faculty member. Course must be initiated by the student. 1–3 credits.

CHEMISTRY

CH 103 Introduction to General Chemistry
Introductory course for students without a high school chemistry background. Fundamentals of chemistry including topics such as elements, compounds, nomenclature, and practical applications. CH 104 is taken concurrently with CH 103. 3 credits.

CH 104 Introduction to General Chemistry Laboratory
To be taken with CH 103. Experiments include systems of measurement, the measurement of physical

properties, determination of percentage of composition, chemical formulas, and chemical reactions. 1 credit hour.

CH 105 Introduction to General and Organic Chemistry with Laboratory
Fundamentals of general and organic chemistry: atomic structure and properties of compounds, stoichiometry and reactions, energy relationships, states of matter, solutions, hydrocarbons, and classes of organic compounds. 4 credits.

CH 115 General Chemistry I
Prerequisite: high school algebra or M 109, CH 103, CH 105 or one unit of high school chemistry or written qualifying exam. Brief review of fundamentals including stoichiometry, atomic structure, and chemical bonding. Other topics include thermochemistry, gas laws, and an introduction to organic and biochemistry. Intended primarily for science/engineering majors. CH 117 is taken concurrently with CH 115. 3 credits.

CH 116 General Chemistry II
Prerequisites: CH 115, CH 117 or the equivalent. Topics include properties of solutions; nuclear chemistry; rates of chemical reactions; chemical equilibria including pH, acid-base, common ion effect, buffers, and solubility products; thermodynamics. Problems in each area include environmental applications. CH 118 is taken concurrently with CH 116. 3 credits.

CH 117 General Chemistry I Laboratory
To be taken with CH 115. Experiments include percent composition, stoichiometry, heats of reaction, gas laws, types of reactions and simple organic synthesis. 1 credit.

CH 118 General Chemistry II Laboratory
To be taken with CH 116. Experiments include colligative properties of solutions, quantitative measurements of chemical reaction rates, equilibrium constants, the common ion effect, pH, buffers, and electrochemical cells. 1 credit.

CH 201–202 Organic Chemistry I and II
Prerequisites: CH 116, CH 118. Common reactions in aliphatic and aromatic chemistry with emphasis on functional groups and reaction mechanisms. CH 203 and CH 204 are taken concurrently with CH 201–202. 3 credits each term.

CH 203–204 Organic Chemistry I and II Laboratory
To be taken with CH 201–202. Some of the techniques, reactions, and syntheses commonly employed in the organic chemistry laboratory are covered on microscale level including qualitative organic analysis and FTIR analysis. 1 credit each term.

CH 211 Quantitative Analysis with Laboratory
Prerequisites: CH 116, CH 118. Theory and applications of acid-base, solubility, complex-formation, and oxidation-reduction equilibria to quantitative chemical analysis; introduction to statistics and evaluation of results. Laboratory analysis of samples by gravimetric and volumetric methods. 4 credits.

CH 221 Instrumental Methods of Analysis with Laboratory
Prerequisites: CH 201, CH 203, CH 211, or consent of instructor. Theory and applications of various instrumental methods with emphasis on ultraviolet, visible, atomic absorption, fluorescence, infrared and nuclear magnetic resonance spectroscopy; mass spectrometry; gas and liquid chromatography; and potentiometry. Laboratory analysis of samples by methods discussed in the lecture. 4 credits.

CH 321–322 Plastics and Polymer Chemistry I and II
Prerequisites: CH 116, CH 118, CH 202, CH 204. All phases of the plastics and polymers field, including the chemistry involved, methods of production, physical properties, and the uses of specific polymers. 3 credits each semester.

CH 331–332 Physical Chemistry I and II
Prerequisites: CH 116, PH 205, M 203 (may be taken concurrently). Kinetic theory of gases, thermodynamics, phase equilibria, transport and surface phenomena, kinetics, quantum mechanics, atomic and molecular spectroscopy. 3 credits each semester.

CH 333–334 Physical Chemistry I and II Laboratory
To be taken with CH 331–332. Laboratory training in vacuum line techniques and real-time collection of temperature, pressure, and spectrophotometric data by microcomputer. Experiments include diffusion, velocity, and heat capacities of gases; calorimetry; phase diagrams of mixtures; electro-chemical properties, kinetics of fast reactions,

enzyme and oscillating reactions; rotational-vibrational spectroscopy. 1 credit each semester.

CH 341 Synthetic Methods in Chemistry
Prerequisites: CH 202, CH 204, CH 221. A one-semester laboratory course covering the synthesis and characterization of inorganic and organic compounds. Performance of a variety of reactions and chemical manipulations with a focus on advanced laboratory techniques: handling air-sensitive materials, use of cryogenic conditions, separation and purification, isolation of natural products, experimental design, and safety procedures. A selection of methods for transition metal, main-group element, and aromatic and aliphatic organic syntheses. Characterization of compounds by UV, IR, NMR, mass spectrometry, and other instrumental methods. Eight hours of laboratory per week. 4 credits.

CH 411 Chemical Literature
Prerequisites: CH 202, CH 204, CH 332. Acquaints the student with the chemical literature and its use. Assignments include library searches and online STN searching. 1 credit.

CH 412 Seminar
Prerequisite: CH 411. The student researches a specific current topic in chemical research or applied chemistry and presents a formal seminar to the faculty and students. 1 credit.

CH 451 Thesis with Laboratory
Prerequisites: CH 202, CH 204, CH 211, CH 221, CH 332. An original investigation in the laboratory and/or library under the guidance of a member of the department. A final thesis report is submitted. 2 credits.

CH 452–455 Special Topics in Chemistry
Prerequisite: consent of instructor. In-depth study of topics chosen from areas of particular and current interest to chemistry and chemical engineering students. 1–4 credits.

CH 471 Industrial Chemistry
Prerequisites: CH 202, CH 211, CH 221, CH 332. A course to bridge the gap from the academic to the industrial world. Topics include material accounting, energy accounting, chemical transport, reactor design, process development and control. 3 credits.

CH 501 Advanced Organic Chemistry
Prerequisites: CH 202, CH 204. This course focuses on four topics: mechanisms of organic chemistry reactions, fundamentals of synthesis of complex molecules, organic chemistry of biologically important molecules, and an introduction to medical chemistry. An underlying theme throughout this course is the relationship between chemical structure and the function and reactivity of organic compounds. 3 credits.

CH 521 Advanced Inorganic Chemistry
Prerequisite: CH 331. Corequisite: CH 332. Review of atomic structure and introduction to group theory and symmetry. The chemistry of transition metal complexes and organometallic compounds with emphasis on bonding and structure, physical and chemical properties, and reaction mechanisms including catalysis and photochemistry. Bioinorganic chemistry and ionic solids will be covered as time permits. 3 credits.

CH 599 Independent Study
Prerequisite: consent of instructor. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course may be used to do preliminary work on the topic studied for Thesis (CH 451). 1–4 credits.

CRIMINAL JUSTICE

CJ 100 Introduction to Criminal Justice
Survey of criminal justice system with emphasis on prosecution, corrections, and societal reaction to offenders. Retribution, rehabilitation, deterrence, and incapacitation serve as generic frames of reference and theoretical points of departure for analyzing the dispositional and correctional processes. The course focuses on the process from the police and prosecution through the courts, and from the courts through the correctional system. 3 credits.

CJ 102 Criminal Law
The scope, purpose, and definitions of substantive criminal law: criminal liability, major elements of statutory and common law offenses (with some reference to the Connecticut Penal Code), and significant defenses. 3 credits.

CJ 105 Introduction to Security
General survey of the major historical, legal, and practical developments and problems of security.

Course stresses the components, organization, and objectives of security; the trend toward professionalization; the role of security in the public and private sectors and its relationship to management. 3 credits.

CJ 201 Principles of Criminal Investigation
Introduction to criminal investigation in the field. Conducting the crime scene search, interviewing witnesses, interrogating suspects, methods of surveillance, and the special techniques employed in particular kinds of investigation. 3 credits.

CJ 203 Security Administration
An overview of security systems found in retail, industrial, and governmental agencies; the legal framework for security operations; and the administrative and procedural processes in security management. 3 credits.

CJ 205 Introduction to Forensic Psychology
Prerequisites: CJ 100, P 111. This course provides an overview of the various applications of psychology to forensic settings. Topics include criminal investigation and profiling, personnel selection, dynamics of violence and victimology, eyewitness testimony, trial processes, and a variety of other areas within the criminal and civil justice systems. 3 credits.

CJ 209 Correctional Treatment Programs
Prerequisite: CJ 100. Various treatment modalities employed in the rehabilitation of offenders. Field visits to various correctional treatment facilities such as halfway houses and community-based treatment programs. 3 credits.

CJ 210 Ethnic and Gender Issues in Criminal Justice
Introduction to issues of diversity within the criminal justice system. The course focuses on prejudice and discrimination along with other special problems experienced by women, gays, and various ethnic and racial minority groups in dealing with the criminal justice system. 3 credits.

CJ 217 Criminal Procedure I
Prerequisites: CJ 100, CJ 102. An inquiry into the nature and scope of the U.S. Constitution as it relates to criminal procedures. Areas discussed include the law of search and seizure, arrests, confessions, and identification. 3 credits.

CJ 218 Criminal Procedure II and Evidence
Prerequisites: CJ 100, CJ 102. Legal doctrines employed in controlling the successive stages of the criminal process. Rules of law related to wiretapping and lineups, pretrial decision-making, juvenile justice, and trial. 3 credits.

CJ 220 Legal Issues in Corrections
Prerequisites: CJ 100, CJ 217, junior standing. Examination of the legal foundations of correctional practice and review of recent judicial decisions that are altering the correctional environment. An analysis of the factors and forces that are creating a climate of significant reform in corrections. 3 credits.

CJ 221 Juvenile Justice System
Prerequisites: CJ 100, P 111. Analysis of stages and decisions made at critical junctures of the juvenile justice process. Topics include an analysis of Supreme Court treatment of juvenile justice issues and the ability of the juvenile justice system to respond to juvenile crime. Focus on the processing of juveniles through the system and the special problems unique to juvenile justice. 3 credits. (See also SO 231.)

CJ 226 Industrial Security
Prerequisite: CJ 105. Concepts of security as it integrates with industrial management systems presented along with industrial security requirements and standards, alarms and surveillance devices, animate security approaches, costing, planning, and engineering. Principles of safety practices and regulations, fire prevention, property conservation, occupational hazards, and personal safeguards. 3 credits.

CJ 250 Scientific Methods in Criminal Justice
Prerequisites: CJ 100; M 109 or M 127. Introduction to the use of scientific methods and logic in the human service professions. Topics include science and the scientific approach to problem solving, the logic of causal inference, problem and hypothesis formulation, the use of experimental designs, laboratory methods, survey research methods, and measurement issues in human services. 3 credits.

CJ 251 Quantitative Applications in Criminal Justice
Prerequisite: CJ 250. Introduction to the use of quantitative analysis

through study of the basic statistical tools and databases used in human services. Emphasis will be on applied applications of quantitative methods in service delivery systems. 4 credits.

CJ 300 History of Criminal Justice
Prerequisite: CJ 100. The development of the major CJ elements including police, prisons, probation, and parole. Significant historical events and philosophical postulates as they pertain to this development. 3 credits.

CJ 301 Group Dynamics in Criminal Justice
Prerequisites: CJ 205, P 111. Analysis of theory and applied methods in the area of group process. Focus on both individual roles and group development as they relate to criminal justice issues. Experiential exercises are included. 3 credits.

CJ 306 Security Problems Seminar
Prerequisites: CJ 105, CJ 203. An analysis of special problem areas including college and university campuses, hospitals, hotel/motels, etc. Also, special problems concerning computer protection, bank security, executive personnel protection, credit cards, case law and legal aspects, control of proprietary information, and white collar crime. 3 credits.

CJ 310 Criminal Justice Institutions
Prerequisite: CJ 300. Examination of the societal and psychological implications of various types of institutions. Includes both social and total institutions and examines their similarities and dissimilarities with particular emphasis on their implications for criminal justice. 3 credits.

CJ 311 Criminology
Prerequisites: CJ 100, P 111, SO 113. An examination of principles and concepts of criminal behavior; criminological theory; the nature, extent, and distribution of crime; legal and societal reaction to crime. 3 credits. (See also SO 311.)

CJ 312 The Police and Crime Control
Prerequisite: CJ 100. The changing role, perspectives, and operational strategies of policing as they relate to the crime control function of the police. The focus is on innovative, promising, emerging, or "futuristic" and often highly controversial police practices, programs, and approaches to law enforcement as well as on selective community crime prevention efforts undertaken in conjunction with, under the auspices of, or independently of the police department. Special attention will be devoted to police brutality, the use of deadly force and its consequences, including high-speed police pursuits. 3 credits.

CJ 315 Domestic Violence
Introduction to the study of family violence issues. Typology and history of family abuse, responses to family violence, and public policy issues are the focus of study. Issues in domestic violence, sexual abuse, emotional abuse, elder abuse, child abuse, treatment approaches, and legal guidelines. 3 credits.

CJ 333 Police Civil Liability
Prerequisites: CJ 100, CJ 102, CJ 217, or consent of instructor. Overview of types of civil liability lawsuits brought against law enforcement officers. Exploration of ways to relieve the pressures of this potential liability. Emphasis placed on negligence and intentional torts. 3 credits.

CJ 345 Police and Investigative Psychology
Prerequisite: CJ 205. This course focuses on the functions of the police psychologist, such as candidate screening, stress management and counseling, hostage negotiations, critical incident debriefing and fitness-for-duty evaluations. Application of psychological principles to investigation strategies such as profiling and forensic hypnosis are also explored. 3 credits.

CJ 350 Leadership and Management in Human Services
Prerequisite: junior or senior standing. An in-depth view of leadership and management skills in a variety of criminal justice and human service settings. Special focus on problem solving and quality control in agencies. 3 credits.

CJ 357 Legal Psychology
Prerequisite: CJ 205. This course focuses on the study of human behavior and cognitions within the legal and criminal justice system. Special emphasis is given to the contributions of legal and cognitive psychology in understanding the criminal and civil legal system. Topics include eyewitness testimony, jury decision-making, confession evidence, and punishment and sentencing. 3 credits.

CJ 365 Law, Psychology and the Mental Health System
This class reviews the civil and criminal law as it relates to mental health issues. Particular emphasis is given to the justification of mental health law concepts, such as civil commitment and parens patriae power. Topics include competence to stand trial, insanity, civil commitment, sexual predator commitment statutes, confidentiality, duty to warn, informed consent, malpractice, and issues of expert testimony. Legal cases are examined to give the students a foundation in actual legal case law. Ethical issues and issues of professional responsibility are covered. 3 credits.

CJ 400 Criminal Justice Problems Seminar
Prerequisites: CJ 100, CJ 300. An examination of theoretical and philosophical issues affecting the administration of justice: the problems of reconciling legal and theoretical ideals in various sectors of the criminal justice system with the realities of practice. 3 credits.

CJ 402 Police in Society
Prerequisites: CJ 100, CJ 300. Acquaints students with the major developments and trends of policing in a free society. Emphasis placed on American police and the role of the police in a democracy. Further emphasis placed on the examination of the interactions between the police and the communities they serve. 3 credits.

CJ 408 Child and Family Intervention Strategies
Prerequisites: P 111, P 336, CJ 205, CJ 209, CJ 301. This course introduces students to the application of investigation and critical-thinking strategies to the problems of child abuse, neglect, and domestic violence. Assessment, decision-making, and case management strategies are explored. 3 credits.

CJ 409 Adult Intervention Strategies
Prerequisite: CJ 408. A comprehensive investigation of mental health and correctional systems, including residential and community-based treatment. Particular attention is placed on strategies for dealing with resistant clients. Students develop critical-thinking skills relating to best practices in a variety of settings. 3 credits.

CJ 410 Legal Issues in Private Security
Examines legal problems affecting the private security industry and ways to prevent loss from litigation. Includes intentional torts, negligence, agency, contracts and law of arrest, search and seizure, and interrogation by citizens. 3 credits.

CJ 411 Victimology
Introduction to the principles and concepts of victimology, analysis of victimization patterns and trends, and responses to criminal victimization. 3 credits.

CJ 412 Substance Abuse and Addictive Behavior
Course provides an overview of drug use and addictive behavior as they relate to law enforcement and correctional treatment issues; current estimate is that 80–90 percent of violent crime in the United States is correlated with alcohol and drug use. 3 credits.

CJ 413 Victim Law and Service Administration
Prerequisite: CJ 411. Introduces the study of crime victims' legal rights and the services available to crime victims within the criminal justice system and in other settings. Topics include victim assistance programs from law enforcement through the courts and corrections systems as well as community-based advocacy and support. This study of victim services is integrated with a focus on the underlying legal structure of crime victim statutory and constitutional rights including notification, participation, protection, and financial remedies (e.g., restitution, compensation, and civil litigation) as well as other rights. Practical program management, evaluation, and funding issues are incorporated. 3 credits.

CJ 414 Legal Rights of Crime Victims
Prerequisite: CJ 100. Introduces the study of crime victims' rights within the justice system. Topics include victim-witness programs, victim impact statements, victim notification laws, compensation schemes, and victims' rights legislation. 3 credits.

CJ 420 Advanced Investigative Techniques
Prerequisites: CJ 201, CJ 215, CJ 218, and junior/senior standing. An in-depth study of the principles and techniques associated with the collection and documenting of information obtained during an investigation. Addresses the many sources of information, utilization of informants, the use of hypnosis, polygraph, advanced strategies for

interviews and investigations, and provides documentation techniques. 3 credits.

CJ 425 White Collar Crime Investigation
Prerequisite: CJ 201. This advanced course in white-collar crime investigation focuses on the history, philosophy, evolution and types of white-collar crimes. This course examines the various types of white-collar offenses and explores how and why such crimes are committed. The course also explores the various laws used to combat such offenses and considers the investigative techniques used to identify those engaged in such activity. In addition, the course explores the profile of the modern white-collar offender and the role of various federal law-enforcement agencies responsible for investigating white-collar crime. 3 credits.

CJ 440 Death Investigation—Scene to Court
Prerequisites: CJ 201, FOR 215, or FOR 216 and FOR 415, senior standing as criminal justice or forensic science major, or consent of instructor. An in-depth study of the principles and techniques associated with investigating homicides; suicides; and accidental, natural, or equivocal deaths. While considering the sociological, psychological, and legal aspects typically found in these cases, the process takes the student from the scene to the court—criminal or civil. 3 credits.

CJ 450–459 Special Topics
A study of selected issues of particular interest to the students and instructor. 3 credits.

CJ 475 Senior Seminar in Forensic Psychology
Prerequisites: CJ 205, CJ 357, CJ 365, senior standing. This course explores a series of contemporary rotating research topics in law and psychology that allows students to take an in-depth examination of a single area of study. Areas explored may include jury decision-making models, forensic assessment, wrongful conviction, death penalty, and trial consulting. 3 credits.

CJ 498 Research Project
Prerequisite: consent of the department chair. The student carries out an original research project in a criminal justice setting and reports the findings. 3 credits.

CJ 500A Criminal Justice Pre-Internship
Prerequisite: junior standing in CJ. This course helps students to gain full understanding and appreciation of the internship experience. Students become acquainted with work rules in criminal justice agencies and receive guidance in selecting an internship for their particular interest. A key issue is extended discussion of criminal justice ethics as related to the various aspects of the criminal justice system. Students are required to complete the CJ 500A course prior to enrolling in the CJ 500B internship experience. 3 credits.

CJ 500B Criminal Justice Internship
Prerequisites: CJ 500A and consent of department chair. Provides field experience with selected federal, state, or local criminal justice agencies under faculty supervision, guidance, and review. The course includes classroom discussions to facilitate a better understanding of the issues presented during the internship experience. 3 credits.

CJ 520 Computer Crime: Legal Issues and Investigation Procedures
Prerequisites: a grade of C or higher in CS 107 or an equivalent course, junior or senior standing, and consent of instructor. An overview of computer crime and the procedures that forensic computing specialists, law enforcement investigators, and prosecutors must invoke to prosecute computer criminals successfully. 3 credits.

CJ 522 Computers, Technology, and Criminal Justice Information Management Systems
Prerequisite: consent of instructor. An introduction to information systems used within the criminal justice system. Overview of existing criminal justice information systems with implications for future needs. Analysis of the impact of science and technology on criminal justice agencies. 3 credits.

CJ 523 Internet Vulnerabilities and Criminal Activity
Prerequisites: a grade of C or higher in CS 107 or an equivalent course, a grade of C or higher in CJ 520, junior or senior standing, and consent of instructor. This course provides appropriate strategies for the proper documentation, preparation, and presentation of investigations involving the Internet, and familiarizes students with legal information that impacts Internet investigations. 3 credits.

CJ 524 Network Security, Data Protection, and Telecommunication
Prerequisite: consent of instructor. A comprehensive introduction to network security issues, concepts, and technologies. The core technologies of access control, cryptography, digital signatures, authentication, network firewalls, and network security services are reviewed along with issues of security policy and risk management. 3 credits.

CJ 525 Information Systems Threats, Attacks, and Defenses
This course provides an overview of the actors, motives, and methods used in the commission of computer-related crimes, and describes the methods used by organizations to prevent, detect, and respond to these crimes. 3 credits.

CJ 526 Firewall and Secure Enterprise Computing
This course covers theory and practices of Internet firewalls and many of the details and vulnerabilities of the IP and embedded protocol sites. In the laboratory and online portion of the course students construct, deploy, and test a real firewall against common Internet attacks. 3 credits.

CJ 527 Internet Investigations and Audit-Based Computer Forensics
Theory and techniques for tracking attackers across the Internet and gaining forensic information from computer systems. The course includes case studies of Internet-based crimes and addresses limits of forensic techniques. 3 credits.

CJ 528 Computer Viruses and Malicious Code
This course addresses theoretical and practical issues surrounding computer viruses. 3 credits.

CJ 529 Practical Issues in Cryptography
Includes examples of current and historical cryptography and stegonagraphic systems; major types of cryptosystems and cryptanalytic techniques and how they operate; hands-on experience with current cryptographic technology. 3 credits.

CJ 530 Investigating Financial Crimes
Study of principles and techniques associated with investigating financial crimes. Emphasis on case-study approach to understanding financial crimes investigation. 3 credits.

CJ 535 Global Perspectives on Crime and Justice
Affords students the opportunity to explore a number of foreign systems with emphasis on policing. Different perspectives of crime problems will be looked at through the prism of foreign culture. 3 credits.

CJ 540 Computer Applications in Research and Program Evaluation
Prerequisites: CJ 250, CJ 251; M 109 or M 127. An advanced course reviewing major statistical packages and models employed in the analysis of criminal justice and human services data. Students learn analytic techniques using real data sets. Program evaluation needs are studied and tested. 3 credits.

CJ 541 Problem Solving: Planning, Analysis, and Evaluation
Prerequisite: senior standing. An advanced seminar utilizing the skills developed in preceding research methods and program evaluation courses. The focus is on integrating and developing an effective yet flexible problem-solving schema for criminal justice and human service agencies. Quantitative and qualitative solutions are stressed to fit the appropriate problem. Field problems will be solicited. 3 credits.

CJ 555 Crime Prevention Through Environmental Design
Prerequisite: CJ 100. Analysis of theory and applied methods of crime prevention using environmental design methods. Experiential exercises are included. 3 credits.

CJ 556 Problem-Oriented Policing
Prerequisite: CJ 100. An in-depth examination of problem-oriented policing, including examination of the SARA model, specialized tactics, and methods of community analysis. 3 credits.

CJ 557 Crime Mapping and Analysis
Prerequisite: CJ 100. Survey of GIS research and applications in the field of public safety, including analysis of hot spots, density patterns, and forecasts of crime patterns. 3 credits.

CJ 558 Leadership Issues in Policing
Prerequisite: CJ 100. Study of leadership within modern police organizations. Experiential exercises are included. 3 credits.

CJ 565 Investigating Wrongful Convictions
Prerequisite: consent of instructor. A research-oriented course that focuses on investigating the circumstances surrounding how and why a particular wrongful conviction may have occurred in the Connecticut courts. Emphasis is on best practices to prevent future wrongful convictions. This course is restricted to senior investigative services majors and graduate students in the forensic science program. 3 credits.

CJ 599 Independent Study
Prerequisite: consent of department chair. An opportunity for the student, under the direction of a faculty member, to explore and acquire competence in a special area of interest. 1–3 credits.

CHEMICAL ENGINEERING

CM 220 Process Analysis
Prerequisites: CH 116 or EAS 120; EAS 211, EAS 213, M 118. An introduction to the profession of chemical engineering and the application of material and energy balances to the solution of chemical engineering problems. Analysis and design of processes using physical property estimation methods, mass balances, and energy balances. Typical processes include sequences of mixing, separation, and reaction steps. 3 credits.

CM 310 Transport Operations I with Laboratory
Prerequisites: EAS 224, M 203. Application of transport phenomena principles to systems involving momentum, heat, and mass transfer with emphasis on equipment design. Use of microscopic and macroscopic balances, continuity and Navier-Stokes principles, and turbulent flow theories to develop mathematical models of physical systems with applications in fluid mechanics and thermal energy transport. Topics include design of piping systems, flow instruments, filters, heat exchangers, evaporators, and others of current interest. Laboratory work includes experiments in fluid flow and heat transfer, computer simulation, oral and written reports. 4 credits.

CM 311 Chemical Engineering Thermodynamics
Prerequisite: EAS 224. Applications of the first and second laws of thermodynamics to batch and flow processes important in chemical engineering for homogeneous and heterogeneous systems, mixtures, and pure materials. Topics include phase and chemical equilibria, chemical reactions, thermochemistry, thermodynamic properties, and miscibility. 3 credits.

CM 315 Transport Operations I
Prerequisites: EAS 224, M 203. Application of transport phenomena principles to systems involving momentum, heat, and mass transfer with emphasis on equipment design. Use of microscopic and macroscopic balances, continuity and Navier-Stokes principles, and turbulent flow theories to develop mathematical models of physical systems with applications in fluid mechanics, thermal energy transport, and mass transfer. Topics include design of piping systems, filters, heat exchangers, evaporators, absorbers and others of current interest. 3 credits.

CM 316 Transport Operations II
Prerequisite: CM 220, CM 310 or CM 315. Application of transport phenomena principles to systems involving momentum, heat, and mass transfer with emphasis on equipment design. Topics include design of staged separation equipment for distillation, extraction and leaching, absorption, and others of current interest. 3 credits.

CM 321 Reaction Kinetics and Reactor Design
Prerequisite: CM 220. Corequisite: M 203. Homogeneous and heterogeneous catalyzed and noncatalyzed reaction kinetics for flow and batch chemical reactors. Application of kinetic data to both isothermal and nonisothermal reactor design. This course is intended for both chemists and chemical engineers. 3 credits.

CM 401 Mass Transfer Operations
Prerequisites: CM 220 or consent of instructor; EAS 224. Corequisite: M 204. Advanced topics in diffusion and mass transfer in solids, liquids, and gases. Topics include Fick's law, mass transfer coefficients, mass transfer correlation, interphase transfer, unsteady state mass transfer, adsorption, membrane separations, humidification and drying. Application to the analysis and design of mass transfer controlled process equipment. 3 credits.

CM 410 Transport Operations II with Laboratory
Prerequisite: CM 220, CM 310 or CM 315. Application of transport phenomena principles to systems involving momentum, heat, and

mass transfer with emphasis on equipment design. Topics include design of staged separation equipment for distillation, extraction and leaching, absorption, and others of current interest. Laboratory work includes experiments in mass transfer, reactor systems, computer simulation, oral and written reports. 4 credits.

CM 411 Chemical Engineering Laboratory
Prerequisites: CM 310 or CM 315; CM 316 or CM 410. Laboratory work includes experiments in fluid flow, heat transfer, mass transfer, and reactor systems. Focus on Design of Experiments (DOE), planning, data analysis and presentation, team work, and oral and written reports. Students gain experience using industrial control hardware for data acquisition and control. 3 credits.

CM 415 Process Dynamics and Control
Prerequisites: CM 310 or CM 315 or ME 321; EAS 230, M 204. Fundamental principles of chemical process dynamics used in the measurement and control of process variables such as temperature, pressure, and flow rate. Development of linear and nonlinear dynamic process models, stability analysis, and control system design using analytical and computer methods. Analysis, design, and tuning of process loops using computer simulations. 3 credits.

CM 420 Process Design Principles
Corequisites: CM 321, CM 410 or CM 316; EAS 232. Study and application of principles needed in the design of process systems. Topics include cost estimation, hazard and safety analysis, ethical concerns, preliminary design techniques, optimization, computer-aided design (using ASPEN PLUS), alternative designs, and technical reports. Methods include team and individual assignments, oral and written presentations. 3 credits.

CM 421 Plant and Process Design
Prerequisites: CM 420 and senior standing. A capstone course in the design of processing plants and equipment, applying principles from transport operations, thermodynamics, kinetics, and economics. Students work individually and in groups to develop flow sheets, select equipment, specify operating conditions, and analyze designs from technical, economic, and safety perspectives. Extensive report writing and oral presentations. 3 credits.

CM 431 Process Dynamics and Control with Laboratory
Prerequisites: CM 310 or CM 315 or ME 321; EAS 230, M 204. Fundamental principles of chemical process dynamics used in the measurement and control of process variables such as temperature, pressure, and flow rate. Development of linear and nonlinear dynamic process models, stability analysis, and control system design using analytical and computer methods. Laboratory assignments stress the analysis, design, and tuning of process loops using computer simulations and industrial control equipment on pilot-scale process equipment. Students gain experience using industrial control hardware such as programmable logic controllers and distributed control systems. 4 credits.

CM 450–459 Special Topics in Chemical Engineering
Prerequisite: consent of instructor. Intensive study of some aspects of chemical engineering not covered in the more general courses. 1–4 credits.

CM 501/502 Senior Project I and II
Prerequisites: senior standingand consent of course instructor (faculty adviser) and program director. Student should propose an original, significant problem or theory. The investigation should include at least two of the following elements: theoretical analysis, mathematical or computer modeling, optimal design methods, and laboratory experimentation. Weekly conferences with adviser; final written and oral report with format to be determined by faculty adviser. 3 credits per term.

CM 521 Air Pollution Fundamentals
Prerequisite: consent of instructor. An introduction to the sources of air pollution, the transport of gaseous and particulate pollutants in the atmosphere on local and global scales, transformations of pollutants by atmospheric processes, the impact of pollutants on the environment, the control of sources of air pollution, and legislative mandates. Introduction to meteorological concepts and computer transport models. Current issues such as ozone depletion and global warming will also be discussed. 3 credits.

CM 599 Independent Study
Prerequisites: consent of faculty supervisor and program director. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. Weekly conferences with supervisor; final written (and possibly oral) report with format to be determined by faculty supervisor. 1–4 credits.

CHINESE

CN 101 Conversational Chinese I
Oral Chinese for beginners. Emphasis on using Chinese for communication in daily life. Teaches basic conversational sentences and vocabulary quickly through word substitution and extension practice. Taught in phonetic English spelling (Chinese spelling system known as IIan Yu Pin Yin) with exposure to the simplified Chinese characters. Incidental references to Chinese history, culture, and business. Open only to students with no previous knowledge of Chinese. 3 credits.

CN 102 Conversational Chinese II
Prerequisite: CN 101 or consent of instructor. Builds on the Chinese language skills developed in CN 101 and develops speaking abilities through class practice and grammatical drills. Additional Chinese characters studied step by step. 3 credits.

CN 201 Chinese Language and Culture
Prerequisite: CN 102 or consent of instructor. Advanced study of Chinese language, both conversational and written. Culture training through exposure to Chinese arts, history, economics, and society. 3 credits.

CN 204 Chinese Language and Literature
Prerequisite: CN 201 or consent of instructor. Advanced study of Chinese language. Extensive reading of Chinese classical and modern fiction, drama, and poetry. 3 credits.

CN 450–459 Special Topics
Selected topics of special or current interest in the study of Chinese. 3 credits.

COMMUNICATION

CO 100 Human Communication
Competencies and skills needed to communicate effectively in varied personal, relational, and professional contexts. Communication process, verbal/nonverbal communication, listening, persuasion, conflict management, and group decision-making are studied in interpersonal, public, mass, and organizational settings. Students are assisted in developing skills appropriate to real-life situations. Recommended for all students regardless of major. 3 credits.

CO 101 Fundamentals of Mass Communication
Corequisite: CO 100. Introduction to the mass media of newspapers, film, magazines, radio, television, trade publications, and public relations. Course emphasizes media's impact on society. 3 credits.

CO 102 Writing for the Media
A study of drills and exercises in writing television and radio news, news releases, speeches, public service announcements, and film documentaries. Emphasis is placed on firsthand practical experience assignments and criticism of completed copy. 3 credits.

CO 103 Audio in Media
Concerned with sound as used in radio, television, and film. Course entails lectures, demonstration, and lab practice of sound production and transmission. Laboratory fee; 3 credits.

CO 109 Communication for Management and Business
Prerequisite: CO 100. Introduction to the concepts and skills needed to communicate effectively in business and professional settings. Students develop communication competency by focusing on communication activities common to business and service organizations. Interpersonal communication, group and meeting communication, listening skills, interviewing, speeches, public and instructional presentations, and negotiation are stressed. 3 credits.

CO 114 Production Fundamentals
Introduction to theory and technique in sound and video media. Several team projects will provide a fundamental production orientation in each medium as well as provide the environment to discuss goals and objectives of production. Laboratory fee; 3 credits.

CO 200 Theories of Group Communication
Prerequisite: CO 100. Focus is on the dynamics of communication and group processes including lead-

ership styles, team building, task and maintenance functions, problem-solving and decision-making, and conflict management. Students develop communication skills through class activities designed to maximize effective decision-making and evaluation. 3 credits.

CO 203 Radio Production
Prerequisite: CO 103 or consent of instructor. Theory and practice of techniques involved in the function and operation of a radio station. Microphone techniques, engineering operations, transmitter readings, logging, and programming are included. Laboratory fee; 3 credits.

CO 205 Intercultural Communication
Prerequisite: CO 100. A theoretical and practical survey of intercultural communication processes. This course is concerned with the interpersonal dimensions of intercultural communication and examines the distinctive cultural orientations, behaviors, expectations, and values that affect communication situations. 3 credits.

CO 208 Introduction to Broadcasting
Prerequisite: CO 101. General survey and background of broadcasting, cable, pay and premium TV services, and new technologies. Current changes, law, regulation, financing, and public input are examined. Emphasis is placed on current standingand future potential of these industries. 3 credits.

CO 212 Television Production I
Prerequisite: CO 114 or consent of instructor. Introduction to the mechanics, techniques, and aesthetic elements of television production. Course provides basic grounding in the art and craft of the medium. Laboratory fee; 3 credits.

CO 214 Elements of Film
Prerequisite: CO 114 or consent of instructor. Stresses the understanding of film as a creative form of communication. Student is introduced to basic techniques of motion picture production through lectures, audiovisual activity, and small-group involvement. Laboratory fee; 3 credits.

CO 220 Film Production I
Prerequisite: CO 214. Involves the transformation of an original idea into film: initial analysis, proposed treatment plan, sequencing, film scripting, preproduction planning, nature of the production process. A short film is produced through team effort. Laboratory fee; 3 credits.

CO 300 Persuasive Communication
Prerequisite: CO 100. Study of communication as social influence. Analysis of theories of attitude change. The use and effects of compliance-gaining strategies in interpersonal, public, and mass communication contexts. Students develop, present, and analyze persuasive messages. 3 credits.

CO 301 Communication Theory and Research
Prerequisite: junior standing. Acquaints students with the nature of communication inquiry. Theories of communication effects are surveyed. Research methodologies relevant to advertising, journalism, broadcast media, public relations, and organizational communication settings are examined. 3 credits.

CO 302 Social Impact of Media
Prerequisite: CO 101. Examines such problems as regulatory control of the media, law and ethics, and the behavioral aspects of mass and interpersonal communication. Students examine the variety of media writing and commence writing their own media messages. 3 credits.

CO 306 Public Relations Systems and Practices
This course makes students aware of the depth and sensitivity of the role of public relations in today's business environment. Orients students to career paths utilizing communication, journalistic, and management skills as well as skills acquired in business and English courses. Through lectures/discussions, case studies, and guest speakers, students learn the historical, theoretical, practical, and technical applications of public relations. 3 credits.

CO 308 Broadcast Journalism
Prerequisite: CO 102 or consent of the instructor. Entails practice in news gathering, editing, writing, and use of news services and sources. Includes creating documentary and special-event programs through film for television news, on-the-spot film and videotape reporting. 3 credits.

CO 309 Public Relations Writing
Prerequisite: CO 102. Examines the elements of good writing as applied to the public relations field. Students research and identify general and specialized audience needs and

create messages to satisfy those needs. They plan and execute projects within selected media such as newspapers, magazines, TV, radio, and film, as well as speeches for public appearances. 3 credits.

CO 310 Pictorial Journalism
The study of photography and media design as active observation and interpretation of events in the print media. 3 credits.

CO 312 Television Production II
Prerequisite: CO 212. An intermediate course providing students with the opportunity to coordinate the many areas of TV production. Videotape and live production techniques are employed. Laboratory fee; 3 credits.

CO 317 Advanced Writing for the Media
Prerequisite: CO 102. Planning and writing longer forms of scripts, emphasizing documentary and dramatic writing for production. 3 credits.

CO 320 Film Production II
Prerequisite: CO 220. The creative process involved in translating the screenplay into a narrative film is explored. Narrative form, structure, and production techniques are examined through examples of short and feature-length films. Students produce short narrative films by team effort. Laboratory fee; 3 credits.

CO 335 Advertising Media
This course covers the characteristics of major media and the impact of advertising on the demand for products and services. It provides students with a critical study of communication principles and concepts as applied to advertising copy. Emphasis on how consumers use media; media planning and evaluation; copywriting styles; coordination of visual and verbal concepts; and the principle problems of building, implementing, and evaluating advertising programs. 3 credits.

CO 340 The History of Film
A survey of the historical development of the film medium. Includes lectures, discussions, and screening of films that demonstrate the interrelationships between historical development and the establishment of film as a powerful communicative art form. Laboratory fee; 3 credits.

CO 399 Media Campaigns
Examines the role played by mass media in political campaigning. Students look at historical perspectives and study current trends. FCC laws regarding advertising, lowest unit cost, section 315, and other regulations are examined. Students view videotapes of past political media campaign examples and have the opportunity to participate in and produce hypothetical political media campaigns. 3 credits.

CO 400 Communication in Organizations
Examines communication in formal organizational contexts such as schools, industry, hospitals, and government. Prepares students to function more effectively in dynamic communication systems and to solve problems related to the interaction of organizations with the environment via the interactions of people and messages. 3 credits.

CO 410 Management Communication Seminar
Open to all upper-division students, regardless of major. Involves structure and function of communication in organizations. Offers practice in understanding and managing interpersonal differences. Emphasizes concepts and principles needed for effective management of organizational communication processes. 3 credits.

CO 412 Advanced Television Production
Prerequisite: CO 312. Essentials of budgeting, marketing, and regulatory policies and rules. Production teams are formed to produce sophisticated local television programs under close supervision. 3 credits.

CO 415 Broadcast Management
Involves administrative and personnel problems of television and radio studio management, broadcast engineering, local sales, continuity, and programming. Discussions include scheduling and the development of facilities. 3 credits.

CO 420 Communication and the Law
Prerequisite: junior standing. This course traces the freedom and control of the print, broadcast, cable, and telecommunications industries and their effects on the public. 3 credits.

CO 435 Advertising Seminar
Prerequisites: CO 335 and senior standing. Strategic approaches to managing an advertising campaign related to a specific area, topic, or product are developed. Emphasis on market research, determining

consumer target markets, media selection, creation of copy, development and control of budgets, and evaluation and presentation of advertising. 3 credits.

CO 450–459 Special Topics
Topics in communication of special or current interest. 3 credits.

CO 500 Seminar in Communication Studies
Prerequisite: senior communication major. This capstone course integrates current and developing trends with the individual student's interest and perspectives. Students present for discussion and examination issues of interest within a unifying theme. 3 credits.

CO 597 Practicum
Prerequisite: CO 301. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Done under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

CO 598 Internship
Prerequisite: consent of the instructor. On-the-job learning in selected organizations in production, public relations, journalism, or advertising. 3 credits.

CO 599 Independent Study in Communication
Prerequisites: consent of faculty member and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. 1–3 credits per semester up to 6 credits.

COMPUTER SCIENCE

CS 107 Computers and Their Applications
Concepts underlying modern application of computer systems. Windows, word processing, spreadsheets, databases, presentation software. Not to be taken for credit by computer science majors. 3 credits.

CS 110 Introduction to C Programming
Prerequisite or corequisite: M 115. A first course in computer programming using the C language; for engineering, computer science, mathematics, and science students. Problem-solving methods, algorithm development, and good programming style. Expressions, functions, libraries, basic types and arrays. Programming assignments stress numeric applications. Lecture plus lab, including work with LEGO Mindstorm™ robots. 4 contact hours; 3 credits.

CS 166 Discrete Mathematics for Computing
Prerequisite: CS 110. A foundation course for computer science majors. Introduction to fundamentals, including logic, sequences, sets, functions, recursion, induction, proof methods, counting techniques, and Big-O notation. 3 credits.

CS 210 Java Programming
Prerequisite: CS 110. Introduction to the Java programming language. Strings, arrays, and vectors. Object-oriented programming concepts including encapsulation, inheritance, and polymorphism. Event-driven programming, graphics, and GUI applications. 3 credits.

CS 212 Intermediate C Programming
Prerequisites: CS110, CS 210, or consent of academic adviser and instructor. Further topics in the C programming language. Problem-solving methods, algorithm development, and good programming style. Pointers, strings, structured data, two-dimensional arrays, files, recursion, dynamic memory allocation, parameter passing mechanisms, and the use of pointers to process arrays and lists. Basic algorithms for searching, sorting, and simple numerical analysis. Programming assignments include both numeric and non-numeric applications. 3 credits.

CS 214 Computer Organization
Prerequisite: CS 166 or consent of instructor. Fundamentals of computer technology, binary number systems, data type standards and data type storage requirements, Turing machines, binary logic, and simple "gate" circuits. The five functional units of input, output, ALU, control unit, and memory are covered and integrated into a "virtual," "generic" computing machine. Progression from Boolean fundamentals through binary logic to micro-code creation. Hands-on experience assembling and implementing low-level programming of a typical computing system. 3 credits.

CS 215 Introduction to Databases
Prerequisite: CS 110. Emphasis on comprehending database concepts and developing a practical level of

skill in a current database software package. An introduction to data modeling and normal forms, introduction to Standard Query Language (SQL), Query By Example (QBE), security, and report generation. Students develop and implement a modest database project. 3 credits.

CS 226 Data Structures Using Collections
Prerequisite: CS 210. Intermediate program design and debugging in Java. The nature and application of data structures such as arrays, stacks, queues, priority queues, and trees. Evaluation of the performance of different data structures for typical applications. Students will write and debug several projects using Java's built-in class library; classes covered include sets, maps, hash tables, trees, array-based lists, linked lists, and stacks. 3 credits.

CS 247 Network Essentials and Technologies
Prerequisite: sophomore standing. Corequisite: CS 214. A foundation in current network technologies for local area networks (LANs), wide area networks (WANs), and the Internet. Introduction to the hardware, software, terminology, components, design, and connections of a network. The OSI model will be covered as well as differing topologies and protocols for LANs. The course includes both lectures and hands-on labs. 3 credits.

CS 320 Operating Systems
Prerequisite: CS 214 or EE 371. Corequisite: EE 472. Modern operating system concepts including interrupts, process and thread management, concurrency, deadlock, memory management, file system management, resource allocation. 3 credits.

CS 326 Data Structures and Algorithms
Prerequisites: CS 166, CS 212, CS 226. Data structures: trees, graphs, hash tables. Algorithmic techniques: divide and conquer, greedy algorithms, dynamic programming in C, recursion, elimination. Algorithms: sorting, searching, shortest paths. Analysis of the complexity of algorithms. Programming required. 3 credits.

CS 350 Human-Computer Interaction
Prerequisite: CS 210 or programming experience in C, VB, VB.Net, or Java. The study of psychological and physiological factors on the design of the Human-Computer Interface (HCI). The influence of the various input and output devices on the efficacy of the interaction. Evaluation of the interaction as a function of the interface design. Evaluation issues including qualities such as learnability, usability, human efficiency, and accuracy. Students will design, implement, analyze, and evaluate Graphical User Interfaces (GUIs). 3 credits.

CS 416 Social and Professional Issues in Computing
Prerequisite: junior or senior standing. A broad look at the capabilities and limitations of computers and the effects of rapid change. Roles and responsibilities of the computer professional in our world; codes of ethics. Complex systems, risks, and system failure. Intellectual property. Social effects of networks and global communication, outsourcing, privacy, databases, data mining, cryptography, and snooping. Computer crime, break-ins, terrorism, and countermeasures. 3 credits.

CS 425 Principles of Computer Graphics
Prerequisites: M 118, CS 212, CS 226. Development and implementation of the fundamental algorithms of computer graphics: 2-D viewing, geometric transformations, clipping, curves, user interaction. Introduction to 3-D viewing and surfaces. Programming projects required. 3 credits.

CS 428 Object-Oriented Design
Prerequisites: CS 210, CS 226. An object-oriented design methodology course. Topics include requirements capture, object-oriented system analysis, design, and implementation. Primary emphasis on the UML methodology, separation of layers, design patterns, and the importance of these in developing a software project. Students will design a major group project and implement portions using C++ or Java. 3 credits.

CS 434 Assembly Language
Prerequisites: CS 210, CS 214 or EE 371. Introduction to assembly language programming, including the hardware instruction set, assembly language syntax and features, macros, subprograms, interrupts, I/O conversions. Programming required. 3 credits.

CS 440 Programming Laboratory
Prerequisites: junior or senior standing in computer science, consent of faculty supervisor, and approval of program coordinator. The student will write a large program or a series of programs. Projects are an exten-

sion of the course materials of one of the junior/senior courses. Course may be taken repeatedly, up to three times, working in different languages or doing more advanced projects. 1 credit.

CS 441 Web-Database Application Development
Prerequisites: CS 215 and CS 210 or programming experience in C++, VB.Net, or Java. Fundamental principles and techniques for creating network applications with dynamic web pages. Topics include establishing network connections, database connectivity, Java Server Pages (JSP), servlets, HTML, XML, https, and network security issues. If time permits, attention will also be given to JavaScript and internationalization. 3 credits.

CS 445 Network Administration
Prerequisite: CS 320. Fundamentals of administration of a networked computer. Topics include basic duties of a system administrator; overview of TCP/IP networking; file system layouts; user management; network services such as DNS, NIS, DHCP, file sharing, printing, mail, ftp, web, and interfacing different operating systems on one network; and general security issues including prevention through firewalls and secure shells. Lab exercises use both UNIX and Windows systems. 3 credits.

CS 446 Introduction to Computer Security
Prerequisite: CS 320 or consent of the instructor. Knowledge of networks desirable. A survey of computer and network security issues including types of network attacks, viruses, intrusion detection and tracking, firewalls, trust relationships and authentication, secure connections, cryptography, and recent security policy and legislation. 3 credits.

CS 447 Computer Communications
Prerequisites: CS 214 or EE 472 and any one of the following: EAS 345, IE 346, M 371, or EE 320. Problems and solutions in network design. Layered models, network topology, protocols, virtual circuits and packet switching, local networks (CSMA, token ring, ethernet), security (DES, public key crypto-systems), Internet protocols, client/server programming, sockets. 3 credits.

CS 450–469 Special Topics
Prerequisite: junior or senior standing in computer science. New developments or current practices in computer science. 3 credits.

CS 472 Script Programming for Network Administration
Prerequisite: CS 320. Concepts and details of writing small programs, called scripts, for the Unix and Windows-server operating systems. Security issues in shell scripts, batch file programming, Perl scripts, and Python scripts. Students will write scripts to administer both computers and networks. 3 credits.

CS 478 Artificial Intelligence
Prerequisite: CS 226. An introduction to the fundamental methods of artificial intelligence (AI) used in problem solving by a computer. Techniques include heuristic search, optimization, genetic algorithms, game playing, expert systems, probabilistic reasoning, learning strategies, neural networks, natural language understanding, and image understanding. Includes the design and implementation of AI programs. 3 credits.

CS 504 Senior Project
Prerequisites: senior standing in computer science, consent of faculty supervisor, and approval of program coordinator. A project is selected and carried out in conjunction with the faculty adviser. Work is presented at a seminar at the end of the term. 3 credits.

CS 524 Advanced Databases
Prerequisites: CS 215, CS 226, and CS 320. A second course in database systems covering advanced topics and new developments in the database field. Topics include database design methodologies and evaluation, embedded SQL, concurrency control, recovery schemes, security, query processing and optimization, and an introduction to object-oriented databases. 3 credits.

CS 526 Object-Oriented Principles and Practice/C++
Prerequisites: CS 212, CS 226. The C++ language; object-oriented design and programming. Protection of privacy, encapsulation of data with relevant functions. Advanced aspects of C++; inheritance, templates, polymorphism, virtual functions, and exception handling. Several programming projects in C++. 3 credits.

CS 534 Cryptography and Data Security
Prerequisite: CS 166, CS 210, CS 320. A survey of cryptographic concepts and algorithms and their application to data security. Tech-

niques studied include private key cryptosystems, public key cryptosystems, and hash functions. Commonly used algorithms are also studied. These might include DES, 3DES, AES, IDEA, RSA, Diffie-Hellman, MD5, SHA, and DSS. We will also examine how these algorithms are used to provide confidentiality, message authentication, key exchange, and digital signatures in applications such as client-server authentication, email security, and web security. 3 credits.

CS 536 Structure of Programming Languages
Prerequisites: CS 212, CS 226. Computer language components: their specification, semantics, implementation, and internal operation. The structure, syntax, and semantic aspects of several languages are examined. Short programs are required in two new languages. 3 credits.

CS 547 Systems Programming
Prerequisites: CS 212, CS 320 or EE 371. Techniques for UNIX systems programming in the C language. Topics include macro preprocessors, conditional compilation, low-level interface programming, UNIX system calls including file operations and directory operations, process control, interprocess communication, and client-server routines. Programming projects required. 3 credits.

CS 563 Mobile Robotics
Prerequisites: CS 226, CS 320. Principles of construction and navigation of mobile robots. Topics include locomotion mechanisms, sensor types and usage, reactive behavior, tracking, obstacle avoidance, path planning, and communication schemes for remote control. Students work individually and in groups to construct and program small mobile robots using Lego Mindstorms kits. 3 credits.

CS 590 Internship
Prerequisites: junior standing, approval of adviser. Student will undertake a supervised work experience of at least 100 hours, preferably in the local computer science industry. 0 credits.

CS 599 Independent Study
Prerequisites: junior or senior standing in computer science, consent of faculty supervisor, and approval of program coordinator. (Refer to academic regulations for independent study.) Exploration of an area of interest. Written and oral presentations are normally required. 3 credits.

DENTAL HYGIENE

DH 105 Introduction to Dental Hygiene I
Prerequisite: DH 105. This course provides entry-level students with an introduction to allied health education and the profession of dental hygiene. Topics include the role of the dental hygienist in the health-care delivery system; the history of dental hygiene; the role of professional associations; basic scientific terminology of the head, neck, and oral cavity; introduction to the caries process and gingival disease process; and oral hygiene protocols. 1 credit.

DH 110 Introduction to Dental Hygiene II
Prerequisite: DH 105 or consent-from the instructor. This course is a continuation of DH 105 and provides students with a survey of contemporary issues encountered by dental health care professionals. Emphasis is placed on professional standards, health promotion, disease prevention, review of dental specialties, and ethical issues that are encountered by dental hygienists. 1 credit.

DH 214 Oral Facial Structures
Prerequisites: BI 121, sophomore standing. This course examines the head and neck region, emphasizing the anatomy of oral facial structures, including the teeth. This course also addresses oral histology and embryology. 4 credits.

DH 215 Radiology
Prerequisites: DH 214, DH 220, sophomore standing. This course is an extension of the clinical course sequence and concentrates on the role of radiographs in the diagnosis and treatment of oral diseases. The course emphasizes radiographic characteristics and production, equipment, safety, processing, and interpretation. 3 credits.

DH 220 Dental Hygiene Concepts I
Prerequisite: sophomore standing. DH 220 is the first in a series of clinical courses; it provides the foundations of clinical dental hygiene practice. The course focuses on professionalism, ethical decision-making principles, infection control, the impact of tooth accumulated deposits, and the development

of the knowledge and skills necessary for the delivery of dental hygiene services. Clinical laboratory fee; 3 credits.

DH 225 Forensic Odontology and Crime Scene
Prerequisite: BI 121–122 or equivalent. This course provides students with an introduction to the role of dentistry in legal services. Classroom presentations/lectures concentrate on the history of forensics, identification of human remains, DNA and computer technologies, collection, examination, and reproduction of bitemarks, crime scene investigation, child abuse syndrome, serial killers, and case studies. Students are required to participate in hands-on activities in the classroom. 1 credit.

DH 240 Dental Hygiene Concepts II
Prerequisites: DH 214, DH 220, sophomore standing. This course is an extension of DH 220 and focuses on the continuing development of the didactic, affective, and psychomotor skills necessary for comprehensive dental hygiene treatment. Lecture topics include medical history, oral inspection, data collection procedures, caries process, fluoride, oral physiotherapy and chemotherapeutics for the management of caries and periodontal disease, and treatment planning. Classroom presentations concentrate on the dental hygiene process of care. Clinical laboratory fee; 4 credits.

DH 320 Pharmacology and Pain Management
Prerequisites: junior standing and required first- and second-year dental hygiene courses. This course provides an overview of medications encountered by health care workers. Particular attention is paid to the impact various medications have on dental and dental hygiene treatment. Medications, local anesthetics, and other chemotherapeutic agents utilized in the dental treatment setting are emphasized. 3 credits.

DH 325 General and Oral Pathology
Prerequisites: junior standing and required first- and second-year dental hygiene courses. A survey of general pathology with emphasis on the impact of pathologic conditions on the oral cavity. Diseases of the gingiva and periodontium and the role of the dental hygienist in recognition and referral are emphasized. 3 credits.

DH 327 Periodontology
Prerequisites: DH 214, DH 220, sophomore standing. This course provides an in-depth examination of periodontal diseases, the immune response, and both surgical and nonsurgical interventions. The role of the dental hygienist as a periodontal co-therapist is emphasized. 3 credits.

DH 330 Dental Hygiene Concepts III
Prerequisites: junior standing and required first- and second-year dental hygiene courses. DH 330 is a continuation of the clinical course sequence. Content emphasis is placed on instrument alternatives, professional mechanical oral hygiene care, instrumentation theory for prevention and control of periodontal diseases, and the utilization of patient cases to assess periodontal standing. Clinically, students treat patients with a broader scope of oral/physical conditions while incorporating patient radiographs into the dental hygiene treatment plan. Clinical laboratory fee; 3 or 5 credits.

DH 342 Dental Materials
Prerequisites: junior standing, required second-year dental hygiene courses. This lecture/laboratory course provides students with an understanding of the biomaterials and techniques utilized in preventive, restorative, and surgical dental procedures. Emphasis is placed on the role of the dental hygienist in maintaining and evaluating preventive and restorative materials. 3 credits.

DH 350 Dental Hygiene Concepts IV
Prerequisites: junior standing, required second-year dental hygiene courses. DH 350 is the fourth course in the clinical course sequence. The didactic portion of the course concentrates on ethical decision-making skills, problem-solving abilities, treating the medically compromised patient, and practice management principles. Clinically, students will have an opportunity to treat more challenging cases. Clinical laboratory fee; 5 credits.

DH 360 Local Anesthesia
Prerequisite: junior standing and required first- and second-year dental hygiene courses. This course is designed to prepare student dental hygienists for the safe, effective administration of local anesthesia as

current Connecticut legislation permits. The course includes the psychology of pain management, pharmacology of anesthetic agents, emergency precautions and management, and a review of anatomy and physiology as they relate to the administration of anesthetic agents. This course includes classroom, laboratory, and clinical instruction. Laboratory fee; 2 credits.

DH 423 Instructional Planning and Media
Prerequisites: junior standing and required first- and second-year dental hygiene courses. This course provides dental hygiene students and practitioners with an overview of the instructional planning process. Emphasis is placed on the steps in the process, the development and utilization of media, and oral presentation skills. 3 credits.

DH 438 Dental Hygiene Research
Prerequisites: junior or senior standing, required second-year dental hygiene courses. This course provides dental hygiene students with the skills needed to understand, interpret, and critique professional literature. Emphasis is placed on the design of a sound research protocol. 3 credits.

DH 455 Dental Hygiene Public Health
Prerequisites: DH 320, DH 350, DH 325, DH 342, junior standing. This course emphasizes the role of dental and dental hygiene public health programs in the health care delivery system. It stresses the role of the dental hygienist in community disease prevention and health promotion activities. Students have the opportunity to interact with a broad spectrum of community groups during the field experience aspect of the course. 4 credits.

DH 460 Advanced Dental Hygiene Concepts
Prerequisites: DH 320, DH 325, DH 342, DH 350, junior standing. The clinical course sequence culminates in DH 460; this course provides the opportunity for students to integrate their skills and didactic knowledge. Clinical time focuses on increasing time efficiency while maintaining recognized standards of care. Didactic content focuses on professional credentials, state licensing agencies, continuing education, the role of professional organizations, employment goals, and resumé preparation. Clinical laboratory fee; 5 credits.

DH 461 Oral Medicine
Prerequisites: DH 320, DH 325, DH 350, junior or senior standing. Oral Medicine utilizes the content from Anatomy and Physiology, Pharmacology, Oral Pathology, Dental Hygiene Concepts, and other courses as the basis for discussing the impact of systemic conditions on the oral cavity. Medical history is utilized in a case-study approach to address the role of the dental hygienist in medical risk assessment and management. 3 credits.

DH 462 Dental Hygiene Internship
Prerequisites: DH 423, DH 438, junior or senior standing. This course provides senior-level dental hygiene students with the opportunity to apply the knowledge and skills gained throughout the dental hygiene curriculum in an internship experience compatible with future career goals. 3 credits.

DH 468 Dental Hygiene Senior Project
Prerequisites: DH 423, DH 438, junior or senior standing. This course provides the student with the opportunity to design, implement, and present a project that enriches existing knowledge and contributes to the profession of dental hygiene. Previous and current course work assists the student in the effort. 3 credits.

DH 490–499 Special Topics
Prerequisite: dental hygiene major; specifics of course(s) to be determined in consultation with the program director. Opportunity for the student, under the direction of the dental hygiene faculty, to explore an area of interest. 1–3 credits per semester up to 6 credits.

NUTRITION AND DIETETICS

DI 150 Sports Nutrition
Review of the principles of nutrition and exercise with emphasis on counseling the athlete; facts and fallacies of sports nutrition; energy and fluid balance; evaluating sports nutrition information in the lay literature; appropriate diets for training; and managing the young person, older adult, and athlete with special needs. Planning meals for training and competition, as well as dietary evaluation using computerized nutrient analysis, will be included. 3 credits.

DI 200 Food Science and Preparation with Laboratory
Provides knowledge of food science, cooking, and baking principles; physiology of taste; components of food including color and flavor pigments (phytochemicals); application of scientific reactions during preparation and cooking; accurate weighing and measuring skills; proper tasting and product evaluation techniques; safe handling of knives, kitchen equipment, and food products. Instruction includes sanitary food experimentation and preparation in food laboratory in addition to classroom lectures. Laboratory fee; 4 credits.

DI 214 Menu Planning
Principles of meal planning and writing menus for volume food combinations, texture, color, nutrition, and cost. The interrelated steps involved in quantity food production, the delivery of food, and the responsibilities of management. 3 credits.

DI 215 Principles of Nutrition
Prerequisite: BI 121. An introduction to nutrition science including nutrient interactions, digestion, absorption, sources of nutrients, and importance of phytochemicals. Energy metabolism, weight control, contemporary nutrition issues, and individual nutrition analysis are included. 3 credits.

DI 216 Food Safety, Sanitation, and Procurement
Students learn principles of food sanitation, safety, and purchasing. Students also prepare policies and procedures and conduct an in-service training class for a food service facility. Prevention of food poisoning, legal responsibilities of management, food handling, and delivery systems are discussed for safe and sanitary practices. Procurement specifications for food and equipment, facility layout, receiving principles, issuing of food items, cost control, and budget preparation are also included. 3 credits.

DI 222 Issues and Careers in Health Wellness
An overview of health-care issues linked to lifestyle, living conditions, physical environment, socioeconomic standing, eating behavior, dental health, and rising costs of health care. Critical analysis of community health and design, work environment, and eating behavior, as well as hygiene habits related to wellness. Survey and preparation for health careers. 4 credits.

DI 315 Nutrition and Disease
Prerequisite: DI 215. Aspects of diet in treating and preventing various symptoms and syndromes, diseases, inherited errors of metabolism, and physiological stress conditions. 3 credits.

DI 326 Principles of Dietetics Management
Provides knowledge required to effectively manage the provision of dietetic services in a food service operation, clinical nutrition department, community or ambulatory nutrition program, private practice office, or other food/nutrition facility. Management principles are discussed using human resource applications, leadership theories, decision-making tools, and organizational skills for the successful dietetics manager. Managing materials, productivity, financial data, and information in a dietetics environment are discussed using quality improvement principles. 3 credits.

DI 330 Dietetic Practice in Today's Society
Prerequisite: DI 315. Course covers medical terminology, interpretation of laboratory values, format of the medical record, documenting nutrition care, nutrition screening and assessment, medical nutrition therapy (MNT), and patient interviewing and counseling. Includes nutrition care protocols for enteral and parenteral feeding, pediatric care, diabetes, cardiovascular disease, hypertension, pulmonary insufficiency, dysphagia, cancer, renal disease, obesity, and other diseases with nutritional implications. 3 credits.

DI 342 Healthy Food Preparation
Emphasizes preparing food according to today's healthy eating goals. Laboratory strategies include modifying recipe content to include natural sources of protein, fat, and carbohydrate in healthy meals, snacks, sports beverages, etc., while incorporating accurate nutrition analysis and costing of recipes using the latest technology. Discussion of organic, functional, and genetically engineered foods. Students design recipe or food demo projects incorporating course content. Provides knowledge and expertise in creating and redesigning recipes. Incorporates today's healthy eating principles. Emphasis on eating healthy without increasing costs. Laboratory fee; 3 credits.

DI 350 Nutrition Throughout the Life Cycle
Prerequisite: DI 215. This course covers various nutrients required by humans and the roles of the individual nutrients in determining growth, development, and health during the sequence of events that comprise the human life cycle. Changes in nutrient needs in relation to physical, physiological, and psychosocial growth and development throughout the life cycle are discussed. The effects of various influences on diet during the life cycle and the nutritional priorities for each stage of the life cycle are covered. Dietary guidelines for health maintenance and disease prevention throughout the life cycle are included. Also discussed is the importance of nutrition on health care, public policy, and health care cost reduction through disease prevention. 3 credits.

DI 405 Community and Institutional Nutrition
Emphasizes tools for developing effective dietetic programs in the community. Looks at the organization and development of action plans. Develops knowledge of the fundamentals of the political and legislative process. Discusses nutritional problems that may be secondary to other health, social, and economic influences. 3 credits.

DI 450–459 Special Topics
Selected topics in dietetics, health care, food service management, team concepts, and a variety of current issues. 3 credits.

DI 597 Dietetic Practicum
An elective course that provides an opportunity for students to gain practical work experience in the dietetics field. Students must spend a total of 130 hours at a field site under the supervision of a registered dietician and an additional 20 hours of course time devoted to preparation of a term paper or case study directly related to their practicum experience. This opportunity will help students meet competencies required for entry into a post graduate internship. 3 credits.

DI 599 Independent Study
Prerequisite: consent of the program coordinator. Independent research projects or other approved phases of independent study. 3 credits.

ENGLISH

Note: E 105 and E 110 are required by all departments and must be taken during the student's first year at the University. They are prerequisites for all upper-level, 200 or above, English courses.

E 101 Academic Reading
Reading, analyzing and interpreting nonfiction for the purpose of learning to comprehend textbooks. 3 excess credits.

E 102 Academic Reading and Speaking
Reading, analyzing, and interpreting nonfiction for the purpose of learning to comprehend textbooks. Locating and organizing material for public speaking and presenting it with confidence and fluency. Open only to Developmental Bloc students. 3 excess credits.

E 103 Fundamentals
Designed to increase awareness of the structure of English. Intensive practice in writing to improve the student's ability to construct effective sentences, paragraphs and short essays. 3 excess credits. 6 class hours per week. (See section titled Developmental Studies Program on pg. 21 of this catalog.)

E 104 Fundamentals
For international students. Same course description as E 103.

E 105 Composition
Prerequisite: E 103 or placement by English department. Analytical study of essays for the purpose of improving skills of written communication. Practice in writing in a variety of rhetorical modes with emphasis upon clarity and precision. 3 credits.

E 106 Composition
For international students. Same course description as E 105.

E 110 Composition and Literature
Prerequisite: E 105 or placement by the English department. Reading, analyzing, and interpreting literature in three basic genres: fiction, poetry, and drama. Writing of analytical and critical essays. Theatre fee for day sections. 3 credits.

E 111 Composition and Literature
For international students. Same course description as E 110.

E 201 Early World Literature
Prerequisite: E 110. Selected world classics of prose, poetry, and drama from ancient times through the six-

teenth century, written in or translated into English. 3 credits.

E 202 Modern World Literature
Prerequisite: E 110. Selected world classics of prose, poetry, and drama from the seventeenth century to the present, written in or translated into English. 3 credits.

E 211 Early British Writers
Prerequisite: E 110. A study of important British writers from the beginning of literature in English through the Neoclassic era. 3 credits.

E 212 Modern British Writers
Prerequisite: E 110. A study of important British writers from the Romantic era to the present. 3 credits.

E 213 Early American Writers
Prerequisite: E 110. A study of important American writers from Colonial times to the 1850s. 3 credits.

E 214 Modern American Writers
Prerequisite: E 110. A study of important American writers from the 1860s to the present. 3 credits.

E 217 African-American Literature I
Prerequisite: E 110. A survey of African-American writers from the late 1700s to 1940. Texts selected from a variety of genres with emphasis on the African-American experience and heritage. 3 credits.

E 218 African-American Literature II
Prerequisite: E 217 or consent of instructor. A survey of African-American writers from the Harlem Renaissance to the present. Texts selected from a variety of genres with emphasis on the African-American experience and heritage. 3 credits.

E 220 Writing for Business and Industry
Prerequisite: E 110. Intensive practice in the various types of writing required of executives, businesspeople, engineers, and other professionals, with emphasis on business letters, memos, resumes, internal and external reports, evaluations and recommendations, descriptions of procedures and processes. 3 credits.

E 225 Technical Writing and Presentation
Prerequisite: E 110. Intensive practice in the common forms of technical writing, with emphasis on technical description, processes, reports, and manuals. Oral presentation of written work. 3 credits.

E 230 Public Speaking and Group Discussion
Development of proficiency in organizing and presenting material in speaking, group interaction, conference management, and small-group discussion. 3 credits.

E 251 Narrative Nonfiction
Prerequisite: E 110. Exploration of and practice in writing "the fourth genre," creative nonfiction. Emphasis on the short piece, the literary memoir, and the personal essay. 3 credits.

E 260 The Short Story
Prerequisite: E 110. A critical study of the best stories of American and British writers as well as stories, in translation, of writers of other nationalities. 3 credits.

E 267 Creative Writing I
Prerequisite: E 110. Exercises and instruction in writing short fiction and poetry. Composing, critiquing, and editing skills developed in workshop format. 3 credits.

E 268 Creative Writing II
Prerequisite: E 267. Advanced exercises and instruction in writing short fiction and poetry. Composing, critiquing, and editing skills refined in workshop format. 3 credits.

E 270 The Advanced Essay Workshop
Prerequisite: E 251 or E 267 or consent of instructor. Variable topics selected from travel, nature, science, social critique, and humor. 3 credits.

E 275 Popular Lyrics
Prerequisite: E 110. Popular lyrics from the songs of the Jazz age, the Depression, and World War II to rock 'n' roll and the music video revolution of today. 3 credits.

E 281 Science Fiction
Prerequisite: E 110. A survey of the development of science fiction during the nineteenth and twentieth centuries. Reading of American, English, and European science fiction novels and short stories. 3 credits.

E 290 The Bible as Literature
Prerequisite: E 110. A study of literary genres in the Bible: narrative, drama, poetry, wisdom literature, books of prophecy, letters. Extensive readings in both the Old and New Testaments. 3 credits.

E 300 Writing Proficiency Examination
Required of each student after earning 57 credits (including transfer credits). See Writing Proficiency Examination statement, or contact English Department Chair.

E 323 The Renaissance in England
Prerequisite: E 110. Major writers of the English Renaissance, including Sidney, Spenser, Donne, and Milton. 3 credits.

E 341 Shakespeare
Prerequisite: E 110. An analysis of representative tragedies, comedies, and history plays. 3 credits.

E 353 Literature of the Romantic Era
Prerequisite: E 110. Poetry and prose of the major Romantics — Wordsworth, Coleridge, Byron, Shelley, Keats, Lamb, and Hazlitt — with attention given to the milieu of the writers, the Continental background, and theories of Romanticism. 3 credits.

E 356 Victorian Literature
Prerequisite: E 110. Poetry and prose from 1830–1900. The works of Tennyson, Browning, Arnold, Carlyle, Mill, Newman, Ruskin, and others studied in light of the social, political and religious problems of the period. 3 credits.

E 371 Literature of the Neoclassic Era
Prerequisite: E 110. British writers of the period 1660–1789, with emphasis on Dryden, Pope, Swift, and Johnson. 3 credits.

E 390 The Novel in English
Prerequisite: E 110. Great novels written in English (excluding American novels, which are studied in American literature courses). 3 credits.

E 392 Poe, Hawthorne, and Melville
Prerequisite: E 110. A study of the poetry and fiction of three major representatives of the tragic outlook on life in mid-nineteenth century American literature. 3 credits.

E 393 Mark Twain
Prerequisite: E 110. Major works by America's greatest humorist and moral spokesman studied through interactive discussions, online research, and a portfolio of course work. Selections from travel works, including *Innocents Abroad;* the major works, including *Tom Sawyer* and *Huckleberry Finn;* and some short stories and sketches. 3 credits.

E 394 American Humor
Prerequisite: E 110. Intensive study of the history of American humor and its relevance to modern America, including major humor writers from Mark Twain to Woody Allen. 3 credits.

E 395 American Realism and Naturalism
Prerequisite: E 110. Readings in the works of such major realists as Howells, Twain, and James; and important naturalist successors such as Norris, Crane, and Dreiser. 3 credits.

E 406–409 International Literature
Prerequisite: E 110. Selected poetry, drama, and fiction, in translation, from one of the following nations: Russia, France, Germany, or Spain. Topic to be announced for each semester. 3 credits each course.

E 477 American Literature Between the World Wars
Prerequisite: E 110. A study of the achievements of the main figures of the generation that flourished between the two world wars and brought about "America's Coming of Age." Poets Ezra Pound, T.S. Eliot, Robert Frost, Wallace Stevens and William Carlos Williams; novelists Hemingway, Faulkner, and Fitzgerald. 3 credits.

E 478 Contemporary American Literature
Prerequisite: E 110. Intensive study of recent American fiction, nonfiction, poetry, and drama. 3 credits.

E 480 Internship
Prerequisite: E 110. A work experience, arranged through the department, that will require the effective use of written or spoken English. 3 credits.

E 481–498 Studies in English
Prerequisite: E 110. Special topics in literature, speaking, or writing. 3 credits.

E 599 Independent Study
Prerequisites: English majors, junior or senior standing, at least a 3.0 G.P.A.; consent of the instructor and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1–3 credits per semester.

ENGINEERING AND APPLIED SCIENCE

EAS 103 Technology in Modern Society
Scientific and technological developments and their implications for the future of society. Prospects and problems in communications, energy sources, automation, transportation, and other technologies. Use and control of technological resources for public benefit. 3 credits.

EAS 107 Introduction to Engineering
Prerequisite: M109 or equivalent. Overview of the problems, perspectives, and methods of the engineering profession. Modeling of real-world problems for purposes of optimization, decision-making, and design. Practical techniques of problem formulation and analysis. 3 credits.

EAS 108 Engineering Workshop
Prerequisite: M 115 (may be taken concurrently). An introduction to the use of elementary statistics and basic computer modeling for engineering problem-solving. Software packages used may include spreadsheets, databases, math packages, and drafting. 1 credit.

EAS 109 Project Planning and Development
Prerequisite: M 115 (may be taken concurrently). Students develop the skills required to successfully plan and implement selected projects within budgetary and time constraints using project management software. Projects use LabVIEW© programming for data acquisition and control and CAD tools and presentation software for technical communication of design information. Students gain proficiency in each of these three areas as they apply to a series of projects spanning the course. 2 credits.

EAS 112 Methods of Engineering Analysis
Prerequisite: a laboratory science course. Corequisite: M 117. Students are introduced to typical problems encountered in various branches of engineering using a case-study approach. They gain experience using computer tools to solve these problems numerically. Skill is developed in a spreadsheet environment, and the fundamentals of programming are presented. Applicators involve use descriptive statistics, regression, interpolation, logical and numerical functions, sets of algebraic, differential, and finite difference equations, integration. Students are introduced to data types, assignment and conditional statements, program flow control, passing parameters, returning values with functions, arrays. 3 credits.

EAS 120 Chemistry with Applications to Biosystems
Prerequisites: CH 115/117, E 105, EAS 109 (or consent of instructor), M 115. Integrated concepts from chemical and life sciences including solutions, equilibrium, kinetics, thermodynamics, and electrochemistry. Extensive laboratory component illustrates the interaction between chemical and biological processes. 4 credits.

EAS 211 Introduction to Modeling of Engineering Systems
Prerequisite: EAS 112 or consent of instructor. Corequisites: M 118, PH 150. Modeling of simple engineering systems from different fields using empirical laws and the balance principle for mass, charge, linear momentum, and energy. Applications include introductory problems in material balances, electric circuits, fluid mechanics, statics, thermodynamics and heat transfer. Emphasis is on developing an engineering approach to problem-solving. 3 credits.

EAS 213 Materials in Engineering Systems
Prerequisites: CH 115, EAS 112. Corequisite: EAS 211. Properties, behavior, and application of materials (solid, liquid, and gas) are studied and demonstrated, with emphasis on selection and use in engineering systems. Topics include mechanical, electrical, magnetic, thermal, optical, rheological, and chemical properties and behavior. 3 credits.

EAS 222 Fundamentals of Mechanics and Materials
Prerequisites: EAS 211, EAS 213. Corequisite: M 203. Behavior of mechanical and structural systems under load. Topics include effects and distribution of forces on rigid bodies at rest; kinematics and kinetics of particles; force systems; shear and moment diagrams; force-stress-strain-deformation relationships, including torsion and combined loading; buckling and stability analysis; stress/strain transformation; Mohr's circle. 3 credits.

EAS 224 Fluid-Thermal Systems
Prerequisites: E 105, EAS 211, EAS 213. Corequisite: M 203. An expansive study of thermal and fluids principles and applications including laws of thermodynamics, basic power cycles, conservation laws, internal and external flows, and convective heat transfer. 3 credits.

EAS 230 Fundamentals and Applications of Analog Devices
Prerequisite: EAS 211 or consent of instructor. Corequisite: PH 205. Fundamental principles of analog electrical devices as applied to a variety of engineering systems, as well as hands-on experience on those devices as applied in various engineering disciplines. Applications include sensors, transformers, motors, and transmission lines. 3 credits.

EAS 232 Project Management and Engineering Economics
Prerequisites: EAS 109 or knowledge of the fundamentals of project management and familiarity with the basic concepts of probability and statistics. An introduction to economic analysis with emphasis on those concepts directly related to project management. Topics include analysis of alternatives, project initiation, depreciation and taxation, cost estimates, risk and uncertainty, project planning, execution, and control. 3 credits.

EAS 345 Applied Engineering Statistics
Prerequisites: M 118 and CS 107 or equivalent. Topics include basic terminology, data presentation, descriptive statistics, curve-surface fitting and correlation, probability and model fitting, random variables, statistical inferences, one-way analysis of variance, prediction and tolerance intervals, and control charts. 3 credits.

EAS 415 Professional Engineering Seminar
Prerequisite: senior standing. Discussion of topics on professional engineering and ethical matters pertaining to the practice of engineering. This course is intended for non-civil engineering majors. Civil engineering majors take CE 407. 1 credit.

EAS 450–459 Special Topics
Special topics of selected or current interest in the study of engineering and applied science. 3 credits.

ECONOMICS

EC 133 Principles of Economics I
Foundations of economic analysis, including economic progress, resources, technology, private enterprise, profits, and the price system. Macroeconomics including national income, employment, and economic growth. Price levels, money and banking, the Federal Reserve System, theory of income, employment and prices, business cycles and problems of monetary, fiscal, and stabilization policy. 3 credits.

EC 134 Principles of Economics II
Microeconomics including markets and market structure and the allocation of resources. The distribution of income, the public economy, the international economy, and selected economic problems. 3 credits.

EC 200 Global Economy
Prerequisites: EC 133, EC 134. This survey provides an understanding of the linkages between the American economy and the rest of the world in a period of increased globalization. Particular emphasis is placed on understanding the various policies of international trade and finance and their relationship to business. 3 credits.

EC 310 Game Theory
Prerequisites: EC 133, EC 134. This course gives students an understanding of the relevance of game theory to strategy. The course emphasizes applications of gaming to strategic decision-making in business. 3 credits.

EC 313 Behavioral Economics
Prerequisites: EC 133, EC 134. The course focuses on judgment, the cognitive aspects of decision-making, and their relevance in economics. The emphasis is on the merging of psychology and economics in understanding how managers make decisions and how decision-making might be improved. 3 credits.

EC 314 Public Finance and Budgeting
Prerequisites: EC 133, EC 134, and junior standing. A general survey of government finance at the federal, state, and local levels, including government expenditures, principles of taxation, public borrowing, debt management, and fiscal policy for economic stabilization. 3 credits.

EC 340 Microeconomic Analysis
Prerequisites: EC 133, EC 134, and junior standing. Study of commodity and factor pricing, theory of production, cost theory, market struc-

tures under perfect and imperfect market conditions. 3 credits.

EC 341 Macroeconomic Analysis
Prerequisites: EC 133, EC 134, and junior standing. An investigation of the makeup of the national income and an analysis of the factors that enter into its determination. The roles of consumption, investment, government finance, and money influencing national income and output, employment, the price level and rate of growth, and policies for economic stability and growth. 3 credits.

EC 342 International Economics
Prerequisites: EC 133, EC 134, and junior standing. The role, importance, and currents of international commerce; the balance of international payments; foreign exchange and international finance; international trade theory; problems of payments adjustment; trade restrictions; economic development and foreign aid. 3 credits.

EC 425 Decision Making Economics and Uncertainty
Prerequisites: EC 133, EC 134, and QA 216. An examination of how risk and uncertainty shape decision-making. The course exposes students to modern analytic tools, such as Monte Carlo simulation, that can be used to incorporate risk in business strategy and public policy. 3 credits.

EC 440 Economic Development
Prerequisites: EC 133, EC 134, and junior standing. Economic problems of developing countries and the policies necessary to induce growth. Individual projects required. 3 credits.

EC 450–459 Special Topics
Prerequisites: EC 133, and EC 134. Coverage of new and emerging topics and appreciation in economics. 3 credits.

EC 598 Internship
Prerequisites: EC 133, EC 134, and junior standing. On-the-job learning in selected organizations in areas related to the student's major. 3 credits.

EC 599 Independent Study
Prerequisites: EC 133, EC 134, and junior standing. Independent research projects or other approved forms of independent study. 3 credits.

EDUCATION

ED 350 Introduction to Education and Field Study
Prerequisite: junior or senior standing. This course introduces students to the field of education and includes a field component. Students focus on the Connecticut Teaching Competencies and are given a broad overview of school-related issues, including classroom management skills. 3 credits.

ED 450–459 Special Topics
Special topics of selected or current interest in the study of education. 3 credits.

ED 503 Human Growth and Development
A study of the major aspects of human development from conception through adolescence, presenting the important theories and research methods of the field and tracing the physical, cognitive, psychological, and social development of each chronological division. 3 credits.

ED 504 Educational Psychology
Content emphasizes the application of psychological principles and research results to the teaching-learning process. Includes learning principles, development, planning instruction, evaluating student performance, classroom management, and motivation. Cannot be used as a psychology elective. 3 credits.

ED 508 Child Development
A study of the physical, cognitive, and social development of children, with special emphasis on major theories and research methods. Cannot be used as a psychology elective. 3 credits.

ED 509 Adolescent Development
A study of the physical, cognitive, and social development of adolescents, with special emphasis on major theories and research methods. Cannot be used as a psychology elective. 3 credits.

ELECTRICAL ENGINEERING

EE 155 Digital Systems I
Fundamental concepts of digital systems. Binary numbers, Boolean algebra, combinational logic design using gates, map minimization techniques. Use of modular MSI components such as adders and multiplexers. Analysis and design of simple synchronous sequential circuits, including flip-flops, shift registers, and counters. Introduction to VHDL. 3 credits.

EE 201 Introduction to Electrical Circuits
Corequisites: M 118, PH 205. Energy effects and ideal circuit elements, independent and dependent sources; Ohm's Law and Kirchhoff's Laws; resistive networks; node and mesh analysis; Thevenin and Norton Theorems, maximum power transfer, analysis of first-order networks; introduction of sinusoidal steady state, phasors, impedance, and admittance. DC and transient analysis using SPICE. 3 credits.

EE 202 Network Analysis
Prerequisites: EE 201, M 118. Continuation of EE 201. Analysis and design of networks in sinusoidal steady state. Use of phasors and phasor diagrams, voltage and current gain, resonance, watts, VARS, power factor. Average and RMS values. Maximum power transfer. Mutual inductance, ideal transformers, Fourier series, use of SPICE in steady state analysis and design. 3 credits.

EE 212 Principles of Electrical Engineering
Prerequisite: EE 201. This course includes several laboratory exercises related to topics covered in EE 201 as well as new topics. The course is equally divided between lectures and laboratory. Digital logic systems. The binary number system, binary arithmetic, decimal to binary conversion, binary codes, hexadecimal codes. Boolean algebra, AND, OR, NAND, NOR and XOR gates. Combinational logic design. Multiplexer, rom, decoders, and read and write memory. Digital systems. Sequential logic, latches and flip-flops, digital counters, registers, sequential logic design. This course is intended for non-electrical engineering majors. 3 credits.

EE 235 Analog Circuits
Prerequisite: EAS 230 or EE 201. In-depth analysis techniques applied to resistive circuits including a review of nodal and mesh analysis, Thevenin and Norton theorems, linearity and superposition, maximum power transfer, applications of operational amplifiers, PSPICE projects, first- and second-order networks, mutual inductance and transformers, steady state power analysis, effective and rms values, complex power, power factor, three-phase circuits, power relationships, power factor correction, sinusoidal frequency analysis, resonant circuits, simple filter networks, Laplace transform and its application to circuit analysis. 3 credits.

EE 247 Electronics I
Prerequisite: EE 201 or EAS 230. Signals and their frequency spectrum, amplifiers, circuit models for amplifiers, frequency response. Operational amplifiers, ideal op-amps, inverting and noninverting configurations, op-amp circuits. Basic semiconductor concepts, drift currents, the p-n junctions, analysis of diode circuits, Zener diodes. BJT transistors, physical structure and modes of operation, biasing techniques, the BJT as an amplifier, biasing the BJT for discrete circuit design, analysis of the transistor as a switch. Field-effect transistors, structure and physical operation of MOSFETs, voltage-current characteristics of various FETs. FET circuits at DC, the FET as an amplifier. 3 credits.

EE 256 Digital Systems Laboratory
Prerequisite: EE 155. Covers digital systems test instruments. Experiments in combinational and introductory sequential circuits. Software tools, simulators. Schematic capture and introduction to hardware description languages. Design of simple digital circuits. Written and oral laboratory reports. 2 credits.

EE 257 Analog Circuits Laboratory
Prerequisite: EE 201 or EAS 230. Laboratory exercises and projects in DC and AC circuits including Ohm's law, Kirchhoff's laws, mesh and nodal analysis, Thevenin and Norton theorems, capacitance and inductance measurements, transient behavior of RLC circuits, operational amplifiers and applications. PSPICE and LabView© are introduced; written and oral reports are required. Laboratory fee; 2 credits.

EE 302 Systems Analysis
Prerequisites: EE 201 or EAS 230 and M 204. Continuous-time and discrete-time signal and system properties; linear difference equations; the convolution integral and convolution sum; the Laplace transform; the Z transform; the Fourier transform of continuous-time signals. 3 credits.

EE 306 Electronic Materials and Devices
Prerequisite: EE 247. Semiconductor materials including doping, conduction, diffusion, p-n junction effects. Hall effect and quantum theory. Diode current-voltage relation, diode capacitance and breakdown; FET and BJT

operation. Magnetic properties of matter. 3 credits.

EE 320 Random Signal Analysis
Prerequisite: EE 302. The elements of probability theory. Continuous and discrete random variables. Characteristic functions and central limit theorem. Stationary random processes, auto correlation, cross correlation. Power density spectrum of a stationary random process. Systems analysis with random signals. 3 credits.

EE 341 Numerical Methods in Engineering
Prerequisites: M 203 and a standard programming language. Topics include solutions of algebraic and transcendental equations by iterative methods; system of linear equations (matrix inversion, etc.); interpolation, numerical differentiation and integration; solution of ordinary differential equations. Scientific and engineering applications. 3 credits. (This course is cross-listed with M 338 Numerical Analysis.)

EE 344 Electrical Machines
Prerequisite: EE 202 or EE 235. Magnetic fields and magnetic circuits, forces and torques. Theory, characteristics, operation, testing, equivalent circuits, design concepts, and applications of direct current and alternating current machines including transformers, synchronous and induction machinery. Design of main dimensions of transformer cores, rotors and stators and armature windings. 3 credits.

EE 348 Electronics II
Prerequisite: EE 247. Review of FETs. Biasing the FET in discrete circuits, biasing configurations of single stage IC MOS amplifiers, FET analog switches. Differential and multistage amplifiers, the BJT differential pair, biasing in BJT integrated circuits, actively loaded differential pair, MOS differential amplifiers and multistage amplifiers. Frequency response of amplifiers, s domain analysis, poles and zeros, Bode plots, Miller effect, frequency response of differential amplifiers, study of various wideband amplifiers. Output stages and power amplifiers, Class A, B, and AB stages, IC power amplifiers. Analog integrated circuits, complete analysis of 741 op-amp circuits, CMOS op-amps, D/A and A/D converter circuits. 3 credits.

EE 349 Electronics Design Laboratory
Prerequisites: EE 257, EE 348 (may be taken concurrently). Laboratory exercises and design projects intended to give students practical experience in analog electronics. Experiments include operational amplifiers, diodes, BJTs, FETs, single and multistage amplifier design as well as open-ended design projects. PSPICE and LabView© are used; written and oral reports are required. 2 credits.

EE 355 Control Systems
Prerequisite: EE 302. The modeling of linear and nonlinear physical systems with discrete and continuous state space equations. Solutions to the discrete and continuous linear state equation; state transition matrices; phase variable forms. Eigenvalues and eigenvectors; Jordan canonical form. Controllability and observability of discrete and continuous systems. Relationships among controllability, observability, and transfer functions. The stability of discrete and continuous linear systems, Liapunov, root locus, Nyquist, feedback; PID control; lead-lag control. 3 credits.

EE 356 Digital Systems II
Prerequisite: EE 155 or equivalent. Course focuses on sequential logic design. Both synchronous and asynchronous techniques are covered, with an emphasis on controller-based modular design. Design with a hardware description language. Advanced topics will be covered as time permits. Course includes laboratory. 3 credits.

EE 371 Computer Engineering
Prerequisites: CS 110, EE 155. Introduction to the organization of digital computers. Stored program concept, instruction processing, memory organization, instruction formats, addressing modes, instruction sets, assembler and machine language programming. Input/output programming, direct memory access. Bus structures and control signals. Course includes laboratory. 3 credits.

EE 398 Internship
Prerequisite: Junior standing. A partnership consisting of the student, faculty, and employers/organizations providing exposure to and participation in a working engineering environment. An internship translates classroom knowledge to a professional work environment, and the student works and learns with practicing engineers while gaining professional experience. A minimum of 300 hours performing related engineering duties is required. No credit.

EE 410 Networking I
Prerequisite: Junior standing or consent of instructor. Reference models TCP/IP and OSI, transmission media, data link layer issues, the medium access control sublayer, networking devices and topologies, LANs, WANs, lab experiments. 3 credits.

EE 437 Industrial Power Systems Engineering
Prerequisite: EE 202 or EE 235. Study of the components forming a power system, three-phase systems, transmission line modeling and design, per unit quantities, modeling of power systems, one-line diagrams, symmetrical components, sequence networks and asymmetrical fault calculations, matrices and matrix algebra. 3 credits.

EE 438 Electric Power Transmission
Prerequisite: EE 437. Power system modeling for fault analysis using sequence networks, bus impedance matrix formulation, rake equivalent method, fault analysis by computer methods, transmission line ABCD parameters and distributed parameter analysis, design and performance using computers, load flow analysis, Gauss-Siedel method, Newton-Raphson method, economic load sharing, stability design and analysis using computers and FORTRAN programs. 3 credits.

EE 439 Electric Power Distribution
Prerequisites: EE 344, EE 437. Structure of electric power distribution, distribution transformers, subtransmission lines, substations, bus schemes, primary and secondary systems, radial and loop feeder designs, voltage drop and regulation, capacitors, power factor correction and voltage regulation, protection, buses, automatic reclosures and coordination. 3 credits.

EE 445 Communications Systems
Prerequisite: EE 320. The analysis and design of communications systems. Signal analysis, transmission of signals, power density spectra, amplitude, frequency and pulse modulation; pulse code modulation; digital signal transmission. Performance of communications systems and signal to noise ratio. 3 credits.

EE 446 Digital Electronic Circuits
Prerequisite: EE 247. Analysis and design of digital circuit classes (comparators and logical gates) by application of Ebers-Moll transistor model (saturation/active/cutoff regions). Comparators treated as overdriven differential/operational amplifiers, including bistable Schmitt trigger. Gates treated for major technologies: resistor-transistor logic (RTL), transistor-transistor logic (TTL), and emitter-coupled logic (ECL). Related integrated circuit analysis including internal variables and I-O characteristics. 3 credits.

EE 450 Analog Filter Design
Prerequisite: EE 202 or EE 235. Techniques in the analysis and design of analog filters. First order and second order. Design of Butterworth, Chebyshev, Bessel-Thomson, and Cauer lowpass. Lowpass to band-pass, bandstop and highpass filter transformations, design, and sensitivity analysis. 3 credits.

EE 452 Digital Filter Design
Prerequisite: EE 302. Techniques in the analysis and design of digital filters. Digital filters terminology and frequency response. FIR filter design. IIR digital filter design including Butterworth, Cauer, and Chebyshev lowpass, highpass, bandpass, and bandstop filters. The DFT and IDFT. FFT algorithms. 3 credits.

EE 455 Control System Design
Prerequisite: EE 355, working knowledge of Matlab and Simulink, or consent of the instructor. This course introduces the student to techniques for the design and implementation of automatic control systems. Practical applications of the methods studied in this course include a space shuttle, water tank, a space station, blood pressure control, airplane lateral dynamics, robot-controlled motorcycle, automobile velocity control, six-legged amber, hot ingot robot control, milling machine control, diesel electric locomotive, digital audiotape speed control, and fly-by-wire control. 3 credits.

EE 456 Hardware Description Language
Prerequisite: EE 356. General structure of VHSIC Hardware Description Language (VHDL) code; entities and architecture in VHDL; signals, variables, data types; concurrent signal assignment statements; if, case and loop statements; components; package; functions and procedures; slices; attributes; generate statement; blocks; projects on design of combinational and sequential circuits using VHDL. 3 credits.

EE 457 Design Preparation
Prerequisites: EE 349 and the consent of the instructor. This course provides the student time and guidance in selecting a topic for the senior design course (EE 458), which follows this one. Suitable design projects may be suggested by the student or the faculty or via industrial contacts. Each student carries out a literature search in an area of interest, prepares a written proposal with a plan of action, obtains approval by the faculty project adviser, and makes an oral presentation of the project proposal. 2 credits.

EE 458 Senior Design Laboratory
Prerequisite: EE 457. A continuation of EE 457, this course provides the student with experience at a professional level with engineering projects that involve analysis, design, construction of prototypes, and evaluation of results.

Design laboratory activities include the following: Communications/Signal Process Laboratory. (Prerequisites: EE 445 or EE 450 or EE 452, EE 457.)

Control Systems Laboratory. (Pre-requisites: EE 355, EE 457.)

Digital Design Laboratory. (Prerequisites: EE 356, EE 371, EE 457. Corequisite: EE 472 or EE 475.)

Fiber Optics/Microwave Laboratory. (Prerequisite: EE 462 or EE 480, EE 457.)

Machines/Power Systems Laboratory. (Prerequisites: EE 344, EE 437, EE 457.)

A final report is required both in writing and as an oral presentation. 3 credits.

EE 461 Electromagnetic Theory
Prerequisites: M 203, PH 205. Basic electromagnetic theory including static fields of electric charges and magnetic fields of steady electric currents. Fundamental field laws including Coulomb's Law, Gauss's Law, BiotSavart's Law, and Ampere's Law. Maxwell's equations, scalar and vector potentials, Laplace's equation, and boundary conditions. Magnetization, polarization. 3 credits.

EE 462 Electromagnetic Waves
Prerequisite: EE 461. Electromagnetic wave propagation and reflection in various structures, including coaxial, two-wire, and waveguide systems. Transmission lines. Various modes of propagation in rectangular waveguides. The dipole antenna. Linear antenna arrays. 3 credits.

EE 472 Computer Architecture
Prerequisite: EE 356. Introduction to theory of computing, processor design, control unit design, microprogramming, memory organization, and survey of parallel processors. 3 credits.

EE 475 Embedded Systems, Interfaces, and Buses
Prerequisite: EE 371. Microprocessors and peripheral devices. Hardware and software aspects of interfacing. Microprocessor-based system design. Introduction to advanced topics such as data communications, memory management, and multiprocessing. The course is structured around laboratory exercises. 3 credits.

EE 480 Fiber Optic Communications
Prerequisite: EE 461. The fundamentals of lightwave technology, optical fibers, LEDs and lasers, signal degradation in optical fibers. Photodetectors, power launching and coupling, connectors and splicing techniques. Transmission link analysis. This course includes selected laboratory experiments. 3 credits.

EE 500 Special Topics in Electrical Engineering
Prerequisite: instructor's consent. Special topics in the field of electrical engineering. 3 credits.

EE 599 Independent Study
Prerequisites: consent of faculty supervisor and approval of department chair. (Refer to academic regulations for independent study.) Independent study provides the opportunity to explore an area of special interest under faculty supervision. May be repeated. 3 credits.

ENVIRONMENTAL SCIENCE

EN 101 Introduction to Environmental Science
Today's environmental problems have scientific, social, and political aspects. This course, which is required for majors and is suitable for non-majors, focuses on the scientific aspects but does not ignore the other two. The student is introduced to the geology, biology, physics, and chemistry behind the problems and to the social and political difficulties inherent in dealing with them. Through a combination of lectures, case histories,

in-class discussions, and observation of the environmental decision-making process at work, the student gains an understanding of the complex nature of environmental problems and of the choices that must be made in solving them. May be taken concurrently with EN 102 Environmental Science Laboratory for laboratory science credit. Environmental Science majors and minors must take EN 102 concurrently. 3 credits.

EN 102 Environmental Science Laboratory
Corequisite: EN 101. A laboratory to accompany EN 101 Introduction to Environmental Science. Laboratory and field methods of identifying, characterizing, and dealing with environmental concepts and problems such as water quality, waste disposal, ecosystem structure and change, population growth, pesticides, and food production. Some field work required. Portions of some laboratory sessions are devoted to discussion. 1 credit.

EN 320 Introduction to Environmental Geology
Prerequisites: EN 101 and introductory chemistry or physics. An introduction to geology-related environmental problems and the applications of geology to environmental problem-solving. Topics include an introduction to basic physical geology, natural hazards (causes and remediation), energy and mineral resources, waste disposal, and the applications of geology to land use planning. 3 credits.

EN 500 Environmental Geoscience with Laboratory
Prerequisite: M 115 or consent of instructor. Study of geological systems important in understanding the causes of and solutions to environmental problems. Includes basic geological principles, examination of natural hazards, their causes and mitigation, and mineral, energy, and water resources. Laboratories include practical exercises, data collection, problem solving, and case histories. Some weekend field trips may be required. 4 credits.

EN 502 Environmental Effects of Pollutants
Prerequisites: BI 320, EN 500. The demonstrated and suspected effects of air, water, and other pollutants on natural systems and on human welfare. Methods of studying effects. Some weekend field trips, or acceptable alternative, required. 3 credits.

EN 521 Hydrology
Prerequisite: any one of the following: a college-level course in physics, geology, hydraulics, or limnology or consent of instructor. Lectures cover basic hydrologic theory including nature and chemical behavior of water, precipitation and evapotranspiration, interception, surface water, ground water, water supply and treatment, and water law. Other topics may include irrigation, flood control karst hydrology, and water chemistry. Required labs cover field measurement, sampling, and problem-solving techniques. Some weekend fieldwork required. Laboratory fee; 4 credits.

EN 525 Geomorphology
Prerequisite: EN 500/600 or a previous college-level course in physical geology or geography or consent of instructor. Study of landforms and the processes that produce them, including the operation of erosional and depositional processes in a variety of geologic settings (fluvial, coastal, glacial, periglacial, karst, and arid). Also covers relationship of landforms and processes to the solution of environmental problems. Lectures cover processes and laboratories focus on landform recognition and geomorphic process interpretation using maps and aerial photographs. Two required field trips (one 2-day and one 2 1/2-day) with shared transportation and costs. Laboratory fee; 4 credits.

EN 527 Soil Science
Prerequisite: EN 500/600 or a previous college-level course in physical geology/geography or consent of instructor. Properties, occurrence, and management of soil as a natural resource. Covers the chemistry, physics, morphology, and mineralogy of soils and their genesis and classification. Soil properties will be related to their role in environmental problem-solving and decision-making. 3 credits.

EN 533 Special Topics in Field Geology
Prerequisites: EN 500/600 or a previous college-level course in geology; other prerequisite(s) dependent on specific course topic. Selected field studies and trips of special interest. Credit varies depending on the length of the trip or investigation. May be taken more than once. 1–4 credits.

EN 540 Introduction to Geographical Information Systems
Survey of GIS technology, research, and applications in natural resource management, environmental assessment, urban planning, business, marketing and real estate, law enforcement, public administration, and emergency preparedness. Includes critical evaluation, case studies, and computer demonstrations. Laboratory fee; 3 credits.

EN 541 Geographical Information System Techniques and Applications I
Prerequisites: working knowledge of PC-based computing and consent of instructor/program coordinator. First of a two-course sequence on GIS technology and applications. Laboratory exercises using both raster- and vector-based GIS systems. Hardware and software components of GIS; data acquisition, input, and manipulation; cartographic output; report generation. Laboratory fee; 3 credits.

EN 542 Geographical Information System Techniques and Applications II
Prerequisite: EN 541 or consent of instructor. Second of a two-course sequence on GIS technology and applications. Laboratory exercises using both raster- and vector-based GIS systems. Advanced GIS techniques; spatial analysis and modeling for a variety of applications (e.g., environmental science, business, planning); development of GIS systems. Laboratory fee; 3 credits.

EN 543 Application of GIS in Environmental Science
Prerequisite: EN 642 or consent of instructor. Application of advanced GIS techniques to environmental assessment and management constructed around a real-world project from a government agency or nonprofit organization. Students collaborate to design and implement the complete GIS application, including definition of project goals, special project needs, and steps necessary for successful completion. Laboratory fee; 3 credits.

EN 590 Special Topics in Environmental Science
Prerequisites depend on the specific course content. Essentially, the course is a study of selected field studies, projects, and/or occasional trips of special interest. 1–4 credits.

EN 598 Internship
Prerequisite: consent of adviser. An opportunity for fieldwork experience under the supervision of a faculty adviser. 3 credits.

EN 599 Independent Study
Prerequisites: environmental science major, consent of the department. Weekly conferences with adviser. Three hours of work per week required per credit. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. A written report of the work carried out is required. 1–3 credits per semester up to 6 credits.

FRESHMAN EXPERIENCE

FE 001 Freshman Experience Seminar
This course is required during the first semester of study for first-time, full-time freshman day students. The goal of this team-taught seminar is to give students the tools to help them understand and succeed in a competitive environment by addressing topics such as academic standards, diversity, time and stress management, college life vs. high school, university relationships, responsible human sexuality, exploration of self, alcohol and substance abuse, and experiential learning. 1 credit.

FINANCE

FI 213 Business Finance
Prerequisites: A 101, EC 133, QA 216. An introduction to the principles of financial management and the impact of financial markets and institutions on that managerial function. An analytic emphasis is placed on the tools and techniques of the investment, financing, and dividend decision. In addition, the institutional aspects of financial markets, including a description of financial instruments, are developed. 3 credits.

FI 314 Principles of Real Estate
Prerequisite: FI 213. An introduction to the fundamentals of real estate practice and the essentials of real estate business. Emphasis is placed on brokerage, mortgage financing, investments, management, and valuation relative to

commercial and industrial real estate. 3 credits.

FI 327 Risk and Insurance
Prerequisite: FI 213. An examination and evaluation of risk in business affairs and the appropriate methods for handling it from the viewpoint of the business firm. Emphasis is placed on, and extended consideration devoted to, the various forms of insurance coverage. 3 credits.

FI 330 Investment Analysis and Management
Prerequisite: FI 213. An analysis of the determinants of valuation for common stocks, preferred stocks, bonds, convertible bonds and preferred stock, stock warrants, and puts and calls. Emphasis is placed on the analytic techniques of security analysis, portfolio analysis, and portfolio selection. 3 credits.

FI 341 Financial Decision Making
Prerequisite: FI 330. An examination of the conceptual foundations underlying portfolio theory, capital market theory, and firm financial decision-making. Emphasis is placed on an integrated analysis of firm financial decision-making under varying conditions of certainty and capital market perfections. 3 credits.

FI 345 Financial Institutions and Markets
Prerequisite: FI 213 (may be taken concurrently). An examination of the relationship between the financial system and the level, growth, and stability of economic activity. Emphasis is placed on the theory, structure, and regulation of financial markets and institutions, coupled with the role of capital market yields as the mechanism that allocates savings to economic investment. 3 credits.

FI 371 Structuring and Financing a New Business
Prerequisite: FI 213. This course covers the financing requirements for a new business start-up. Students learn the process of evaluating a venture and structuring the deal for raising money to finance the business. 3 credits.

FI 425 International Finance
Prerequisite: FI 213. An introduction to the theory and determination of foreign exchange rates, mechanisms of adjustment to balance-of-payments disturbance, fixed vs. flexible exchange rates. The international reserve supply mechanism and proposals for reform of the international monetary system. 3 credits.

FI 429 Corporate Financial Management
Prerequisite: FI 213. A comprehensive analysis of the structure of optimal decisions relative to the functional areas of corporate financial decision-making. Emphasis is placed on developing an understanding of the applications and limitations of decision models for the investment, financing, and dividend decisions of the corporation. Topics include firm valuation, capital budgeting, risk analysis, cost of capital, capital structure, and working capital management. 3 credits.

FI 450–459 Special Topics in Finance
Prerequisites: FI 213, junior-level standing unless otherwise specified in course schedule description, and consent of instructor or finance coordinator. In-depth coverage of a selected topic in finance. 3 credits.

FI 597 Practicum
Prerequisite: FI 213. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Done under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

FI 598 Internship
Prerequisite: FI 213. On-the-job learning in selected organizations in areas related to the student's major. 3 credits.

FI 599 Independent Study
Prerequisite: FI 213. The student undertakes independent research in finance under the supervision of an instructor. The topic and meetings are coordinated with the instructor. Research findings are presented in a formal paper. 3 credits.

FORENSIC SCIENCE

FOR 200 Professional Practices in Forensic Science
This course is a series of lectures exposing the student to an overview of the scientific disciplines and a discussion of the basic analytical laboratory and problem-solving skills necessary in forensic science. 1 credit.

FOR 204 Forensic Photography with Laboratory
Introduction to basic techniques, material, and other aspects of crime

scene photographs. Theory and practice of photographic image formation and recordings. Laboratory exercises with emphasis on homicide, sex offenses, arson, and accident photograph techniques. Laboratory fee; 3 credits.

FOR 215 Introduction to Forensic Science
No working knowledge of science is required. Topics include the recognition, identification, individualization, and evaluation of physical evidence such as hairs, fibers, chemicals, narcotics, blood, semen, glass, soil, fingerprints, documents, firearms, and tool marks. 3 credits.

FOR 216 Introduction to Forensic Science for Majors
A working knowledge of science is required. Topics include the recognition, identification, individualization, and evaluation of physical evidence such as hairs, fibers, chemicals, narcotics, blood, semen, glass, soil, fingerprints, documents, firearms, and tool marks. 3 credits.

FOR 227 Fingerprints with Laboratory
Prerequisite: FOR 215 or FOR 216. The genetic and mathematical theory relating to fingerprints, chemical and physical methods used in developing latent fingerprints, and major systems of fingerprint classification. Laboratory fee; 3 credits.

FOR 300 Forensic Microscopy
The theory and techniques of optical microscopy required to use the microscope for evidence detection, analysis, and evaluation. Microscopical methods of analysis and polarized light microscopy are covered in lecture and laboratory. Laboratory fee; 3 credits.

FOR 303 Forensic Science Laboratory for Non-Majors
Prerequisite: FOR 215. Specific examination of topics and laboratory testing procedures introduced in FOR 215. In the classroom, laboratory procedures are outlined and discussed. Identification and individualization of evidence, casting of hairs and fibers for microscopic identification, electrophoretic separation of blood enzymes. Laboratory fee; 3 credits.

FOR 403 Forensic Biology with Laboratory
Corequisite: BI 306 and consent of the forensic science faculty. In-depth examination of blood grouping procedures for red cells antigens, isoenzymes, and serum proteins; identification and typing of body fluids and their stains; collection, processing, and handling of biological materials in casework. Laboratory fee; 4 credits.

FOR 404 Criminalistics with Laboratory
Prerequisite: consent of the forensic science faculty. In-depth examination of several subjects in modern criminalistics, including hair and fiber analysis and comparison, arson accelerants and explosive residues, glass comparisons, and forensic chemistry. Laboratory fee; 4 credits.

FOR 415 Crime Scene Investigation
Prerequisite: FOR 215 or FOR 216. A study of the methods and techniques of scientific crime scene investigation, documentation and recognition of physical evidence, collection, and crime scene reconstruction. Laboratory fee; 3 credits.

FOR 416 Seminar in Forensic Science
Prerequisite: FOR 215 or FOR 216. An examination and evaluation of current issues in the scientific analysis of physical evidence in criminal investigations. Individual and group activities relating to professional practices of forensic science and the criminal justice system. 3 credits.

FOR 450–459 Special Topics
A study of selected issues of particular interest to the students and instructor. 3 credits.

FOR 498 Research Project
Prerequisite: consent of the department chair. The student carries out an original research project in a forensic science setting and reports the findings. 3 credits.

FOR 502 Forensic Science Internship
Prerequisite: junior/senior standing. Provides academically supervised, real-world experience for forensic science majors. The internship usually constitutes the only practical experience in an actual casework lab that students have during the forensic science program, and it provides a valuable asset to the student in the job market. 3 credits.

FOR 599 Independent Study
Prerequisite: consent of department chair. An opportunity for the student, under the direction of a faculty member, to explore and acquire competence in a special area of interest. 1–3 credits.

FRENCH

FR 101–102 Elementary French I and II
Stresses pronunciation, aural and reading comprehension, basic conversation, and the fundamental principles of grammar. 3 credits each term.

FR 201–202 Intermediate French I and II
Prerequisites: FR 101–102 or equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to do some reading in their own areas of interest. 3 credits each term.

FR 450–459 Special Topics
Selected topics of special or current interest in the study of French. 3 credits.

FIRE SCIENCE

FS 102 Principles of Fire Science Technology
Introduction to fire science. Review of the role, history, and philosophy of fire protection in the United States. Particular emphasis placed on identifying fire hazards and finding appropriate methods of protecting life and property from fire. Includes career orientation and discussion of current and future problems in fire protection. 3 credits.

FS 106 Emergency Scene Operations
The responsibilities and operating modes of officers commanding fire department units, including engine, ladder, and rescue companies. A basic study of the Incident Command System and its application. Initial evaluation of the problems confronting first responding units. Outline of particular problems encountered in various types of occupancies, buildings, and situations. Stress on safety of the operating forces as well as of the public. Standpipe and sprinkler system utilization. Overhauling operations. 3 credits.

FS 201 Essentials of Fire Chemistry and Physics with Laboratory
Prerequisite: CH 105/105 L or CH 115/117 as required by a specific major. This course explains the theories and fundamentals of how and why fires start, spread and how they are controlled. The course includes an examination of the chemical requirements for combustion, the chemistry of fuels and explosive mixtures, the various methods of stopping combustion and an analysis of the properties affecting fire behavior. 4 credits.

FS 203 Risk Management and Insurance for Fire Science
Provides a working knowledge of the property and casualty insurance industry with an emphasis on property and liability coverages. The basic fire insurance policy is studied in depth. Methods of rating buildings to promulgate a property insurance rate. Various methods of estimating the replacement cost and actual cash value of buildings are practiced. The concept of HPR (Highly Protected Risk) is studied. 3 credits.

FS 204 Fire Investigation I
An analysis of fire investigations from the viewpoint of the field investigator. An in-depth study of determining the cause and origin of fires. Proper protection and collection of evidence is covered. 3 credits.

FS 205 Fire Protection Hydraulics and Water Supply
Prerequisites: FS 102; M127 or M109. This course provides a foundation of theoretical knowledge in order to understand the principles for the use of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems. 3 credits.

FS 207 Fire Prevention
This course provides the fundamental information regarding the history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protection systems, fire investigation, and fire and life-safety education. 3 credits.

FS 208 Instructor Methodology
A study of the methods and techniques of teaching fire safety and security to public safety and industrial employees. The use and development of visual aids. Actual teaching demonstrations and practice. 3 credits.

FS 209 Occupational Safety and Health for the Fire Service
This course introduces the basic concepts of occupational health and safety as it relates to emergency

service organizations. Topics include risk identification, evaluation and control procedures for emergency organizations and accident investigation procedures. Upon completion of this course, students should be able to establish and manage a safety program in an emergency service organization. 3 credits.

FS 301 Building Construction for Fire Protection
Prerequisite: FS 102. An in-depth study of building construction with a particular emphasis on how each type of construction reacts to conditions present during a fire. Emergency responder safety is a key issue. Potential signs of collapse are studied in depth. The codes involved in building construction and fire/life safety. 3 credits.

FS 302 Chemistry of Hazardous Materials
Prerequisite: FS 201. An in-depth study of the chemical and physical properties of a wide variety of hazardous materials to enable the student to establish safety measures in a hazardous chemical environment. Basic properties of hazardous materials and appropriate handling methods. Explanation of chemical reactions, toxicity, oxidation, characteristics of explosives, plastics, resins, and fibers. 3 credits.

FS 303 Process and Transportation Hazards
Prerequisite: FS 201. A strong overview of the types and properties of hazardous materials as well as their modes and methods of transportation, storage, and use. Types and hazards of various containers. In-depth study of identification and control of emergencies involving hazardous materials. The various marking systems used to aid in identification. 3 credits.

FS 304 Fire Protection Systems
Prerequisite: FS 102. This course provides theoretical information and practical application in the features of design and operation of fire alarm systems, water-based fire suppression systems, and portable fire extinguishers. 3 credits.

FS 307 Municipal Fire Administration
Prerequisites: FS 102, FS 201, FS 207. Delineates the fire safety problem; explores accepted administrative methods for getting work done; covers financial considerations, personnel management, fire insurance rates, water supply, buildings and equipment, distribution of forces, communications, legal considerations, fire prevention, fire investigation, emergency medical services, and records and reports. Designed for individuals involved in providing fire protection and EMS services in the public or private sector as well as those in safety or insurance. 3 credits.

FS 308 Industrial Fire Protection I
Prerequisite: FS 102 or consent of instructor. Examines fire hazards and potential fire causes in business and industry. Provides an exploration of management and organizational principles with emphasis on industrial fire protection equipment, fire brigades, loss control programs, life safety, and OSHA regulations dealing with industry. 3 credits.

FS 309 Industrial Fire Protection II
Prerequisite: FS 102 or consent of instructor. Examination of industrial risk used in industry and process safety management. Fire hazard evaluation techniques are discussed utilizing quantitative and qualitative evaluation methods. Risk assessments are incorporated using event likelihood, system reliability, and human error. These are used to make cost-effective decisions regarding personnel safety, continuity of operations, and property protection in industrial occupancies. 3 credits.

FS 311 Fire Protection Fluids and Systems
Prerequisites: FS 102, M 109, M 127. Corequisite: FS 312. Application of the principles of hydraulics to the design phase of automatic fire suppression systems. Application of the current codes and standards with respect to the selection, design, and installation of such systems. The fundamentals of hydraulically calculated automatic fire suppression systems are the focus of the course. 3 credits.

FS 312 Fire Protection Fluids and Systems Laboratory
Corequisite: FS 311. This course supplements FS 311 Fire Protection Fluids and Systems by providing a more in-depth study of the hydraulic principles used in designing water-based fire suppression systems. The process of designing and reviewing hydraulic-designed automatic sprinkler systems, including the use of computer programs for these purposes. Hands-on testing of fire protection water supplies. 1 credit.

FS 313 Fire Investigation II
Prerequisite: FS 204. An advanced course geared toward personnel who have or may have statutory responsibility for fire investigation in the public sector and for private sector persons who conduct or may conduct investigations for insurance companies or litigation purposes. Proper techniques for investigation of fires and explosions are studied in depth along with the appropriate standards. 3 credits.

FS 314 Fire Investigation II Laboratory
Corequisite: FS 313. Experiments and practical experience in fire investigation with an emphasis on proper investigative techniques. 1 credit.

FS 325 Fire and Life Safety Codes
The study of current fire and life safety codes as they relate to the prevention and control of structural fires. 3 credits.

FS 404 Special Hazards Control
Prerequisite: FS 102. Types of industrial processes requiring special fire protection treatment such as heating equipment, flammable liquids, gases, and dusts. Emphasis on fundamental theories involved, inspection methods, determination of relative hazard, application of codes and standards, and economics of installed protection systems. 3 credits.

FS 405 Emergency Incident Management
Prerequisite: FS 106. A study of the effective organization and management of emergency resources at various fire and large-scale emergency incidents. Includes a review of national standards and federal regulations impacting emergency incident management. Case studies of actual and theoretical incidents are used to reinforce command and control concepts. 3 credits.

FS 408 Fire Protection Law
This course introduces the federal, state and local laws that regulate fire services; national standards influencing fire services; standard of care; tort and liability. Includes a review of relevant court cases. 3 credits.

FS 409 Arson for Profit
Prerequisite: FS 313/314. An overview of the financial techniques needed to investigate arson-for-profit fires with emphasis on sources of information, identification, and analysis of financial documents. 3 credits.

FS 425 Fire Protection Plan Review
Prerequisites: FS 301, FS 304/305, FS 311/312. The technical and hands-on practical experience necessary to complete a review of plans, specifications, and shop drawings for fire/life safety systems. Systems and topics include construction; fire resistance rated assemblies; means of egress; occupancy classification; emergency systems; fire detection, alarm, and communication systems; automatic and manual extinguishing systems; and HVAC systems. 3 credits.

FS 450 Fire Protection Heat Transfer
Prerequisite: ME 301. The essentials of fire spread and fire behavior: the combustion process, heat transfer, limits of flammability, flames and fire plumes, burning of fuels, flaming combustion, spread of flame, flash-over, and production and movement of smoke. 3 credits.

FS 460 Fire Hazards Analysis
Prerequisites: FS 301, FS 304/305, FS 311/312. The application of systems analysis, probability, engineering economy, and risk management techniques to the fire problem. The basic principles of fire growth and spread in a building. Time lines are established from the time of ignition to that of extinguishment. Various methods of modifying the time line. 3 credits.

FS 497 Research Project
Designed to allow fire science majors to research a topic of special interest to the individual student. Development of a student project and a written report in a specific area of fire science, with faculty supervision. 3 credits.

FS 498 Research Project I
Designed to allow fire science majors to research a topic of special interest to the individual student. Development of a student project and a written report in a specific area of fire science, with faculty supervision. 1 credit.

FS 499 Research Project II
Designed to allow fire science majors to research a topic of special interest to the individual student. Development of a student project and a written report in a specific area of fire science, with faculty supervision. 2 credits.

FS 500 Special Topics
Selected topics in fire science on a

variety of current problems and specialized areas not available in the regular curriculum. 3 credits.

FS 501 Internship
Prerequisite: consent of the director of the fire science program. The purpose of the fire science internship is to provide the student with real-life work experience. The student is placed with an agency (the sponsor), which agrees to provide a meaningful work experience for the intern. The intern is required to spend a minimum of 128 hours with the sponsor and prepare a paper outlining the experience. 3 credits.

FS 502 Emergency Medical Technician
This course prepares the basic emergency medical technician in accordance with the U.S. Dept. of Transportation curriculum and Connecticut EMS guidelines. The course provides a survey of emergency medical services including medical and legal/ethical aspects, role of the EMT, CPR at the American Heart Association Basic Rescuer Level, patient assessment, care of wounds and fractures, airway maintenance, medical and environmental emergencies, patient transportation, emergency childbirth, and basic extrication. Students can expect to spend some time in practical experiences. Laboratory fee; 6 credits.

FS 510 Senior Seminar
This course integrates current and developing knowledge of the behavior of fire with the problems presented by today's building construction, building materials, and building codes. This course uses a seminar format with full student participation. 3 credits.

FS 599 Independent Study
Prerequisite: consent of the chair of the fire science program. This self-study opportunity allows the fire science major to complete a fire science course that is not being offered or that the student is otherwise unable to complete in the traditional manner. The student must have sufficient background in the subject to complete the material in a satisfactory manner. 3 credits.

GLOBAL STUDIES

GLS 100 Introduction to Global Studies
As the foundation course of the global studies program, this course provides a comprehensive survey of the multiple factors and forces shaping the world's political culture, actors, and responses to threats to civilization: war, poverty, injustice, pollution, hunger, disease, and disorder. The course explores values, institutions, and processes among cultures, governments, interests, and policy outcomes. 3 credits.

GLS 450–459 Special Topics in Global Studies
Selected topics of special or current interest in global studies. 3 credits.

GLS 490 Global Studies Internship
This course provides a capstone experience for majors in the global studies B.A. program. Interns are placed in non-governmental organizations with a global focus, federal or state agencies, and multinational corporations. At least 150 hours of substantive involvement with the internship site are required. 3 credits.

GERMAN

GR 101–102 Elementary German I and II
Stresses pronunciation, aural and reading comprehension, basic conversation, and the fundamental principles of grammar. 3 credits each term.

GR 201–202 Intermediate German I and II
Prerequisites: GR 101–102 or the equivalent. Stresses reading comprehension of modern prose texts and a review of grammar necessary for these readings. Students are encouraged to read in their own areas of interest. 3 credits each term.

GR 450–459 Special Topics
Selected topics of special or current interest in the study of German. 3 credits.

HISTORY

HS 101 Foundations of the Western World
Traces the course of western civilization from its earliest beginnings in the ancient Middle East to the eighteenth century. Includes major cultural trends, interactions between society and economy, and analysis of the rise and fall of empires. 3 credits.

HS 102 The Western World in Modern Times
Europe and its global impact from the eighteenth century to the pres-

ent. Includes revolutionary movements, the evolution of mass democracy, and the world wars of the twentieth century. 3 credits.

HS 108 History of Science
The development of science and technology from antiquity to the present, and their impact on society and the world. 3 credits.

HS 110 American History Since 1607
A one-semester survey covering major topics such as colonial legacies, the American Revolution, nation-state building, sectional tensions, urbanization, industrialization, the rise to world power standing, social and cultural developments, and the post-World War II era. Not open to those who have had HS 211 or HS 212. 3 credits.

HS 120 History of Blacks in the United States
The history and background of black people in the United States: social, political, and cultural development. 3 credits.

HS 200 History Methods
This seminar acquaints students with the basic procedures, materials and research tools used by historians. The course also reviews a variety of approaches used to interpret history. Topics include the history of the discipline, how to identify and interpret primary and secondary sources, how to identify the thesis and methodology of secondary sources, how to develop a thesis and compose a research project, how to conduct historical research, and how to outline and draft an original historical research paper. 3 credits.

HS 207 World History Since 1945
Survey of major events and trends since World War II. Advanced industrial societies are emphasized. Includes decolonization, East-West conflicts, and patterns of economic cooperation and competition. 3 credits.

HS 211 United States to 1865
Survey of American social, economic, political, and diplomatic developments from colonial times to 1865. Not open to those who have had HS 110. 3 credits.

HS 212 United States Since 1865
Survey of American history from 1865 to the present: institutional and industrial expansion, periods of reform and adjustment, the U.S. as a world power. Not open to those who have had HS 110. 3 credits.

HS 260 Modern Asia
The ideological, cultural, and traditional political, economic, and diplomatic history of east, south, and southeast Asia from the sixteenth century to the present. 3 credits.

HS 262 Modern Chinese History
A study of China from 1800, including the impact of the West and Japan; transformation from monarchy to civil war to the People's Republic of China to the present time; the Republic of China on Taiwan; the incorporation of Hong Kong into the PRC. 3 credits.

HS 264 Modern Japanese History
An analysis of the diverse political, economic, social, military, and cultural factors that influenced the emergence of Japan as a modern nation in the nineteenth and twentieth centuries; its post-World War II growth into an economic giant; and its current evolution. 3 credits.

HS 270 Europe from Renaissance Through Enlightenment
Europe from 1300 to 1800; from feudal states to nation states. Development of cultural, political, social, and economic life; religious unity and religious diversity. 3 credits.

HS 306 Modern Technology and Western Culture
The development of the modern technological world and its relationship to social, economic, and cultural changes from the Industrial Revolution to the present. 3 credits.

HS 312 United States in the Twentieth Century
The interaction of political, economic, social, and intellectual events and their impact on twentieth century America. 3 credits.

HS 345 Europe in the Nineteenth Century
European history from the Napoleonic period to World War I; its internal development and world impact. 3 credits.

HS 350 Latin American History
Analyzes the history of colonial Latin America from ancient America and pre-contact fifteenth-century Europe to the nineteenth century independence revolutions and the modern struggles with political instability and economic dependence. The focus is on how the mixture of European and New World inputs gave rise to unique Latin American cultures. 3 credits.

HS 351 Russia and the Soviet Union
The development of czarist Russia from 1200 to the Revolution of 1917; the former USSR from 1917 to the present. 3 credits.

HS 353 Modern Britain
The development of British history from the Restoration of 1660 to the present. Includes Britain's role in international affairs. Special emphasis on social and economic topics. 3 credits.

HS 355 Modern Germany
German civilization from the seventeenth century to the present; its impact on Europe and the world. 3 credits.

HS 381–389 Selected Studies in History
Special topics in history dealing with the modern world. An in-depth study of vital historical issues. 3 credits.

HS 446 Europe in the Twentieth Century
Recent and contemporary European history beginning with World War I. Institutional development and its changing role in politics. 3 credits.

HS 491 Senior Seminar
The undertaking of an independent study and research project. Required of history majors in their senior year. 3 credits.

HS 599 Independent Study
Prerequisites: consent of faculty member and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1–3 credits per semester up to 6 credits.

HOTEL AND TOURISM MANAGEMENT

HTM 165 Introduction to Hospitality and Tourism
Major elements of tourism are examined, including customer travel patterns, transportation systems, major tourism suppliers, and distribution systems. The role of the hospitality industry is explored in relationship to domestic and foreign tourism. 3 credits.

HTM 166 Touristic Geography I — The Western Hemisphere
A study of travel patterns and destinations in the Western Hemisphere. Included are the major highlights of North America, Central America, the Caribbean, South America, and the Antarctic. 3 credits.

HTM 167 Touristic Geography II — The Eastern Hemisphere
In this second course in touristic geography, the emphasis is on major destinations in the Eastern Hemisphere — the Middle East, South and East Asia, South Pacific, Pacific Islands, and Africa. The study gives the student a well-grounded knowledge of these areas. 3 credits.

HTM 202 Hospitality Purchasing
Introduction to the purchasing, receiving, and issuing of foods and food items. The identification of guides, preparation of specifications, and cost control procedures are stressed. 3 credits.

HTM 210 Applied Techniques in the Culinary Arts
This course teaches the basic classical cooking techniques, including the basic principles of baking, utilizing a hands-on format. The student applies the theories and principles acquired in the prerequisite course in the context of a professional kitchen environment. The class emphasizes concepts of efficiency, organization, cleanliness, and time management. 3 credits.

HTM 220 Pastry Making Techniques
This hands-on course presents the basic principles of pastry making in the context of a professional environment. From basic custards to complex doughs and batters, students learn techniques as they create assorted desserts and plated pastries. Cake decoration is part of the focus of the course. 3 credits.

HTM 225 Restaurant Management
Prerequisite: HTM 165. A survey of restaurant operations and the successful management of food service operations. Topics include the manager's role in restaurant operations, the role of managerial leadership, staff selection and development, effective approaches to successful client relations, and approaches to maintaining a quality balance between food, service, and facilities. 3 credits.

HTM 226 Front Office Procedures
Students acquire an understanding of the principles regarding procedures and intradepartmental interactions — which include sales and marketing, housekeeping, mainte-

nance (engineering), accounting, and the food and beverage segments — while maintaining high standards of guest service. Examination of how various hospitality computer hardware and software applications assist with the above responsibilities. 3 credits.

HTM 227 Service Management
Introduction to various management aspects of guest services, lodging, and assisted-care operations as applied to the hospitality industry. Staffing, budget preparation, materials planning, directing and controlling ongoing operations are significant sections of this course. 3 credits.

HTM 235 Dining Room Management
This course provides the knowledge to fully understand dining room management as essential to the success of commercial food operations. Students will practice various service techniques that include American, French, and Russian service standards. They also have the opportunity to demonstrate dining room organization, hospitality human resource and marketing techniques, and dining thematic decoration skills. 3 credits.

HTM 250 Lodging Operations
Analysis and evaluation of lodging operations including assisted-care facilities, to include rooms, divisions, food and beverages, sales and marketing, engineering/maintenance, human resources, accounting, and other major functional areas. 3 credits.

HTM 260 Club, Resort, and Casino/Gaming Operations Management
Typical organizational structures, management techniques, and special aspects of operations for private clubs, resorts, and casino/gaming. 3 credits.

HTM 280 Legal Aspects of Hospitality, Tourism, and Private Clubs
An overview of specific issues and liabilities that the professional manager faces. Classic and current case studies and issues are presented including laws that affect personal and financial advancement. 3 credits.

HTM 300 Principles of Baking
Prerequisite: HTM 210. The basic principles of baking presented within the context of a professional and profit-generating commercial kitchen environment. Students demonstrate these principles through hands-on assignments in a professional kitchen lab. 3 credits.

HTM 304 Volume Food Production and Service
This course teaches the basic principles of volume food production and service, which are so critical to the commercial food industry. Students prepare meals that are consumed and analyzed by the public, and apply the theories and principles acquired in the prerequisite course in the context of a professional kitchen environment. The class emphasizes concepts of efficiency, organization, cleanliness, and time management. 3 credits.

HTM 305 Wine Appreciation
Considers the major wines and wine regions of the world, with emphasis on American, French, and German wines. Wine tasting is an integral part of the course. Students must be 21 years of age. 3 credits.

HTM 307 Cultural Understanding of Food and Cuisine
The importance of food and cuisine within the context of society. This course explores the impact of food on the evolution of mankind and addresses issues relating to the importance of food in the political and economic structure of the world. Questions regarding food supplies and sources as well as ethical questions facing mankind in the near future are examined. Also explored are the influences and perceptions of food in different cultures and how those perceptions affect intercultural understanding. 3 credits.

HTM 315 Beverage Management
The beverage area is perceived as a profit center for hotels and restaurants. Themes, decor, and ambiance that enhance the hospitality experience are explored. All management functions are examined; planning, staffing, accounting, marketing, and menu development are emphasized. Other pertinent topics are discussed, including liability and licensing issues. 3 credits.

HTM 316 Hospitality Finance and Revenue Management
Prerequisites: senior standing and consent of department chair. This course takes the experienced hospitality student through the certification process for designation as a

Certified Hospitality Account Executive (CHAE), and includes the certification exam as a portion of the course and final grading process. Additionally, Hospitality Financial and Technology Professionals (HFTP) membership is included. Topics include investment trends and analysis, lease and purchase considerations, working capital finance, audit and financial management, and the CHAE exam preparation. Students are responsible for the cost and fees required for the CHAE examination and HFTP membership. 3 credits.

HTM 325 Destination Marketing and Sales
An in-depth study of marketing theory and techniques crucial to success in hospitality and tourism businesses and an examination of the sales process, the destination life cycle, DMOs, and market segmentation strategies. Students develop a strategic tourism plan for a hospitality and tourism organization that has a focus on sales. 3 credits.

HTM 335 Convention and Meeting Planning
As corporate meetings and conventions continue to increase in the worldwide tourism market, one of the newer and more important career paths is that of the professional meeting planner. Included in the sphere of responsibility are meeting/organization agenda, site selection, meal planning, transportation, schedule of events, break-out sessions, leisure activities, finances, and evaluation. 3 credits.

HTM 340 Tourism Planning and Policy
A comprehensive review of the tourism planning and policy process used to develop or modify major tourism destinations. Aspects of the process include goals and objectives; the use of environmental, economic, marketing, topographical, and political studies; and procedures for monitoring and control to assure proper planning and policy implementation. Focus on considering both tourism benefits and costs in assessing net impacts. 3 credits.

HTM 345 Catering and Events Management
A review of concepts germane to catering and event management within the context of the hospitality industry. Topics include themed events, outside services, audio-visual and other special effects, on-and off-premise catering and function sales, staffing, computer applications in banquet management, and general event planning. 3 credits.

HTM 360 Corporate Travel Planning
As airlines and hotels funnel most of their energy, services, and amenities toward the corporate traveler, bidding for a corporate account (RFP) and servicing it successfully are exacting arts. Every aspect of the industry is covered, including automation, cost-cutting strategies, and professionalism. 3 credits.

HTM 370 Gaming and Casino Management
This course provides an introduction to the casino industry and examines its phenomenal growth and relationship to tourism and community development. Focus is on the concepts and definitions essential for understanding the industry and on links of its history to current gaming practices. Particular attention is paid to noted casinos in Monte Carlo, Las Vegas, and Atlantic City as well as Connecticut's Foxwoods and Mohegan Sun. 3 credits.

HTM 380 Resort Operations
A comprehensive review of resort operations. Content covered includes the history and development of resorts, guest services, and resort recreation functions. Students are expected to create innovative resort facilities and programs. Field trips to local resort properties may be required. 3 credits.

HTM 410 International Tourism
Institutions that run the international tourism industry are reviewed. The relationship between these institutions and various nations is discussed. Participants become familiar with the policy implications of operating in a multinational political, social, and economic environment. 3 credits.

HTM 430 Special-Interest Tourism
Investigates the extraordinary and ever-increasing field of special-interest tourism. Provides an overview of the niche that each aspect of special-interest tourism contributes to the development of the tourism industry. Adventurous travel from dog sledding in Greenland to dugout canoes in the tropics, from ballooning in the French chateaux country and Masai Mara to heli-hiking and sightseeing in the Rockies. Included also is travel for the disabled and the adventurer. 3 credits.

HTM 440 International Food, Buffet and Catering
Prerequisites: HTM 210, HTM 345. Students gain hands-on knowledge of planning, organizing, preparing, and serving international food in the context of buffet-catering service. Several public events featuring an international theme and food served in a buffet setting are planned, created, and prepared by student management teams under the supervision of a chef instructor. Gastronomy concepts are studied as they relate to the international culture. 3 credits.

HTM 445 Advanced Cuisine Management and Technique
This is the capstone course in food production and service. Students are provided an opportunity to practice advanced culinary techniques within various international and domestic cuisine themes. Students are divided into management teams and develop a meal manual that includes team mission statements, pre- and post-meal cost analysis, personnel deployment, interaction with the dining room management teams, standardized recipe creations, and performance appraisal criteria. Student-managers prepare a dining experience that is offered to paying clientele. 3 credits.

HTM 450–459 Special Topics
Includes studies of a variety of current topics and specialized areas in the field that are not available as part of the regular curriculum. 3 credits.

HTM 470 Tour Design, Marketing, and Management
This course studies the design, operation, and management of the escorted tour. Instruction covers the entire process for the tour operator from initial contact to finished product. During the semester, each student plans a tour from beginning to end, designs and writes the brochure, prices the arrangements, and shows how to successfully operate the finished product. 3 credits.

HTM 597 Practicum
Prerequisite: junior standing. A course of study for the supervised practical application of previously studied theory in a group setting. Completed under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

HTM 598 Internship
Prerequisites: completion of 600 hours of practicum and consent of instructor. Interns are required to complete 400 hours of internship experience in conjunction with the designated internship coordinator. The internship experience emphasizes supervisory responsibilities whenever possible. This experience is formulated by the faculty, the designated coordinator, the student, and an industry professional, — a cooperative effort that helps to ensure the student's success. The internship is augmented by written and oral reports, industry performance evaluations, and faculty oversight. 3 credits.

HTM 599 Independent Study
Prerequisite: consent of department chair. Independent research projects or other approved phases of independent study. 3 credits.

HUMANITIES

HU 300 The Nature of Science
Prerequisites: E 110, HS 102, a laboratory science course, and a social science course. Investigates science as a human activity, as a social institution, and as an instrument for acquiring and using knowledge. The nature of scientific knowledge, the organization of scientific activity, and the interaction of science with technology and culture. A course about science and the process of generating new knowledge. 3 credits.

HU 450–459 Special Topics
Special topics of selected or current interest in the study of humanities. 3 credits.

INTERNATIONAL BUSINESS

IB 421 Operation of the Multinational Corporation
Prerequisites: EC 200, FI 213, MG 210. Specific problems encountered by multinational firms. Topics include investment decisions, environmental scanning, planning and control, and the social responsibilities of firms in host nations. 3 credits.

IB 422 International Business Negotiations
Prerequisites: EC 200, MG 210. An analysis of the various stages involved in the international business negotiating process, beginning with planning and ending with post-contract adjustments. A survey and evaluation of the various primary and secondary sources that

negotiators can tap for information in the negotiating process. 3 credits.

IB 450–459 Special Topics
Prerequisites: EC 200, junior standing unless otherwise specified in course schedule description. Selected topics of special or current interest in the study of international business. 3 credits.

IB 549 Global Business Strategy
Prerequisite: MK 413. This is a capstone course in international business. Through case analysis, it covers identification and relation of the elements involved in the dynamics of a company and its international environment. 3 credits.

IB 598 Internship
Prerequisite: EC 200. Supervised field experience for qualified students in areas related to their major. 3 credits.

IB 599 Independent Study
Prerequisite: EC 200. A planned program of individual study under the supervision of a member of the faculty. 3 credits.

INTERIOR DESIGN

ID 100 Portfolio Design
Prerequisite: AT 211 or consent of the instructor. This is a foundation course in the branding design of a professional portfolio and related documents for internships, job interviews, and career development. Branding, logo design, business cards, letterhead, and related stationery will be designed, critiqued, and implemented for use in art and design projects throughout the program. 1 credit. Laboratory fee; 3 credits.

ID 109 Architectural Drawing I
An introduction to drafting with an emphasis on the use of mechanical drawing tools to accomplish beginning architectural drawings. Skills are developed in lettering, dimensioning, drawing, titling, symbols, symbol cross-referencing, line weights, drawing formatting, developing notes and specifications, concept sketching, and reading blueprints and construction documents. The principles of orthographic and paraline drawing are explored and drawings are produced. Laboratory fee; 3 credits.

ID 110 Architectural Drawing II
Prerequisite: ID 109. A continuation of ID 109 with a focus on one-point perspective for interior and exterior spaces, furniture and related objects utilizing a variety of scales and the three-dimensional One-Point Perspective Grid system of drawing. Drawings include sketch concepts, orthographic evaluations and representations with multiple one-point perspective views, and sectional perspectives. Laboratory fee; 3 credits.

ID 200 Portfolio Production I
Prerequisite: ID 100. This is a studio course in the application of portfolio design branding elements to the production of portfolio pages from art and design projects. Professional standards and a clear brand identity are applied to the portfolio for career development and advancement. Laboratory fee; 1 credit.

ID 211 Interior Design I
Prerequisites: ID 110, AT 212, and AT 213. In this introductory studio course students explore the elements and principles of design as they relate to interior environments. The relationship between the built environment and human factors is discussed as it relates to circulation and furniture layouts. In addition, the history and criteria that establish interior design as a profession are explored in detail. Laboratory fee; 3 credits.

ID 212 Interior Design II
Prerequisite: ID 211. A continuation of ID 211 with a focus on programming and design using two-dimensional methods of problem-solving and presentation. Residential and commercial spaces are explored using study models and finished models, sample boards, and rendered perspectives for presentations. Laboratory fee; 3 credits.

ID 213 Architectural Drawing III
Prerequisite: ID 110. An advanced course in two-point and multi-point perspective drawing of interior and exterior spaces, furniture, and related objects utilizing a variety of scales. Drawings include sketched concepts, orthographic evaluations, and representations with multiple perspective point views for each project. Laboratory fee; 3 credits.

ID 214 Lighting Design and Specifications
Prerequisite: ID 211 or consent of instructor. This course surveys the use of lighting, both natural and artificial, as a design element in planning residential and commercial interiors. The impact of percep-

tion, psychology, brightness, color, and daylight are discussed. Interior lighting products including incandescent and discharge lamps are studied in detail along with auxiliary equipment, light controls, photometrics, electricity, and luminaries. Laboratory fee; 3 credits.

ID 215 Construction Documents I
Prerequisite: ID 110. This course introduces students to the preparation, development, and production of a complete set of construction documents for residential and commercial interior spaces, including project evaluation and an in-depth understanding of document requirements, method applications, blueprint reading, specification writing, drawing nomenclature, and millwork requirements. An emphasis is placed on the development of accurate descriptive drawing notes, specifications, dimensionings, and symbols within the construction documents. Building codes and ADA issues are explored as applicable to individual projects. Laboratory fee; 3 credits.

ID 216 Construction Documents II
Prerequisite: ID 215. A continuation of ID 215 with an emphasis on site measurement and documentation of existing conditions and mechanical systems, preparation of as-built drawings, oral presentation of schematic design schemes, specifications and notes, millwork drawings, details and sections, and proficiency, speed, and accuracy in preparing construction documents. Laboratory fee; 3 credits.

ID 217 Sketching and Rendering for Interiors
Prerequisite: ID 110 or consent of instructor. This course advances the student's basic drawing and illustrative skills through the exploration of quick sketching and rendering techniques for architectural and interior spaces. A variety of media are studied, including markers, pastels, color pencils, watercolor, pencil, and pen. Focus is on the application of the media to create visual expression of the exterior and interior elements. Laboratory fee; 3 credits.

ID 218 Interior Systems, Materials, and Codes
Prerequisite: ID 211, ID 215, or consent of instructor. This course explores the design and construction requirements for interior building elements and environmental systems. Issues related to interior finishes, sustainability resources, and green design are explored. Building codes, fire codes, and ADA compliance relative to the built interior environment are studied through the use of construction documents and study models. Laboratory fee; 3 credits.

ID 300 Portfolio Production II
Prerequisite: ID 200. This is a continuation of Portfolio Production I. Students at this level continue to design and complete portfolio pages for their senior portfolio. Laboratory fee; 1 credit.

ID 311 Interior Design III
Prerequisites: ID 212, ID 216. This course explores the specialized field of kitchen and bath design for residential and commercial interiors. All aspects of programming, design, specification, preparation, development, and production of design and construction documents for residential and commercial kitchens and baths are developed in detail. An emphasis is placed on kitchen and bath design and the development of accurate descriptive drawings, notes, specifications, dimensioning, and symbols within the construction documents. Building codes and ADA issues are explored as applicable to individual projects. Laboratory fee; 3 credits.

ID 312 Interior Design IV
Prerequisite: ID 311, ID 313, or consent of instructor. Advanced course in commercial interior design incorporating professional scope of services including programming, conceptual design, design development, contract documents, contract administration, and evaluation. Focus of the course is on corporate office design, open office systems, and interior product specifications. Laboratory fee; 3 credits.

ID 313 CAD for Interiors I
Prerequisite: ID 212, ID 216 or consent of instructor. This course introduces students to the use of AutoCAD as a drafting tool for floor plans, demolition and new construction plans, reflected ceiling plans, electrical plans, wall elevations, finish schedules and text/notes. The use of AutoCAD as a sketching tool for concept development is explored. Laboratory fee; 3 credits.

ID 314 CAD for Interiors II
Prerequisite: ID 313 or consent of instructor. This course is a continuation of ID 313 with a focus on

the use of AutoCAD for the design and development of retail and restaurant spaces. Students use AutoCAD to develop custom design furniture and cabinetry as well as three-dimensional images of interior spaces in a variety of paraline views. Laboratory fee; 3 credits.

ID 315 History of Architecture and Interiors I
This course is an overview of the history of design in architecture, interiors, and furniture from the ancient era through the end of the eighteenth century. Lectures, readings, and research focus on the development of major forms, period styles, ornament, and the decorative arts from ancient Egypt, Greece, and Rome through the Renaissance, Baroque, Rococo, and Neoclassical eras. 3 credits.

ID 316 History of Architecture and Interiors II
This course is a continuation of ID 315. The course explores the history of design in architecture, interiors, and furniture from the nineteenth century to the present. Styles examined include nineteenth-century revival styles, Arts and Crafts, Art Deco European, American Modernism, and the influence of the Bauhaus. 3 credits.

ID 318 Furniture Design and Specifications
Prerequisites: ID 213, ID 216, ID 311, and ID 317, or consent of instructor. This is an advanced course in furniture design and construction drawings concentrating on upholstery, furniture, and manufacturing processes for residential and commercial furniture markets. Issues of marketing, qualifying designs with manufacturers, contracts, and negotiations are addressed. Laboratory fee; 3 credits.

ID 317 Interior Products and Specifications
Prerequisite: ID 212 or consent of instructor. Examination of interior textiles and products including fibers, upholstery and window fabrics, and wall finishes. Manufacturing, measurement, and installation methods are explored. Laboratory fee; 3 credits.

ID 450–459 Special Topics
Selected topics of special or current interest in interior design. 3 credits.

ID 400 Senior Portfolio
Prerequisite: ID 300. This advanced course completes the production of the senior portfolio and incorporates career preparation activities. Job-search documents such as resumes, cover letters, and thank-you letters are prepared incorporating the student's brand identity. Interviews and job contracts are explored, and the course culminates in a senior portfolio presentation and interview. Laboratory fee; 1 credit.

ID 411 Interior Design V
Prerequisite: ID 312, ID 314, or consent of instructor. Advanced senior-level course in institutional interior design incorporating professional scope of services including programming, conceptual design, design development, contract documents, contract administration, and evaluation. Special attention is focused on individual user needs with respect to health, safety, and welfare issues within the interior environment. Laboratory fee; 3 credits.

ID 412 Interior Design VI
Prerequisite: ID 411 or consent of instructor. Advanced senior-level course in historic preservation, sustainable design, and green design incorporating professional scope of services including programming, conceptual design, design development, contract documents, contract administration, and evaluation. Special attention is focused on environmental issues and innovative design solutions. Laboratory fee; 3 credits.

ID 413 Professional Practices for Interior Designers
Prerequisite: ID 312 or consent of instructor. Provides fundamental understanding of business practices for the design professional. Survey of business types, professional counsel and liability, ethics, marketing and selling of services and products, and fee structures. Examination and preparation of business forms including letters of agreement, budget estimates, purchase orders, and invoices. Laboratory fee; 3 credits.

ID 450–459 Special Topics
Selected topics of special or current interest in interior design. 3 credits.

ID 598 Internship for Interior Design and Allied Fields
Prerequisite: ID 312 or consent of instructor. Students have the opportunity to intern within interior design, architectural, or allied design and product industry firms.

Students may seek their own internship site, or the program will match students with firms appropriate to their interests and skills. Mentors within the firms provide students with a broad range of learning opportunities. In addition, students maintain weekly email journals and research career opportunities. 3 credits (135 internship contact hours).

ID 599 Independent Study
Prerequisite: senior standing or consent of instructor and department chair. Under the direction of a faculty member and an outside mentor, the student initiates development of a capstone project. The purpose of independent study is to further an area of special interest, to prepare for graduate school, or to meet the Honors Program thesis requirement. 3 credits (135 project documented hours).

INDUSTRIAL ENGINEERING

IE 204 Engineering Economics
Prerequisites: M 117 and CS 107 or equivalent. A quantitative analysis of applied economics in engineering design; the economy study for comparing alternatives; interest formulae; quantitative methods of comparing alternatives; intangible considerations; selection and replacement economy for machines and structures; break-even and minimum cost points; depreciation; effect of income taxes on the economy; review of current industrial practices. Promotes logical decisions through the consideration of alternative courses of action. 3 credits.

IE 243 Work Design
Prerequisite: sophomore standing. Introductory course in the design and evaluation of efficient work methods and working environments. Techniques useful in problem definition; design of alternative work methods; and evaluation of alternative designs including process charting, operation analysis, and principles of motion economy. Emphasis placed on human factors and safety implications of alternative work-method designs. Equitable time standards are developed for work-method designs through the use of time-study procedures including stopwatch time study, computerized predetermined-time systems, and work sampling. 3 credits.

IE 302 Ergonomics
Prerequisite: junior standing. Covers basic terminology and application of ergonomic principles to the workplace. Topics include repetitive motion injuries, cumulative trauma disorders, carpal tunnel syndrome, anthropometry, human error analysis, channel capacity, reaction time, human-machine interaction, and current ergonomics news and applications. 3 credits.

IE 303 Cost Control
Prerequisites: junior standing and M 118. Basic analysis of cost control techniques. Designed to give members of the management team the underlying rudiments of cost estimating and control systems. Theory of standard costs, flexible budgeting, and overhead handling techniques emphasized by analytical problem solution. Life-cycle costing. Value engineering. 3 credits.

IE 304 Production Control
Prerequisites: IE 243, M 118. The basic principles that govern the design of production control systems in an industrial plant. The principles used in solving problems of procuring and controlling materials in planning, routing, scheduling, and dispatching are considered. Familiarizes the student with established and new methods used in this field including MRP, JIT, computer-aided process planning, and group technology. 3 credits.

IE 311 Quality Assurance
Prerequisite: junior standing. Quality considerations in product design and manufacturing; product inspection and process control; total quality management principles as applied to process design, control, and improvement; product safety and liability issues. 3 credits.

IE 344 Human Factors Engineering
Prerequisite: SE 347 or equivalent. Covers psychological and physiological aspects of people at work, including work physiology, information processing, motor skills and movement control, signal detection theory, and anthropometry with the aim of improvements in workplace design. 3 credits.

IE 348 Manufacturing Processes
Corequisite: IE 304. Provides a basic understanding of manufacturing processes as applied to conventional manufacturing. Properties of material; machining fundamentals; tool geometry; surface finish; forces; material removal processes; casting, forging, and extrusion processes; measurement and inspection;

process capability and quality control; ferrous and nonferrous metals; chip/type machining processes; machining economics in turning, milling, and drilling. 3 credits.

IE 408 Systems Analysis
Prerequisites: senior standing and SE 347 or equivalent. Presents the analytical and conceptual techniques upon which systems analysis and development are based, as applications to business and industrial fields. Development of case studies and their application, oriented to improved designs. 3 credits.

IE 414 Engineering Management
Prerequisite: senior standing. Provides insight into the elements of the managerial process and develops a rational approach to the problems of managing productive processes and the engineering function. Focusing largely on complex problems of top and middle-level management, students investigate the modern tools managers use under given circumstances, stressing the ongoing activities of management as part of an integrated, continuous process. 3 credits.

IE 436 Quality Control
Prerequisite: SE 347 or equivalent. Economics of quality control; modern methods used by industry to achieve quality of product; preventing defects; organizing for quality; locating chronic sources of trouble; coordinating specifications, manufacturing and inspection; measuring process capability; using inspection data to regulate manufacturing processes; statistical methods; control charts; selection of modern sampling plans. 3 credits.

IE 437 Metrology and Inspection in Manufacturing
Prerequisite: IE 436. The study of metrology and inspection practices in manufacturing. Emphasis on the design and development of different types of gauging for inspection in manufacturing. 3 credits.

IE 440 Synchronous Manufacturing
Prerequisites: IE 204 and IE 304. Group technology in design and manufacturing; manufacturing environment, resources, products, constraints, and decisions; synchronized manufacturing operations and process improvement. 3 credits.

IE 443 Facilities Planning
Prerequisites: IE 243, IE 304 and senior standing. Factors in plant location, design, and layout of equipment. Techniques for obtaining information essential to the development and evaluation of alternative facility layout designs are presented with an emphasis on environmental and safety considerations. Design of departmental areas, resource allocation and flow, materials handling, storage, and the economic implications of alternative designs are discussed. Students work in small groups on the design of a manufacturing facility to produce an actual consumer product. Project culminates in both written and oral presentations of the proposed facility design. CAD techniques are used extensively in the development of the final facility layout. 3 credits.

IE 448 Advanced Manufacturing Engineering Operations
Prerequisites: ME 200 and IE 348. A course for understanding machining economics and the basic principles of the theory of metal cutting and metal working to improve manufacturing engineering operations. Course emphasizes design and operation of better tooling for different types of manufacturing operations. Experimental investigation of metal cutting and metal working methodologies stressed. 3 credits.

IE 450–459 Special Topics in Industrial Engineering
Prerequisite: consent of instructor. Selected topics of current interest in the field of industrial engineering. 3 credits.

IE 460 Computer-Aided Manufacturing
Prerequisites: IE 348 and CS 107 or equivalent. Topics covered include computer-aided manufacturing (CAM), numerical control (NC), industrial robot applications, flexible manufacturing systems (FMS), group technology (GT), integration of CAD/ CAM, computer-aided process planning (CAPP), and applications software for manufacturing. 3 credits.

IE 465 Robotics in Manufacturing
Prerequisite: IE 460. Topics covered include applications of robotics in manufacturing, robot classification, introduction to a high-level robot language, task planning, and laboratory projects with industrial robots. 3 credits.

IE 498 Internship
Prerequisites: consent of faculty supervisor and approval of department chair. Supervised work-project related to industrial engineering

with local industries. 3 credits.

IE 504 Senior Project
Prerequisites: senior standing and consent of department chair. The student, in conjunction with a faculty adviser, selects and works on a project. Results are presented at a seminar at the end of the semester. 3 credits.

IE 599 Independent Study
Prerequisite: junior standing. A planned program of individual study under the supervision of a faculty member. 3 credits.

ITALIAN

IT 101 Elementary Italian I
Stresses pronunciation, oral and reading comprehension, basic conversation, and the fundamental principles of grammar. 3 credits.

IT 102 Elementary Italian II
Prerequisite: IT 101 or consent of instructor. This course builds on the skills learned in IT 101. Stresses pronunciation, oral and reading comprehension, basic conversation, and the fundamental principles of grammar through class practice and grammar exercises. 3 credits.

IT 450–459 Special Topics in Italian
Special topics of selected or current interest in the study of Italian. 3 credits.

JOURNALISM

J 101 Journalism I
A survey of journalism designed to acquaint students with the profession. Includes the American newspaper as a social institution and a medium of communication. 3 credits.

J 201 News Writing and Reporting
Prerequisite: CO 102 or consent of instructor. The elements of news, the style and the structure of news stories, news-gathering methods, copyreading and editing, reporting. 3 credits.

J 202 Advanced News Writing and Reporting
Prerequisite: J 201. Intensive practice in news writing and reporting. 3 credits.

J 311 Copy Desk
Prerequisite: J 201. Intensive practice in copyreading, editing and revising, headline writing, photograph selection, page make-up, and reporting. Regular critiques of the copy-desk work of major newspapers. 3 credits.

J 351 Journalistic Performance
Prerequisite: J 201. Students follow the coverage in the media given to selected topics and prepare to make judgments of the coverage by doing research and becoming knowledgeable about the particular topics. The course stresses analytic reading and responsible, informed criticism. 3 credits.

J 367 Interpretive and Editorial Writing
Prerequisite: J 201. Practice in the writing of considered and knowledgeable commentaries on current affairs and of interpretive articles based on investigation, research, and interviews. 3 credits.

J 450–459 Special Topics in Journalism
Selected topics in journalism that are of current or special interest. 3 credits.

J 599 Independent Study
Prerequisites: consent of instructor and department chair. Opportunity for a student, under the direction of a faculty member, to explore an area of interest. 3 credits.

BUSINESS LAW

LA 101 Business Law and the Regulatory Environment
An overview of the legal system as it relates to the operation of a business. Topics include those relating to the establishment and continuity of business relationships: contracts, sales, partnerships, corporations, agency law, and business ethics. Other topics are those regulating business activities: consumer protection, environmental, employment, and antitrust laws. 3 credits.

LA 112 Accounting Business Law
Prerequisite: LA 101. Law of agency, employer/employee, partnerships, corporations, security and governmental regulation; real and person property law; creditors' rights and bankruptcy; wills and trusts. 3 credits.

LA 450–459 Special Topics
Prerequisite: LA 101. Selected topics in business law of special or current interest not covered by an existing course. 3 credits.

LA 598 Internship
Prerequisite: LA 101. On-the-job experience of business law in selected organizations. 3 credits.

LA 599 Independent Study
Prerequisites: LA 101 and junior standing. A planned program of individual study under the supervision of a faculty member. 3 credits.

LOGISTICS

LG 300 Defense Sector Logistics
Prerequisites: EAS 345 and CS 107 or equivalent. Introduction to logistics as practiced in the defense industry, the military, and multinational corporations operating foreign installations. Overview of logistics elements, nomenclature, techniques, management, and computer support. Survey of regulations, standards, and logistics products. Identification of logistics and its place in defense-related systems. 3 credits.

LG 310 Introduction to Logistics Support Analysis
Prerequisite: LG 300. Definition and description of logistics support analysis with reference to MIL-STD-1388-lA and derivative requirements. Survey of integrated logistics support theory and practice and the role of LSA. The role of a logistics support analysis plan, its method of construction, and its use in real systems. 3 credits.

LG 320 Reliability and Maintainability Fundamentals
Prerequisite: LG 300. Basic description and analysis of the concepts of reliability and maintainability in large high-technology systems. Introduction to quantitative techniques and quality assurance. Strategies for optimizing effectiveness and in-service support. 3 credits.

LG 410 Life Cycle Concepts
Prerequisite: LG 320. Introduction to life cycle concepts in product design, quality engineering, field support, maintenance, training, and end-use disposal. Techniques of life cycle costing and the construction of life cycle forecasts. Product and system warranties, and their interface with logistics support. 3 credits.

LG 440 Data Management in Logistics Systems
Prerequisite: LG 310. Review of the role of data collection, analysis, and report generation in logistics systems management. Uses of computer-aided management information systems, technical data acquisition, and software support in logistics organizations. Requirements for documentation, data renewal, and the generation of integrated logistics support plans and reports. 3 credits.

LG 450–459 Special Topics
Special topics of selected or current interest in the study of logistics. 3 credits.

LG 490 Logistics Seminar
Upon completion of LG 300, LG 310, LG 320, LG 410, and LG 440 students pursuing the certificate in logistics are required to take this capstone seminar. Each student develops an experiential case study in conjunction with a faculty adviser. This case study draws on material learned in prerequisite courses and the student's work experience. Each student is required to present the case study for critique by colleagues and industrial engineering faculty. 1 credit.

LEGAL STUDIES

LS 100 Introduction to Legal Concepts
Overview of the American legal system in the context of historical underpinnings. Structural makeup, purpose, and functions of the legal system in American society; distinction between civil and criminal law systems. Introduction to major civil law substantive areas, including torts, contracts and property, legal concepts, and reasoning. 3 credits hours.

LS 201 Legal Ethics and Professional Responsibilities
Prerequisite: PL 222. Study of legal ethics, including codes of professional responsibility in different types of organizations and occupational settings. Analysis and discussion of case studies; role playing. 3 credits.

LS 226 Family Law
A study of legal relations between husband and wife including marriage, annulment, divorce, alimony, separation, adoption, custody arrangements, and basic procedures of family law litigation. 3 credits.

LS 229 Legal Communications
Familiarization with the kinds of legal documents and written instruments employed by participants in the legal process. Recognition and understanding of the purpose of writs, complaints, briefs, memoranda, contracts, wills, and motions. 3 credits.

LS 238 Civil Procedure I
Prerequisite: LS 100. Study of procedural law governing civil legal

actions. Includes overview of civil legal actions in state and federal courts with focus on legal principles that affect commencing and maintaining lawsuits. 3 credits.

LS 239 Civil Procedure II: Litigation
Prerequisite: LS 238. An examination of civil litigation from commencement of a lawsuit through trial, including pleadings, motions, discovery, and evidence. A combination of theory and practice. 3 credits.

LS 240 Legal Research and Writing I
Prerequisites: LS 100, E 105. An introduction to legal research and writing. Students learn to use primary and secondary legal authority in the law library and computerized legal research databases to solve legal research problems and assignments. Further study of legal reasoning and case and statutory analysis. 3 credits.

LS 241 Legal Research and Writing II
Prerequisites: LS 240, E 110. Through more advanced assignments, students further develop legal research, analytic, and writing skills. Includes research and analysis of realistic legal problems with preparation of opinion letters, legal memoranda, and briefs. 3 credits.

LS 244 Estates and Trusts
An examination of the legal principles and techniques of effective estate planning and administration. Topics covered include inheritance statutes, preparation and execution of wills, and record-keeping practices. 3 credits.

LS 301 Administrative Law and Regulation
Study of the basic principles of law for government agencies; structure of federal and Connecticut agencies; and major laws governing these agencies, including the state and federal Administrative Procedure Acts and Freedom of Information Acts. Overview of the role of legal professionals in administrative practice with practical applications. 3 credits hours.

LS 310 Business Organizations
This course studies the various types of business organizations, including corporations, partnerships, limited liability companies, sole proprietorships, and joint ventures, and the legal and documentation requirements for their formation, operation, and termination. Advantages and disadvantages of different forms of business entities are examined. 3 credits.

LS 326 Real Estate Law
A variety of legal skills in real estate law. Special attention given to title, operations, mortgages, deeds, leases, property taxes, closing procedures and documents. 3 credits.

LS 328 Management and Administrative Skills
An examination of the procedures and systems necessary to run a law office efficiently. Students learn administrative skills such as how to interview clients, conduct legal correspondence, and maintain legal records. Proven management techniques for keeping track of filing dates and fees, court dockets, and calendars are also examined. 3 credits.

LS 330 Legal Investigation
Examines skills needed to conduct investigations that are a routine part of the practice of law, such as principles of fact-gathering in a wide range of cases (e.g., criminal, divorce, custody, housing). 3 credits.

LS 350 Global Legal Systems
This course surveys and compares major legal systems in the world, focusing on common law systems of the U.S. and Britain, civil law systems of Europe, the laws of the European Union, Islamic law systems, socialistic legal systems, and international law concepts. 3 credits.

LS 401 Alternative Dispute Resolution: Models and Practice
Study of current models of conflict resolution, emphasizing mediation and restorative justice; applications in legal and organizational settings. Using simulations, students learn basic negotiation and mediation skills. 3 credits.

LS 405 Environmental Law
Study of environmental law and regulation at the federal, state, and local levels. Includes review of major federal environmental protection laws, state common law protections, local land use controls, and international law. Role of regulatory agencies and the courts examined. 3 credits.

LS 410 Counterterrorism and the Law
This course studies the Patriot Act, FISA, and other counter-terrorism laws, the balance between security and protecting constitutional rights, including personal liberty,

and how the courts decide these cases. Historical context and public policy as well as legal issues are considered. 3 credits.

LS 430 Cyberlaw
Analysis of special problems arising from use of computers and the Internet. Exploration of topics such as the impact of mass data banks on the right to privacy, copyright infringement, personal and social security concerns, and the tension between the First Amendment and protecting vulnerable populations. 3 credits.

LS 450–459 Special Topics
Prerequisite: consent of department chair. A study of selected issues of particular interest to the student and the instructor. 3 credits.

LS 498 Research Project
Prerequisites: senior standing and consent of department chair. The student carries out an original research project in a legal setting and reports findings. 1–6 credits.

LS 500 Pre-Internship
Prerequisite: junior standing in legal studies. This course enables students to understand and prepare for the internship experience. Students explore internship and legal career opportunities, develop job application skills, review professional office procedures and ethical responsibilities, and select potential internship placements in an area of interest. Students are required to complete this course prior to enrolling in LS 501/502. 1 credit.

LS 501/502 Legal Studies Internship I and II
Prerequisites: senior standing and completion of common courses for the major. Pre-placement classroom review of professional office procedures including maintaining legal records and files, handling oral and written communications, ethical responsibilities, and time and workflow management. The internship placement follows. Regular class discussion sessions for analysis, problem-solving, and skill building are held during the internship placement. 4 credits each semester.

LS 599 Independent Study
Prerequisite: consent of department chair. An opportunity for a student, under the direction of a faculty member, to explore and acquire competence in a special area of interest. 1–3 credits.

MATHEMATICS

All prerequisites for the following mathematics courses must be strictly observed unless waived by the Mathematics Department. Students who have successfully completed any mathematics course may not enroll in course prerequisite to the completed course without explicit consent of the Department.

M 103 Fundamental Mathematics
Required at the inception of the program of study for all students (day and evening) who do not show sufficient competency with fundamental arithmetic and algebra, as determined by placement examination. This course covers arithmetic operations, algebraic expressions, linear equations in one variable, exponents and polynomials, Cartesian coordinates, equation of a straight line, and simultaneous linear equations. (Students must successfully complete M 103 before taking any other course having mathematical content.) Students who take M 103 will have the total number of credits required for graduation increased by three. 3 credits (4 to 6 meeting hours per week).

M 109 Intermediate Algebra
Prerequisite: a grade of C or higher in M 103 or placement by the department. A review of the fundamental operations and an extensive study of functions, exponents, radicals, linear and quadratic equations. Additional topics include ratio, proportion, variation, progression, and the binomial theorem. This course is intended primarily for students whose program of study requires calculus. Other students might take M 127. 3 credits.

M 115 Pre-Calculus
Prerequisite: a grade of C or higher in M 109 or placement by the department. Offers the foundation needed for the study of calculus: polynomials, algebraic functions, elementary point geometry, plane analytic trigonometry, and properties of exponential functions. 4 credits.

M 117 Calculus I
Prerequisite: a grade of C or higher in M 115 or placement by the department. This first-year college course for majors in mathematics, science, and engineering is the basic prerequisite for all advanced mathematics. Introduces differential and integral calculus for functions of one variable, including algebraic and transcendental functions. Includes basic rules and properties

of limits and derivatives and applications of derivatives. Studies the plane analytic geometry needed for calculus. 4 credits.

M 118 Calculus II
Prerequisite: a grade of C or higher in M 117. Continuation of first-year calculus, including the fundamental theorem of calculus, methods of integration, applications of the integral, improper integrals, infinite series, and polar coordinates. 4 credits.

M 121 Algebraic Structures
A first course in an orientation to abstract mathematics: elementary logic, sets, mappings, relations, operations, elementary group theory. Open to all freshmen and sophomores. 3 credits.

M 127 Finite Mathematics
Prerequisite: M 103 or placement by the department. Functions and lines, linear systems, linear programming, mathematics of finance, sets and counting, and an introduction to probability. Numerous applications and an introduction to computing and computers. This course is intended primarily for students whose program of study does not require calculus. Students preparing to take calculus should take M 109. 3 credits.

M 166 Discrete Mathematics for Computer Science
Prerequisite: CS 110. A foundation course for computer science majors. Introduction to fundamentals, including logic, sets, functions, and induction. Emphasis on the internal computer representations and computational properties of numbers. 3 credits. (This course is cross-listed with CS 166 Discrete Mathematics for Computing.)

M 203 Calculus III
Prerequisite: a grade of C or higher in M 118. The calculus of multiple variables covering three-dimensional topics in analysis and vector analysis, partial differentiation, maxima and minima for functions of several variables, line integrals, multiple integrals, spherical and cylindrical polar coordinates. 4 credits.

M 204 Differential Equations
Prerequisite: M 203. The solution of ordinary differential equations, including the use of Laplace transforms. Existence of solutions, series solutions, matrix methods, nonlinear equations, and varied applications. 3 credits.

M 227 Mathematics for Elementary Education Teachers
Prerequisites: M 109 or M 127 or placement by the department. From the point of view of a teacher this is a review of the mathematics topics covered in elementary school, and it covers the mathematical underpinnings of such topics as whole numbers, fractions, number theory, geometry, and measurement. Problem-solving is an underlying theme to the course. 3 credits.

M 228 Elementary Statistics
Prerequisite: M 127. A non-calculus-based course that includes basic probability theory, random variables and their distributions, estimation and hypothesis testing, regression and correlation. Emphasis on an applied approach to statistical theory with applications chosen from the biological sciences and other fields of study. Students are introduced to and make use of the computer package SPSS for data analysis. 4 credits.

M 301 Geometry from a Modern Viewpoint
Prerequisite: M 117. A modern approach to Euclidean geometry with emphasis on proofs; basic results on lines, planes, angles, polygons, circles, spheres; coordinate and vector viewpoints. 3 credits.

M 303 Advanced Calculus
Prerequisite: M 204. A survey course in applied mathematics. Vector calculus: line and surface integrals, integral theorems of Green and Stokes, and the divergence theorem. Complex variables: elementary functions, Cauchy-Riemann equations, integration, Cauchy integral theorem, infinite series, calculus of residues and conformal mapping. 3 credits.

M 304 Using Technology to Teach Mathematics
Prerequisites: M 117, CS 210 or MM 301, or consent of department. Students are introduced to a variety of technological tools (calculators, computer software, Internet resources) useful in improving mathematics instruction. Students investigate how technology can effectively be utilized in learning situations. Lesson plans are developed incorporating technology. 3 credits.

M 305 Discrete Structures
Prerequisite: M 118. Corequisite: M 203. Methods of proof, the integers, induction, prime numbers, recursive algorithms, greatest common divisors, the Euclidean algorithm, the fundamental theorem of

arithmetic, congruences. 3 credits.

M 308 Introduction to Real Analysis
Prerequisite: M 204. Sets and functions, the real numbers, topology of the line, limits, continuity, completeness, compactness, connectedness, sequences and series, the derivative, the Riemann integral, the fundamental theorem of calculus, sequences and series of functions. 3 credits.

M 309 Advanced Differential Equations
Prerequisite: M 204. Theoretical analysis and applications of non-linear differential equations. Phase plane and space, perturbation theory and techniques, series and related methods, stability theory and techniques, and relaxation phenomena. 3 credits.

M 311 Linear Algebra
Prerequisite: M 203. Matrices, systems of linear equations and their solutions, linear vector spaces, linear transformations, eigen values and eigenvectors. 3 credits.

M 321 Modern Algebra
Prerequisite: M 305 or M 311. Groups, rings, integral domains, fields, polynomials. 3 credits.

M 325 Number Theory
Prerequisite: M 305. Topics are selected from the following: mathematical induction, Euclidean algorithm, integers, number theoretic functions, Euler-Fermat theorems, congruences, quadratic residues, and Peano axioms. 3 credits.

M 331 Combinatorics
Prerequisite: M 311 or consent of the department. Problem-solving using graph theory and combinatorical methods. Topics include counting methods, recurrence, generating functions, enumeration, graphs, trees, coloring problems, network flows and matchings. Special emphasis on reasoning that underlies combinatorical problem solving, algorithm development, and logical structure of programs. 3 credits.

M 338 Numerical Analysis
Prerequisites: M 203 and a standard programming language. Topics include solutions of algebraic and transcendental equations by iterative methods; system of linear equations (matrix inversion, etc.); interpolation, numerical differentiation, and integration; solution of ordinary differential equations. Scientific and engineering applications. 3 credits.

M 361 Mathematical Modeling
Prerequisites: M 311, junior standing. Problem-solving through mathematical model building. Emphasis on applications of mathematics to the social, life, and managerial sciences. Topics are selected from probability, graph theory, Markov processes, linear programming, optimization, and game theory, simulation. 3 credits.

M 371 Probability and Statistics I
Prerequisite: M 203. Axiomatic study of probability: sample spaces, combinatorical analysis, independence and dependence, random variables, distribution functions, moment-generating functions, central limit theorem. 3 credits.

M 381 Real Analysis
Prerequisite: M 308. Foundation of analysis, sets and functions, real and complex number systems, limits, convergence and continuity, sequences and infinite series, and differentiation. 3 credits.

M 403 Techniques in Applied Mathematics
Prerequisite: M 204. Techniques in applied analysis including Fourier series; orthogonal functions such as Bessel functions, Legendre polynomials, Chebychev polynomials, Laplace and Fourier transforms; product solutions of partial differential equations and boundary value problems. 3 credits.

M 423 Complex Variables
Prerequisite: M 204. For mathematics, science, and engineering students. Review of elementary functions and Euler forms; holomorphic functions, Laurent series, singularities, calculus of residues, contour integration, maximum modulus theorem, bilinear and inverse transformation, conformal mapping, and analytic continuation. 3 credits.

M 441 Topology
Prerequisite: M 381 or consent of department chair. Topics selected from the following: Hausdorff neighborhood relations: derived, open, and closed sets; closure; topological space; bases; homeomorphisms; relative topology; product spaces; separation axioms; metric spaces; connectedness and compactness. 3 credits.

M 450–453 Special Topics in Mathematics
Selected topics in mathematics of

special or current interest. 3 credits.

M 472 Probability and Statistics II
Prerequisite: M 371. Elements of the theory of point estimation, maximum likelihood estimates, theory of testing hypotheses, power of a test, confidence intervals, linear regression, experimental design and analysis of variance, correlation, and nonparametric tests. 3 credits.

M 473 Advanced Statistical Inference
Prerequisite: M 472. This course is designed to provide an in-depth treatment of statistical inference. Topics include distribution of functions of one or several random variables, N-P structure of tests of hypothesis, properties of "good" estimators, and the multivariate normal distribution. 3 credits.

M 481 Linear Models I
Prerequisite: M 472. This course is designed to provide a comprehensive study of linear regression. Topics include simple linear regression, inference in simple linear regression, violations of model assumptions, multiple linear regression, and the Extra Sum of Squares Principle. 3 credits.

M 482 Linear Models II
Prerequisite: M 481. Continuation of M 481, with an emphasis on experimental design. Topics include single-factor designs, two-factor designs, multiple-factor designs, and randomized block designs. 3 credits.

M 491–499 Department Seminar
A study of a mathematical topic or topics not covered in the above courses. Subject of study is announced by the mathematics department in advance. A paper and/or seminar talk, suitable for presentation to all interested mathematics faculty, is required. 3 credits.

M 599 Independent Study
Prerequisites: consent of faculty member and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1–3 credits.

MECHANICAL ENGINEERING

Design elective/required choices are indicated by (D) following course title.

ME 200 Engineering Materials
Prerequisite: CH 103. A study of the properties of the principal engineering materials of modern technology: steels and nonferrous alloys and their heat treatment, concrete, wood, ceramics, and plastics. Gives engineers sufficient background to aid them in selecting materials and setting specifications. 3 credits.

ME 201 Engineering Graphics
Prerequisites: EAS 107P, EAS 109. Orthographic/multiview projections; isometric, auxiliary, and sectional views; dimensioning and tolerancing practices; working drawings; computer-aided drafting and solid modeling using contemporary software (e.g., AutoCAD, SolidWorks). 2 credits.

ME 204 Dynamics
Prerequisites: M 118, PH 150. Free-body diagrams, equilibrium of forces, friction. Kinematics and dynamics of particles and rigid bodies with emphasis on two-dimensional problems. Vector representation of motion in rectangular, polar, and natural coordinates. Impulse-momentum and work-energy theorems. Rigid bodies in translation, rotation and general plane motion. 3 credits.

ME 215 Instrumentation Laboratory
Prerequisites: CE 205, E 225 (may be taken concurrently), ME Skills Workshop. Laboratory experiments introducing equipment and techniques used to measure force, static displacement, dynamic motion, stress, strain, fluid flow, pressure, and temperature. Introduction to statistical methods, data acquisition, data analysis and control using microcomputers. 2 credits.

ME 222 Methods of Mechanical Design (D)
Prerequisites: CE 205, ME 101. Introduction to the mechanical design process including planning, design phases, methods, and documentation. Understanding the design problem, planning a project, concept generation and evaluation, design matrix and Pugh's method. Product design and generation, manufacturing processes, cost estimation, concurrent design. Product evaluation. Implementation of methods via hardware design project. 3 credits.

ME 300 Rigid Body Dynamics
Prerequisite: EAS 222. Planar and 3-D kinematics and kinetics of rigid bodies. Work-energy methods, impulse-momentum theorem, inertia tensor, Euler angles, and gyroscopic motion. 3 credits.

ME 301 Thermodynamics I
Prerequisites: M 118, PH 150. Classical thermodynamics treatment of first and second laws. Thermal and caloric equations of state. Closed and open systems and steady flow processes. Absolute temperature, entropy, combined first and second laws. Power and refrigeration cycles. 3 credits.

ME 302 Thermodynamics II
Prerequisites: CS 110, M 203 (may be taken concurrently), ME 301. Extensions and applications of first and second laws; availability, combustion process, ideal gas mixtures. Maxwell's relations. HVAC topics. Advanced thermodynamic cycles. 3 credits.

ME 304 Mechanical Behavior of Materials
Prerequisite: ME 200. Detailed study of elastic and plastic deformation of materials at room temperature and elevated temperatures. Dislocation theory and microplasticity models considered. 3 credits.

ME 305 Engineering Thermodynamics
Prerequisite: EAS 224. Corequisite: M 203. Use of first and second laws of thermodynamics to investigate processes involving vapors and gases in closed and open systems. Analysis of vapor and gas power and refrigeration cycles. Exergy analysis, psychometrics, and combustion processes. 4 credits.

ME 307 Solid Mechanics
Prerequisites: CE 205, M 203. Elastic behavior of structural elements such as beams, columns, and shafts. Stress and strain at a point. Plane stress and plane strain. Stress and strain transformations, Mohr's circle. Theories of yielding and failure. Introduction to the finite element method of stress analysis and computer-aided engineering. 3 credits.

ME 308 Applied Elasticity
Prerequisites: EAS 222, M 203. Stress and strain tensors. Equilibrium equations. Transformation equations for stress and strain. Principal stresses and maximum shear stress. Stress-strain relations. Measurement of strain. Theories of yielding and fracture. Introduction to matrix methods of structural analysis, the finite element method, and computer-aided engineering. 4 credits.

ME 315 Mechanics Laboratory
Prerequisites: EAS 222 or consent of instructor. Laboratory experiments in mechanics of materials, vibrational analysis, computer-aided data acquisition and analysis. Emphasis placed on measurement techniques, report writing, and error/statistical analysis. 2 credits.

ME 321 Incompressible Fluid Flow
Prerequisites: M 204, EAS 222 or consent of instructor. Fluid kinematics, continuity equation, vector operations. Momentum equation for frictionless flow, Bernoulli equation with applications. Irrotational flow, velocity potential, Laplace's equation, dynamic pressure and lift. Stream function for incompressible flows. Rotational flows, vorticity, circulation, lift and drag. Integral momentum analysis. Navier-Stokes equation, stress tensor. Newtonian fluid. Boundary layer approximations. 3 credits.

ME 330 Fundamentals of Mechanical Design (D)
Prerequisite: EAS 222 or consent of instructor. Review of methods of mechanical design. Development of fundamental engineering analysis involving static and fatigue failure. Topics include the maximum shear and Von Mises' theories of static design, safety factor, Soderberg and Goodman diagrams for fatigue design, modified endurance limit, reliability analysis, statistical considerations, and stress concentration. Introduction to codes and standards. Practical applications. 3 credits.

ME 343 Mechanisms (D)
Prerequisite: ME 300. Graphic and analytic methods for determining displacements, velocities, and accelerations of machine components. Applications to simple mechanisms such as linkages, cams, gears. Design project. 3 credits.

ME 344 Mechanics of Vibration
Prerequisites: M 204, ME 300. The mathematical relationships necessary for solving problems involving the vibration of lumped and continuous systems. Damping, free and forced motions, resonance, isolation, energy methods, balancing. Single, two, and multiple degrees of freedom. Vibration measurement. 3 credits.

ME 355 Interfacing and Control of Mechanical Devices (D)
Prerequisites: EAS 230 or consent of instructor. A practical, hands-on approach to connecting, monitoring, and controling thermo sensors, motors, encoders, and other sensors and transducers using a PC and a multipurpose expansion board.

Topics include hardware connections, voltage input and output, motor-generator and motor-encoder feedback, stepper motors, thermal control, and digital switching. 3 credits.

ME 404 Heat and Mass Transfer
Prerequisites: M 204, ME 305, Corequisite: ME 321 or consent of instructor. Conduction in solids, solution of multidimensional conduction problems, unsteady conduction, radiation, boundary layer and convection. Introduction to mass transfer. Lectures include occasional demonstrations of convection, radiation, heat exchangers. 3 credits.

ME 407 Solar Energy Thermal Processes (D)
Corequisite: ME 404. Introduction to the fundamentals of solar energy thermal processes including solar radiation, flat plate and focusing collectors, energy storage, hot water heating, cooling and auxiliary system components. Emphasis on the design and evaluation of systems as they pertain to commercial and residential buildings. 3 credits.

ME 408 Advanced Mechanics
Prerequisites: M 204, ME 300. Plane and spatial motion of particles and rigid bodies, inertia tensor, relative motion, gyroscopes, central force motion. Lagrangian and Hamiltonian methods. 3 credits.

ME 411 Fundamentals of Thermo/Fluid Design (D)
Corequisites: ME 305, ME 330 or consent of instructor. Introduction to the design of specific thermal, heat, and fluid devices and systems as they apply to practical design problems. Review of design methodology and basic equations in thermal sciences. Group design studies in each of the three basic areas of heat exchangers, prime movers, and piping systems. 3 credits.

ME 415 Thermo/Fluids Laboratory
Prerequisites: ME 315, ME 321. Corequisite: ME 404. A survey of experiments and laboratory investigations covering the areas of fluid mechanics, thermodynamics, heat transfer, and gas dynamics. Analog and digital data acquisition and analysis. 2 credits.

ME 422 Compressible Fluid Flow
Prerequisites: ME 305, ME 321, ME 404 or consent of instructor. Compressible fluid flow with emphasis on one-dimensional ducted steady flows with heat transfer, frictional effects, shock waves, and combined effects. Introductory considerations of two- and three-dimensional flows. Applications to propulsive devices. Occasional demonstrations accompany the lectures. 3 credits.

ME 426 Turbomachinery (D)
Prerequisites: ME 305, ME 321 or consent of instructor. Review of basic thermodynamics and fluid mechanics. Dimensional analysis; specific speed; classification of turbomachines; cavitation; losses; definitions of efficiency. Theories of turbomachines; design considerations for stator blades and rotor blades. Computer-aided design. 3 credits.

ME 427 Computer-Aided Engineering (D)
Prerequisite: ME 308 or consent of instructor. Integration of computers into the design cycle. Interactive computer modeling and analysis. Geometrical modeling with wire frame, surface, and solid models. Finite element modeling and analysis. Problems solved involving structural, dynamic, and thermal characteristics of mechanical devices. 3 credits.

ME 431 Mechanical Engineering Design I (D)
Prerequisites: ME 330 and senior standing or consent of instructor's. Basic aspects of power transmission. Topics include friction train, belt and chain drives, gear drive, planetary and differential trains. Study of air and hydraulic components and analysis of machine elements including shafts, springs, clutches, bearings, and gears. In-house and industrial projects in solids and thermal/fluids areas. Student groups determine problem requirements and objectives and select the best design alternative. Oral project presentations. Course offered only in Fall semester. 3 credits.

ME 432 Mechanical Engineering Design II (D)
Prerequisite: ME 431. Projects initiated in ME 431 are carried to completion by the same groups. Detailed design drawings and prototype construction, testing, and evaluation. Midterm and final oral presentations and comprehensive written reports. Course offered only in Spring semester. 3 credits.

ME 435 Advanced Mechanical Design (D)
Prerequisites: ME 321, ME 431. Selected advanced topics related to the design of machine elements such as hydrodynamic theory of lubrication and principles of hydraulic machines with application to hydraulic couplings. 3 credits.

ME 438 Systems Dynamics and Control
Prerequisite: ME 321. Modeling, analysis, and design of dynamic systems with feedback. Response and stability analysis. Methods include Routh-Hurwitz, root locus, Bode plots, Nyquist stability criterion. Design and compensation methods. Applications in mechanical, thermal, electrical systems. Project. 3 credits.

ME 443 Introduction to Flight Propulsion
Prerequisite: ME 422 or consent of instructor. A senior course designed for those students who intend to work or pursue further studies in the aerospace field. Among the topics covered are detonation and deflagration, introductory one-dimensional nonsteady gas flows, basic concepts of turbomachinery, and survey of contemporary propulsive devices. Shock tube, supersonic wind tunnel, and flame propagation demonstrations accompany the lectures. 3 credits.

ME 450–459 Special Topics in Mechanical Engineering
Prerequisite: consent of instructor. In-depth study of topics chosen from areas of particular and current interest to mechanical engineering students. 1–6 credits.

ME 512 Senior Seminar
Open to seniors with coordinator's approval. Individual oral presentations of material researched on topics selected by students and faculty at the beginning of the term. 3 credits.

ME 599 Independent Study (D)
Prerequisites: consent of faculty supervisor and approval of program coordinator. Independent study provides an opportunity for the student to explore an area of special interest under faculty supervision. 1–3 credits per semester, with a maximum of 12 credits.

MANAGEMENT

MG 115 Fundamentals of Management
A course in introductory management that explores the basics of both theory and practice. Topics are related to the five functions of management: planning, organizing, staffing, leading, and controlling. Enrollment limited to nonbusiness majors and/or A.S. business administration students only. 3 credits.

MG 120 Development of American Sports
A survey of the American sports industry and how it relates to society: issues and problems in national and international sports activities. An analysis of current sports issues and trends. 3 credits.

MG 210 Management and Organization
Prerequisite: sophomore standing. A study of management systems as they apply to all organizations. Managerial functions, principles of management, and other aspects of the management process are examined. 3 credits.

MG 230 Management of Sports Industries
Prerequisites: MG 120 and sophomore standing. A survey of the principles of management applicable to the administration of sports enterprises: planning, controlling, organizing, staffing, and directing various activities necessary for effective functioning. 3 credits.

MG 235 Marketing and Public Relations in Sports
Prerequisites: MG 120 and sophomore standing. This course introduces students to marketing and public relations skills crucial to success in every sports business, and examines the unique features of sports marketing and public relations that set sports apart from other industries. Students develop a strategic sports marketing plan that includes an emphasis on public relations. 3 credits.

MG 240 Business Ethics and Diversity
Prerequisites: E 110 and sophomore standing. This course introduces the student to the complexities of ethical behavior within the business environment and examines the impact of different demographic groups on various types of organizations. 3 credits.

MG 317 Entrepreneurship and New Business Development
Prerequisite: MG 210. Covers the entrepreneurial process from conception to operation of a new business. Concentrates on the characteristics of entrepreneurs and the

process by which they turn ideas into new business. Students also learn about the process of new business development in the large corporation and study the effect of corporate culture on the success of new ventures. 3 credits.

MG 320 Sports Industries and the Law
Prerequisite: MG 120. Legal aspects as they relate to professional and amateur sports institutions. An analysis of legal problems and issues confronting the sports manager: suits against the organizational structure; safety; collective bargaining and arbitration; and antitrust violations. 3 credits.

MG 325 Sports Facility Management
Prerequisites: MG 120, MG 210. An examination of how sports facilities like coliseums, municipal and college stadiums, and multi-purpose civic centers are managed. Among the topics included are financial management of sports facilities, booking and scheduling events, box office management, staging and event production, personnel management, concessions and merchandising management. 3 credits.

MG 327 Business Planning
Prerequisite: MG 317. Covers the elements of planning for a new business. Identifies the goals, objectives and strategies that an entrepreneur must articulate for fulfillment of that entrepreneurial dream. The main focus of the course is to highlight the milestones toward success of the new venture. 3 credits.

MG 331 Management of Human Resources
Prerequisite: MG 210. A survey of the industrial relations and the personnel management system of an organization. Manpower planning/forecasting, labor markets, selection and placement, training and development, compensation, government/employer and labor/management relations. 3 credits.

MG 350 Management of Workforce Diversity
Prerequisite: MG 210. This course explores issues of social identity, social and cultural diversity, and societal manifestations of oppression as they relate to the workplace. Workforce demographics are rapidly evolving due to changes in birthrates, immigration, legal systems, social attitudes, and economic expansion. Managing businesses and other organizations will require not just contemporary knowledge and technology but the expertise to manage increasing workforce diversity. 3 credits.

MG 415 Multinational Management
Prerequisite: MG 210. An analysis and examination of management and organizational behavior against a background of diversified cultural systems. 3 credits.

MG 417 Managing an Entrepreneurial Venture
Prerequisites: FI 213, MG 317. Covers the principles of managing a growing entrepreneurial business. Students learn how to anticipate and deal with problems peculiar to a growing business. The emphasis is on innovation, creativity, and managing opportunities, in contrast with management of ongoing business that is based on efficiency and effectiveness. 3 credits.

MG 430 Financial Management for Sports Administration
Prerequisites: FI 213, MG 210. Methods and procedures as they apply to sports administration, taxation, purchasing, cost analysis, budgeting, and the financial problems of dealing with mass media. 3 credits.

MG 450–454 Special Topics in Business
Prerequisites: MG 210 and junior standing unless otherwise specified in course schedule description. Special studies in business and public administration. Work may include study and analysis of specific problems within units of business or government and application of theory to those problems; programs of research related to a student's discipline; or special projects. Several sessions may run concurrently. 3 credits.

MG 457 Family Business Management
Prerequisite: MG 210. Provides a fundamental understanding of family business management, including historical and theoretical rudiments, transition stages, conflict resolution, family systems, and succession. Case studies of classic family businesses are used for discussion and analysis. 3 credits.

MG 467 Franchising
Prerequisites: FI 213, MG 210. Covers the franchising operation from both the franchiser's and franchisee's perspectives. Provides the student with a framework to evalu-

ate the feasibility of extending a new business into a franchise and the potential profitability of engaging in a franchise operation. 3 credits.

MG 475 Sports Event Management
Prerequisite: MG 120 and junior standing. This course helps students to develop the skills necessary to manage virtually any aspect of a sporting event, including contingency planning, logistics, working with vendors, financing, ticketing and admissions, seating design and controls, sponsor and supplier agreements, risk management and insurance, marketing events and licensed merchandise, finding sponsorship, working with governmental agencies, and scheduling tournaments and matches. Focuses on events ranging from cycling and running races to the Super Bowl and the World Series. A requirement is that students be directly involved with organizing a sports event during the semester. 3 credits.

MG 512 Contemporary Issues in Business and Society
Prerequisites: MG 210 and senior standing. A rigorous examination of competing concepts of the role of business in society. A capstone, integrative course relating the firm to its environment, including issues arising from aggregate social, political, legal, and economic factors. 3 credits.

MG 520 Current Issues in Human Resource Management
Prerequisites: MG 210, MG 331. Examines research findings and current literature relevant to issues affecting personnel functions in the organization. 3 credits.

MG 550 Business Policy
Prerequisites: FI 213, MG 210, MK 200. An examination of organizational policies from the viewpoint of top-level executives; development of analytic frameworks for achieving the goals of the total organization. Discussion of cases and development of oral and written skills. 3 credits.

MG 597 Practicum
Prerequisite: junior standing. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Completed under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

MG 598 Internship
Prerequisite: MG 320 or MG 210. On-the-job experience in selected organizations in management. 3 credits.

MG 599 Independent Study
Prerequisite: MG 210. Independent study on a project of interest to the student under the direction of a faculty member designated by the department chair. 3 credits.

MARKETING

MK 200 Principles of Marketing
Prerequisite: sophomore standing. The fundamental functions of marketing involving the flow of goods and services from producers to consumers. Marketing methods of promotion, pricing, product decisions, and distribution channels. 3 credits.

MK 205 Consumer Behavior
Prerequisite: sophomore standing. A study of the principal comprehensive marketing models that focus on buyer decision processes. Topics include brand switching decisions, measures of media effectiveness, market segmentation, and other marketing techniques. 3 credits.

MK 302 Organizational Marketing
Prerequisite: MK 200. Practices and policies in the distribution of industrial goods, including purchasing, market analysis, channels of distribution, pricing, competitive practices, and operating costs. 3 credits.

MK 307 Advertising and Promotion
Prerequisite: MK 200. The design, management, and evaluation of the various communications programs involved in marketing and public relations. 3 credits.

MK 316 Sales Management
Prerequisite: MK 200. The management of a sales organization: recruiting, selecting, training, supervising, motivating, and compensating sales personnel. 3 credits.

MK 321 Retail Management
Prerequisite: MK 200. Survey of the problems and opportunities in the retail distribution field, including a basic understanding of buying, selling, and promotion of the retail consumer market. 3 credits.

MK 326 Overview of E-Commerce
Prerequisites: MK 200 and junior standing. A review of issues in e-commerce. Technologies available for digitalization and transmission are surveyed. Different uses of Internet, intranets, extranets, and

web pages are discussed. B2B sales and supply chain management are introduced. Available security and payment systems are compared. The impacts of e-commerce and e-tail on business structure, channel conflicts, and alliances are introduced. 3 credits.

MK 402 Marketing of Services
Prerequisite: MK 200. The marketing of services, including service-based market planning, marketing mix, core marketing strategies and trends, and the essential differences between product and service-based marketing. 3 credits.

MK 413 International Marketing
Prerequisites: EC 133, MK 200. Applied marketing decision-making in international firms. The development of marketing strategy and techniques in foreign markets. Study of key multinational marketing skills, especially research, product policy, pricing, promotion, and distribution. 3 credits.

MK 442 Marketing Research in the Global Environment
Prerequisites: MK 200, QA 216. Research as a component of the marketing information system. Research design, sampling methods, data interpretation, and management of the marketing research function. 3 credits.

MK 450–459 Special Topics
Prerequisites: MK 200 and junior standing. Coverage of new and emerging topics and applications in marketing theory and practice. The format may include both traditional classroom activities and innovative group projects. 3 credits.

MK 515 Marketing Management
Prerequisites: MK 200 and senior standing. The analysis, planning, and control of the marketing effort within the firm. Emphasis on case analysis. A marketing capstone course. 3 credits.

MK 597 Practicum
Prerequisite: MK 200 and senior standing. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Completed under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

MK 598 Internship
Prerequisite: MK 200. Supervised field experience for qualified students in areas related to their major. 3 credits.

MK 599 Independent Study
Prerequisite: MK 200. A planned program of individual study under the supervision of a member of the faculty. 3 credits.

MULTIMEDIA

MM 301 Introduction to Multimedia
The three goals of this course are (1) to provide students with the necessary multimedia background and theory; (2) to discuss the basic building blocks of multimedia — text, images, animation, video, and sound; and (3) to teach the practical elements of making multimedia and the use of authoring software. 3 credits.

MM 311 Advanced Multimedia
Prerequisite: MM 301. This course begins by covering the advanced elements of multimedia. Hardware and software tools are described in detail. Students are then introduced to the step-by-step creative and organizing process that results in a finished multimedia project: the technology, user interface design, and graphic production techniques. The course emphasizes such topics as how to structure information, how to anticipate user experience, and how to generate visually compelling interfaces. 3 credits.

MM 312 Website Creation
Prerequisite: MM 301 or consent of instructor. An introduction to web page creation and design. This course addresses some of the most important topics for website designers: site evaluation and design, content, structure, layout, and audience. 3 credits.

MM 401 Multimedia Seminar
Prerequisite: MM 311. This course covers more advanced elements of multimedia. Current technical advances and artistic trends are discussed in detail. Students are reintroduced to the creative and organizing process that results in a finished multimedia project, and they become familiar with some of the software tools (HTML editors) used to design and implement an interactive web page. 3 credits.

MM 450 Special Topics in Multimedia
Study of selected topics of special or current interest. 3 credits.

MARINE BIOLOGY

MR 101 Introduction to Marine Biology
An introduction to the field of marine biology and the marine environments of southern Connecticut. Students learn basic marine sampling techniques and basic organism identification. Students also explore the different components of the marine environment, in particular Long Island Sound. This course is intended for marine biology majors and other students interested in learning about the field. Students are required to have hip waders. 1 credit.

MR 102 Seminar in Marine Biology
An introduction to careers and research topics in marine biology. Every week students explore new scientific questions in marine biology and learn about potential occupations within the field. This course is intended for marine biology majors and other students interested in learning about ongoing issues in the field of marine biology. 2 credits.

MR 200 Oceanography with Laboratory
Prerequisites: BI 121–122 or BI 253–254, Math 109 or higher, and high school chemistry. This course investigates the major aspects of physical, geological, chemical, and biological oceanography. Human impacts on the ocean environment are considered as well. The laboratory component provides hands-on experience with marine sampling, mapping, and measurements, as well as with computer simulations of ocean currents, tides, waves, and other oceanographic phenomena. 4 credits.

MR 260 Marine Vertebrate Zoology with Laboratory
Prerequisite: BI 122 or BI 254. A survey of marine vertebrate phyla, focusing on taxonomy, evolutionary relationships, structure and function, physiological adaptations, and life modes. Laboratory includes real and virtual examination of the structure and anatomy of representative taxa from the phyla, laboratory experiments, and observations on the behavioral responses of certain organisms to environmental stimuli. 4 credits.

MR 300 Marine Ecology with Laboratory
Prerequisites: BI 250, BI 320. Investigation of ecological structure and dynamics in marine and estuarine habitats at organismal, population, community, and ecosystem levels. Geographic aspects and human interactions with marine ecosystems are also considered. Designed around specific topics covered in lecture, the laboratory includes investigation of different types of estuarine and coastal habitats, field and laboratory techniques, and design of basic and applied marine ecological investigations. Some required weekend field classes. Laboratory fee; 4 credits.

MR 310 Marine Botany with Laboratory
Prerequisites: BI 122 or BI 254; MR 200. A survey of plant and algae taxa inhabiting the marine and estuarine environment. Emphasis is placed on the form and function of the major groups and their adaptation to the marine environment. The laboratory section includes exercises in lower plant taxonomy and morphology. Experiments in plant physiology and field trips to study intertidal plant communities are included. Laboratory fee; 4 credits.

MR 320 Marine Pollution
Prerequisite: MR 300. A classification of the different forms of pollution in the marine environment. The fate and transport of different pollutants are discussed as are the effects of pollutants on coastal and open marine ecosystems. 3 credits.

MR 330 Coastal Resources and Management
Prerequisite: MR 300. Examination of natural coastal resources, human uses and alterations, federal and international regulations shaping activities in the coastal zone, and coastal management at the international, federal, state, and local levels. Some weekend field classes may be required. 3 credits.

MR 331 Marine Conservation and Restoration
Prerequisite: MR 300. An investigation into the conservation of marine resources and the science of habitat recovery and restoration. Topics include fisheries conservation, case studies of restored coastal habitats, assessment procedures, and evaluation of ecological function in restored habitats. 3 credits.

MR 410 Marine Aquaculture and Biotechnology
Prerequisite: MR 300. An examination of marine aquaculture and the use of marine resources in develop-

ing biotechnological products. The history of aquaculture and current aquaculture practices throughout the world are reviewed. Lectures are augmented by visits to commercial establishments and aquaculture research laboratories. The second portion of the course focuses on the development of marine biotechnology, marine products, and the relationship between aquaculture and marine biotechnology. Some required weekend field classes. 3 credits.

MR 420 Marine Biogeochemistry with Laboratory
Prerequisites: CH 115–118, MR 300. A comprehensive study of the biogeochemistry of marine waters and sediments. Emphasis is on biogeochemical cycling of key elements in marine and estuarine ecosystems and their role in global processes. Chemical analysis and field collection techniques together with experimentation into the partitioning of chemical species among sediment, water, and biota are conducted in the laboratory portion of the class. Laboratory fee; 4 credits.

MR 501–502 Senior Project in Marine Biology I and II
Prerequisites: marine biology major, senior standing. Individual/group-based research in marine biology. Students develop specific research projects, conduct literature searches, plan and conduct experiments, analyze the data, and present their findings in a written report and at a student conference at the end of the second semester. 3 credits each semester.

MR 590 Special Topics
Selected topics of special or current interest in the study of marine biology. 3 credits.

MR 599 Independent Study
Prerequisites: marine biology major, consent of the department. Weekly conferences with adviser. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. A written report is required. 3 credits.

MUSIC

MU 106 Chorus
Styles of group singing; survey of choral music literature from around the world. 3 credits.

MU 111 Introduction to Music
Basic forms and styles of music in the Western world; music appreciation. 3 credits.

MU 112 Introduction to World Music
Non-Western musical styles, their cultures and aesthetics; music of the indigenous cultures of the Americas and the advanced musics of the Near East and Far East; emphasis on India, the Orient, Southeast Asia, Africa, and Indonesia. 3 credits.

MU 116 Performance
Open to all students interested in ensembles or private instruction. Students with adequate scholastic standing may carry this course for credit in addition to a normal program. 1–8 credits; maximum 3 credits per semester.

MU 125 Elementary Music Theory
A one-semester introduction to the basic principles of music, primarily for students who wish to gain insight into the fundamental structures and workings of the art form. Music majors who have not successfully passed the department placement examination must enroll in MU 125 and MU 126. Topics include notation, scales, key signatures, time signatures, staff recognition, intervals, and triads. Nonmusic majors are not required to enroll in the laboratory. 3 credits.

MU 126 Elementary Music Theory Laboratory
Exercises in sight-singing, solfége, melodic and rhythmic dictation, and music notation. Should be taken concurrently with MU 125. 1 credit.

MU 150–151 Introduction to Music Theory I and II
Fundamentals of music: notation; physical and acoustical foundations; harmony and melody; modality, tonality, atonality; consonance and dissonance; tension; introductory composition; and ear training. 3 credits each term.

MU 175–176 Musicianship I and II
Prerequisites: MU 111 or MU 112; MU 150. Development of practical skills essential to performers and ensemble directors: ear training, sight-singing, dictation, transcription, arranging, notation, score writing. 3 credits each term.

MU 198–199 Introduction to American Music I and II
Music of the North American con-

tinent from the Puritans to the present day; both European and non-European musical traditions, with emphasis on twentieth-century developments. 3 credits each term.

MU 201–202 Analysis and History of European Art Music I and II
Prerequisites: MU 150, MU 151. The growth of Western art music from its beginnings to the present day. Analysis of musical masterpieces on a technical and conceptual basis. 3 credits each term.

MU 211 History of Rock
Study of rock music as a musical tradition and as a social, political, and economic phenomenon. Ethno-musicological and historical examination of rock from its pre-1955 roots to the present. 3 credits.

MU 221 Film Music
Designed for both music and communication majors. Introduction to the art, science, and history of musical scores in film. Class work includes viewing and analysis of films with significant cuing and an introduction to the musical repertoire available to the filmmaker. 3 credits.

MU 250–251 Theory and Composition I and II
Investigation of music theory in various parts of the world, including the Western art tradition. Exercises in the composition of music within these theoretical constructs. Ear training and keyboard harmony. 3 credits each term.

MU 261 Introduction to the Music Industry
An introduction to the music industry from the artist's point of view. Provides guidance to musicians and/or songwriters trying to break into the record industry. Topics include overview of the music industry, songwriting and publishing, the copyright law, music licensing, artist management, agents and attorneys, and recording contracts. 3 credits.

MU 299 Problems of Music
Music as an art form throughout the world. Music aesthetics and its relationship to the performance and composition of music. 3 credits.

MU 300 Studies in Music I
Area studies in music and its parent culture. Cultural theory as related to the music; instruments of the area and their etymologies; performance practices; the social role of music, both art and folk. Areas offered depend on availability of staff: China, Japan, the Near East, the Indian subcontinent, Africa, American Indian, Afro-American, Latin American, the Anglo-Celtic tradition, and others. 3 credits.

MU 301 Recording Fundamentals
Prerequisites: CO 103; PH 100 or PH 150. A study of the fundamentals of sound recording technique and methodology: acoustics, basic electronics, the decibel, magnetism, microphones, microphone placement, tape recorders, tape formats, mixers, signal processing and monitoring systems. This course also emphasizes the importance of sound aesthetics and ethics in the sound recording process. 3 credits.

MU 311–312 Multitrack Recording I and II
Prerequisite: MU 301. Two-semester course in the technique and methodology of multitrack studio and live recording. Includes detailed study of multiple tracking, mixing consoles, microphones, tape recorders, signal processors, studio procedures, sound synthesis, MIDI and digital audio. Also emphasizes the use of computers in the recording studio. Laboratory fee; 3 credits per semester.

MU 321 Sound Synthesis/MIDI
Prerequisite: MU 301. A study of the use of synthesizers, drum machines, sound modules, and computers in the recording studio. Using a combination of lecture /demonstrations as well as lab hours, students explore the physics of sound, sound synthesis, instrument control, Musical Instruments Digital Interface (MIDI), and computers. Special emphasis is placed on current sequencing, notation, and printing software. 3 credits.

MU 322 Sound System Design and Maintenance
Prerequisite: MU 311. This course covers the basics of sound system troubleshooting and maintenance. Topics include sound systems, the decibel, reading specs and diagrams, basic electronics, cabling, and test equipment. 3 credits.

MU 350 Studies in Music II
Area studies in musical forms; their history, evolution, and resultant metamorphoses; performance practices and extant forms. Areas offered depend upon availability of staff. 3 credits.

MU 361 Production, Promotion, and Distribution
Prerequisite: MU 261. An overview of the music industry from the record company's perspective. Provides guidance to music enthusiasts who want to become record company executives, sales managers, producers, etc. Topics include record company administration; business aspects of record production; promotion, publicity, and distribution; recording studio management; radio station programming and management; music videos; the retail music store. 3 credits.

MU 362 Legal Issues, Copyrights, and Contracts
Prerequisite: MU 261. A comprehensive overview of the legal procedures, timings, and agreements used in the music industry. Includes detailed study of the current copyright law, publishing contracts, licensing, the manager and/or agent agreement, the record company contract, AFM and AFTRA agreements, and ethical considerations in the music industry. 3 credits.

MU 401–402 Recording Seminar/Project I and II
Prerequisite: MU 312. Each student completes a professional-quality recording production or research and development project. Work may consist of internship or co-op experience in a professional recording studio. Seminar also includes presentations on areas of professional interest such as career opportunities and new development in studio technique and technology. Laboratory fee; 3 credits each term.

MU 416 Advanced Performance
Prerequisites: consent of the department staff and a faculty adviser. Preparation and presentation of an instrumental or vocal performance indicating sufficient proficiency to warrant the awarding of a degree in music. 3 credits.

MU 450 Special Topics in Music
Study of selected topics of special or current interest. 3 credits.

MU 461–462 Internship in the Music Industry I and II
Prerequisites: MU 361 and MU 362. The purpose of this course is to provide the student with advanced on-the-job training via placement as an apprentice/intern in music industry companies such as recording studios, radio stations, music stores, and record companies. 3 credits each term.

MU 500–502 Seminars in Advanced Research
Prerequisite: consent of instructor. Bibliographical studies of major world music areas; investigation of current and historical musicological theories; analysis and criticism of musicological area literatures. 3 credits each term.

MU 550 Studies in Urban Ethnic Music
Prerequisite: consent of instructor. The music tradition of inner-city ethnic groups; emphasis on the operation of the oral tradition in the preservation of cultural values and customs as evidenced through music. Classroom discussion is balanced by field research in the urban vicinity. 3 credits.

MU 599 Independent Study
Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. This course must be initiated by the student. 1–3 credits per semester, with a maximum of 12 hours.

PSYCHOLOGY

P 111 Introduction to Psychology
Understanding human behavior. Motivation, emotion, learning, personality development, and intelligence as they relate to normal and deviant behavior. Applying psychological knowledge to everyday personal and societal problems. 3 credits.

P 205 Introduction to Forensic Psychology
Prerequisites: CJ 100, P111. This course provides an overview of the various applications of psychology to forensic settings. Topics include criminal investigation and profiling, personnel selection, dynamics of violence and victimology, eyewitness testimony, trial processes, and a variety of other areas within the criminal and civil justice systems. 3 credits.

P 212 Business and Industrial Psychology
Prerequisite: P 111. Psychological principles and research as they apply to the problems of working with people in organizations. Analysis of problems and decisions in this use of human resources, including selection and placement, criterion measurement, job design, and motivation. 3 credits.

P 216 Psychology of Human Development
Prerequisite: P 111. Human devel-

opment over the life cycle — from conception through death: the changing societal and institutional framework; key concepts and theoretical approaches; understanding development through biography; child rearing and socialization here and abroad. 3 credits.

P 218 Sensation and Perception
Prerequisite: P 111.This course examines how humans process the stimuli that surround them (sensation) and how the brain interprets these stimuli (perception). Furthermore, it explores how our interpretations and our responses to environmental stimuli are influenced by our experiences, culture, physiology, emotional state, and the social situation. 3 credits.

P 220 Psychology of Language and Reading
Prerequisite: P 111. This course introduces students to the principles of how humans acquire and understand language. It examines the mental processes involved in different forms of language use (e.g., speech, conversation, writing, and thought) with a special focus on the processes involved in reading comprehension. Furthermore, the course includes an examination of some of the difficulties often encountered when processing language, including aphasia and dyslexia. 3 credits.

P 261 Drugs and Behavior
Prerequisites: P 111 and BI 121–122. This course introduces the student to the relationship between drugs (legal and illegal) and human behavior. The main topics include the role of drugs in today's society, drug abuse and addiction, the treatment of addiction, and the use of psychoactive drugs in treating psychological disorders. 3 credits.

P 301 Statistics for the Behavioral Sciences
Prerequisite: M 127. Concepts and assumptions underlying statistical methods essential to design and interpretation of research on human subjects. Fundamental descriptive and inferential methods. This course includes training in the use of a computer statistics program. 4 credits.

P 305 Experimental Methods in Psychology
Prerequisite: P 301. Methods of designing and analyzing psychological experiments. The scientific method as applied to psychology. Consideration of research techniques, experimental variables, design problems, and data analysis. This course includes training in the use of a computer statistics program. 3 credits.

P 306 Psychology Laboratory
Prerequisite: P 305. Group and individual experiments to be carried out by students. Research techniques for studying learning, motivation, and concept formation. Data analysis and report writing. 3 credits.

P 312 Cognitive Psychology
Prerequisites: P 111. This course introduces students to the important psychological theories concerning the way in which the human mind perceives, interprets, processes, stores, and retrieves information about the world. Furthermore, the course illustrates how the mind's mental representations of objects and events serve as the basis for learning and memory, pattern recognition, the use of language, and our ability to reason and solve problems. 3 credits.

P 315 Human and Animal Learning
Prerequisite: P 111. Different types of human and animal learning. Learning as an adaptive mechanism. Psychological principles underlying learning. Practical applications of learning principles. 3 credits.

P 316 The Psychology of Health and Sports
Prerequisite: P 111. The role of psychological factors in the cause and prevention of physical illness. The modification of unhealthful behaviors. The study of stress and the management of stress, particularly during athletic competition. The nature of pain and pain management. The role of emotion in athletic performance. The use of psychology in athletic performance enhancement. Threats to the health of athletes. 3 credits.

P 321 Social Psychology
Prerequisites: P 111, SO 113. The interdependence of social organizations and behavior. The interrelationships between role systems and personality; attitude analysis, development, and modification; group interaction analysis; social conformity; social class and human behavior. 3 credits. (Same course as SO 320)

P 330 Introduction to Community Psychology
Prerequisite: P 111. Key concepts of community psychology/community mental health. Community problems, needs, and resources. The helping relationship. Intervention techniques. Programming services. Understanding behavioral differences. Careers in community psychology. 3 credits.

P 331–332 Undergraduate Practicum I and II in Community/Clinical Psychology
Corequisite: P 330 or consent of instructor. Supervised field experience in community psychology/mental health settings. Exploration of service delivery. Development of basic repertoire of helping skills. Behavioral log. Project reporting. Understanding helping roles at individual, small-group, and institutional levels. 1–6 credits, with a maximum of 3 credits per semester.

P 336 Abnormal Psychology
Prerequisite: P 111. Psychological and organic factors in personality disorganization and deviant behavior. Psychodynamics and classifications of abnormal behavior. Disorders of childhood, adolescence, and old age. Evaluation of therapeutic methods. 3 credits.

P 341 Psychological Theory
Prerequisite: P 111. Contemporary theory in psychology. Emphasis on those theories which have most influenced thinking and research in sensation, perception, learning, motivation, and personality. 3 credits.

P 345 Police and Investigative Psychology
Prerequisite: P 205. This course focuses on the functions of the police psychologist such as candidate screening, stress management and counseling, hostage negotiations, critical incident debriefing and fitness for duty evaluations. Application of psychological principles to investigation strategies such as profiling and forensic hypnosis will also be explored. 3 credits.

P 350 Human Assessment
Prerequisite: P 301. Basic principles of measurement, applied to problems of the construction, administration, and interpretation of standardized tests in psychological, educational, and industrial settings. 3 credits.

P 351 Behavior Therapies
Prerequisite: P 111. Principles of therapeutic behavior management. Alteration of maladaptive behavior patterns in institutional, neighborhood, home, educational, and social settings by operant and respondent reinforcement techniques. Habit management in oneself and in one's children. 3 credits.

P 357 Legal Psychology
Prerequisite: P 205. This course focuses on the study of human behavior and cognitions within the legal and criminal justice system. Special emphasis is given to the contributions of legal and cognitive psychology in understanding the criminal and civil legal system. Topics includes eyewitness testimony, jury decision-making, confession evidence, and punishment and sentencing. 3 credits.

P 360 Cognitive Neuroscience
Prerequisite: P 111 and BI 121–122. This course explores the neurological underpinnings related to cognitive processes and their associated behaviors. Specifically, the course focuses on the brain's role in complex human behaviors such as attention, body movement, consciousness, emotions, decision-making, formation and retrieval of memories, and the production and understanding of language. 3 credits.

P 361 Behavioral Neuroscience
Prerequisites: P 111; BI 121 and BI 122. Endocrinological, neural, sensory, and response mechanisms involved in learning, motivation, adjustment, emotion, and sensation. 3 credits.

P 365 Law, Psychology and the Mental Health System
This class reviews the civil and criminal law as it relates to mental health issues. Particular emphasis is given to the justification of mental health law concepts, such as civil commitment and parens patriae power. Topics include competence to stand trial, insanity, civil commitment, sexual predator commitment statutes, confidentiality, duty to warn, informed consent, malpractice and issues of expert testimony. Legal cases are examined to give the students a foundation in actual legal case law. Ethical issues and issues of professional responsibility are covered.

P 370 Psychology of Personality
Prerequisites: P 111, junior standing. Theory and method in the understanding of normal and deviant aspects of personality; theo-

ries of Freud, Jung, Rogers, neo-Freudians, and others. 3 credits.

P 375 Foundations of Clinical/Counseling Psychology
Prerequisite: P 336. Course reviews the humanistic, psychoanalytic, and behaviorist views on the emergence and treatment of psychopathology. The fit between theory and technique is explored. 3 credits.

P 475 Senior Seminar in Psychology and Law
Prerequisites: P 205, P 357, P 365, senior standing. This course explores a series of contemporary rotating research topics in law and psychology that allow students to take an in-depth examination of a single area of study. Areas explored may include jury decision-making models, forensic assessment, wrongful conviction, death penalty, and trial consulting. 3 credits.

P 480–484 Special Topics in Psychology
Selected topics of special or current interest. 3 credits.

P 599 Independent Study
Prerequisites: consent of faculty member and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. This course must be initiated by the student after conferring with the faculty member who has agreed to supervise the project. 1–3 credits.

PUBLIC ADMINISTRATION

PA 101 Introduction to Public Administration
The nature of and problems involved in the administration of public services at the federal, state, regional, and local levels. 3 credits.

PA 302 Public Administration Systems and Procedures
The major staff management functions in government and in nonprofit agencies: planning, budgeting, scheduling, and work analysis. 3 credits.

PA 305 Institutional Budgeting and Planning
Budgeting as an institutional planning tool, as a cost control device, and as a program analysis mechanism is stressed. Attention is given to the salary expense budget, the revenue budget, the capital budget, and the cash budget. 3 credits.

PA 307 Urban and Regional Management
Methods and analysis of decision-making related to urban and regional problems. Topics include housing, land use, economic development, transportation, pollution, conservation, and urban renewal. 3 credits.

PA 308 Health Care Delivery Systems
An examination of the health care delivery systems in the U.S., including contemporary economic, organizational, financing, manpower, cost, and national health insurance issues. 3 credits.

PA 404 Public Policy Analysis
Using the public perspective, examines the nature of the public policy process from policy formation through policy termination. Major emphasis on the techniques commonly used in analyzing public policy, including cost/benefit analysis and comparison of expected and actual outcomes. An opportunity to gain hands-on experience in the analysis and evaluation of public policy. 3 credits.

PA 405 Public Personnel Practices
Study of the civil service systems of the federal, state and local governments, including a systematic review of the methods of recruitment, evaluation, promotion, discipline, control, and removal. 3 credits.

PA 408 Collective Bargaining in the Public Sector
Analysis of collective bargaining in the public sector, with emphasis on legislation pertaining to government employees. 3 credits.

PA 450–459 Special Topics
Selected topics of special or current interest in the field of public management. 3 credits.

PA 490 Public Health Administration
An examination of public health activities, including public health organization, environmental health, disease control, use of information systems, and social services. 3 credits.

PA 512 Seminar in Public Administration
Selected topics related to public administration are chosen for study in depth. 3 credits.

PA 597 Practicum
Prerequisite: junior standing. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Completed under the supervision of a faculty sponsor and coordinated with a business organization. 3 credits.

PA 598 Internship
Prerequisite: consent of the coordinator. Monitorial field experience with public and not-for-profit agencies. Minimum of 3 credits.

PA 599 Independent Study
Independent study on a project of interest to the student under the direction of a faculty member approved by the department chair. 3 credits.

PHYSICS

"+" denotes courses offered on an "as needed" basis.

PH 100 Introductory Physics with Laboratory
Prerequisite: M 109/M 127 or equivalent math competency. A one-semester introduction to the science of physics primarily for liberal arts, business, and hospitality/tourism students. The course provides a broad, algebra-based understanding of the basic laws of nature, their application to our everyday lives, and their impact on our technological society. Laboratory fee; 4 credits.

+PH 101 Energy — Present and Future
Prerequisite: M 109, M 127 or equivalent math competency. Intended primarily for business and liberal arts students. Explores the nature, role, and economic impact of energy in our society. Topics include the nature and growth of energy consumption, physical limits to energy production and consumption, environmental effects, and comparisons of energy alternatives. Special emphasis on the technical, environmental, and economic aspects of nuclear power as well as energy sources of the future such as fast-breeder reactors, fusion, solar, and geothermal power. 3 credits.

PH 103–104 General Physics I and II with Laboratory
Prerequisite: M 109, M 127 or equivalent math competency. Primarily for life-science majors with no calculus background. Basic concepts of classical physics: fundamental laws of mechanics, heat, electromagnetism, optics, and conservation principles. Introduction to modern physics: relativity and quantum theory; atomic, nuclear, and solid-state physics. Application of the physical principles to life sciences. Laboratory fee; 4 credits per semester.

PH 150 Mechanics, Heat, and Waves with Laboratory
Prerequisite: M 117. Introductory course for physical science and engineering majors. Kinematics, Newton's laws, conservation principles for momentum, energy, and angular momentum. Thermal physics. Basic properties of waves, simple harmonic motion, superposition principle, interference phenomena, and sound. Laboratory fee; 4 credits.

PH 203 The Physics of Music and Sound with Laboratory
Prerequisites: PH 100 or PH 103 or PH 150 or equivalent. A second-semester course in physics for music and sound-recording majors and others with a special interest in music, acoustics, or sound and hearing. Study of the physics underlying such things as the production of sound by musical instruments, electromagnetic storage and reproduction of sound, human hearing, and acoustics of concert halls and other spaces. Integrated laboratory experiments provide hands-on experience of these phenomena. Laboratory fee; 4 credits.

PH 205 Electromagnetism and Optics with Laboratory
Prerequisites: PH 150, M 118. Basic concepts of electricity and magnetism: Coulomb's law, electric field and potential, Gauss's law, Ohm's law, Kirchoff's rules, capacitance, magnetic field, Ampere's law, Faraday's law of induction, Maxwell's equations, electromagnetic waves. Fundamentals of optics: light, laws of reflection and refraction, interference and diffraction phenomena, polarization, gratings, lenses and optical instruments. Laboratory fee; 4 credits.

PH 207 Engineering Physics
Prerequisites: one full year of non-calculus physics with laboratories, two semesters of calculus. A one-semester course primarily for engineering transfer students who had a one-year non-calculus physics sequence in a two-year college or technical schools. All the major top-

ics of PH 150–PH 205 are covered with an ample use of calculus. PH 207 should not be used as a technical elective. 4 credits.

PH 211 Modern Physics
Prerequisite: PH 205. Modern physics fundamentals. Twentieth century developments in the theory of relativity and the quantum theory. Atomic, nuclear, solid-state, and elementary particle physics. 3 credits.

+PH 270 Thermal Physics
Prerequisite: PH 103 or PH 150. Basic thermodynamics and its applications. Major emphasis on the efficiency of energy conversion and utilization. Topics include the laws of thermodynamics, entropy, efficiency of heat engines, solar energy, the energy balance of the earth, energy systems of the future, economics of energy use. 3 credits.

+PH 280 Lasers
Prerequisite: PH 205. Laser theory, holography, construction, and application to latest engineering and scientific uses. 3 credits.

+PH 285 Modern Optics
Prerequisite: PH 205. Introduction to optical theories. Topics on the latest developments in optics. Application to life sciences and engineering. 3 credits.

+PH 301 Analytical Mechanics
Prerequisites: PH 150, M 204, or consent of instructor. This is an intermediate-level course in Newtonian mechanics. Selected topics include the formulation of the central force problem and its application to planetary motion and to scattering; theory of small oscillations; dynamics of rigid body motion; and an introduction to Lagrangian and Hamiltonian formalism. 3 credits.

PH 303 Radioactivity and Radiation
Prerequisite: a college chemistry course or consent of instructor. Intended for students in occupational safety and health, fire science, forensic science, and related fields as well as for science and engineering students with interest in this area. Topics include the nature of radiation and radioactivity; the interaction of radiation with matter; biological effects of radiation; detection and measurement of radiation; shielding considerations; dosimetry; and standards for personal protection. 3 credits.

+PH 401 Atomic Physics
Prerequisite: PH 211. Structure and interactions of atomic systems including Schrodinger's equation, atomic bonding, scattering and mean free path, radiative transitions, and laser theory. 3 credits.

+PH 406 Solid-State Physics
Prerequisite: PH 211. Introduction to the physics of solids with emphasis on crystal structure, lattice vibrations, band theory, semiconductors, magnetism and superconductivity. Applications to semiconductor devices and metallurgy. 3 credits.

+PH 415 Nuclear Physics
Prerequisite: PH 211 or consent of instructor. Elementary nuclear physics. Nuclear structure, natural radioactivity, induced radioactivity, nuclear forces and reactions, fission and fusion, reactors, and topics of special interest. 3 credits.

PH 450 Special Topics in Physics
Study of selected topics of special or current interest. 3 credits.

+PH 451 Elementary Quantum Mechanics
Prerequisite: PH 211 or consent of instructor. An elementary treatment of nonrelativistic quantum mechanics. Schrodinger's equation, with its applications to atomic and nuclear structure; collision theory; radiation; introductory perturbation theory. 3 credits.

+PH 470 Theory of Relativity
Prerequisite: PH 211 or consent of instructor. Introduction to Einstein's theory of relativity: special theory of relativity; Lorentz transformations, relativistic mechanics and electromagnetism. General theory of relativity: equivalence principle, Einstein's three tests, graviton, black hole, and cosmology. 3 credits.

PH 599 Independent Study
Prerequisites: consent of faculty member and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. This course must be initiated by the student. 1–3 credits.

PHILOSOPHY

PL 101 Introduction to Philosophy
The nature of reality and how it may be known, according to the great thinkers of the Occident and the Orient. 3 credits.

PL 205 Classical Philosophy
The origins of philosophy and the

continuing influence of classical thought on the development of ideas. 3 credits.

PL 206 Modern Philosophy: Descartes to the Present
Philosophical theories that have dominated the modern age. Focus on a central figure of the period. 3 credits.

PL 210 Logic
Modern symbolic logic and its applications. 3 credits.

PL 215 Nature of the Self
Investigation of personal identity, human nature, and the mind from ancient, modern, Western, and Eastern perspectives. 3 credits.

PL 222 Ethics
How shall one live? Critical examination of answers proposed by classic and modern philosophers of the major world traditions. 3 credits.

PL 240 Philosophy of Science and Technology
Scientific method; the logic of scientific explanation; the application of science to practical problems and questions peculiar to the social sciences. 3 credits.

PL 250 Philosophy of Religion
An examination of some philosophical notions used in religious discourse, such as meaning, truth, faith, being, God, and the sacred. 3 credits.

PL 333 Professional Ethics
Prerequisite: junior or senior standing or consent of instructor. What does it mean to be a professional? This course examines the relationship among technical competence, financial gain, and ethical responsibility. 3 credits.

PL 356 Philosophy of Art
Corequisite: a course in one of the arts or junior or senior standing. Comparative study of beliefs in cultures around the world about art, beauty, and aesthetics. Topics include definitions of art, natural beauty versus artifice, the nature of aesthetic experience, cultural relativism, and the value of art in an age of science and globalization. 3 credits.

PL 450–459 Special Topics in Philosophy
Study of selected topics of special or current interest. 3 credits.

PL 599 Independent Study
Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1–3 credits.

POLITICAL SCIENCE

"+" denotes Institute of Law and Public Affairs courses.

PS 101 Introduction to Politics
A basic course introducing students to the discipline of political science and its subjects: political theory, law, national government, international relations, comparative government, and political economy. 3 credits.

PS 121 American Government and Politics
A basic study of the American political system. Constitutional foundations, the political culture, Congress, the Presidency, the judicial system, political parties, interest groups, news media, individual liberties, federalism, and the policy-making process. 3 credits.

PS 122 State and Local Government and Politics
Problems of cities, revenue sharing, community power structures, welfare, public safety, the state political party, big-city political machines, interest groups, state legislatures, the governor, the mayor, courts, and judicial reform. 3 credits.

PS 203 American Political Thought
Pre-Revolutionary and Revolutionary political thought; classical conservatism, liberalism, Jacksonian democracy, civil disobedience, social Darwinism, progressive individualism, and pluralism. 3 credits.

PS 205 The Politics of the Black Movement in America
The political development of the Black Movement in America emphasizing ideological, legal, and cultural perspectives. 3 credits.

PS 216 Urban Government and Politics
A study of the urban political process. Structures and organizations of urban governments, decision-making, public policy, the "urban crisis," crime and law enforcement, party politics and elections, taxation and spending patterns, environmental problems, management of urban development. 3 credits.

PS 222 United States Foreign Policy
An examination of the global foreign policy of the United States and of the process of policy-making involving governmental and non-governmental actors. A review of the political, economic, military, and cultural tracks of policy. 3 credits.

+PS 224 Public Attitudes and Public Policy
A study of the sources of mass political attitudes and behavior and their effects upon public policy. The course examines the techniques for influencing opinion, including propaganda and mass media communications. 3 credits.

+PS 228 Public Interest Groups
Examination of group institutions of the American political culture. Emphasis on the legal nature, purpose, and function of each operational organization in the political process. 3 credits.

+PS 229 Legal Communications
Familiarization with the kinds of legal documents and written instruments employed by participants in the legal process. Recognization and understanding of the purpose of writs, complaints, briefs, memoranda, contracts, wills, and motions. 3 credits.

+PS 230 Anglo-American Jurisprudence
Surveys ideas about the nature of law. Legal philosophers examined include Plato, Aristotle, St. Thomas Aquinas, John Austin, William Blackstone, Benjamin Cardozo, L.A. Hart, and Oliver Wendell Holmes. The contribution to legal theory made by various schools of jurisprudence (e.g., positivism, legal realism). 3 credits.

+PS 231 Judicial Behavior
Examination of the American court system as a political policy-making body. Topics considered include the structure of the judicial system; the influence of sociological and psychological factors on judicial behavior; and the nature and impact of the judicial decision-making process. 3 credits.

PS 232 The Politics of the First Amendment
Prerequisite: PS 121. Examination of the political implications of the First Amendment freedoms of speech, press, and religion; Supreme Court adaptation of the First Amendment to changing political and social conditions. 3 credits.

PS 241 International Relations
Forces and structures operating in the modern nation-state system; the foreign policy process; decision-making process; the impact of decolonization on traditional interstate behavior; economic and political developments since World War II. 3 credits.

PS 243 International Law and Organization
Prerequisite: PS 241. Traditional and modern approaches to international law and organization. Major emphasis on the contribution of law and organization to the establishment of a world law and world peace. The League of Nations system and the United Nations system are analyzed. 3 credits.

PS 261 Modern Political Analysis
Introduction to political analysis, including quantitative and qualitative techniques, systems and data analysis, role and group theory, and simulations and projections using computerized models. 3 credits.

PS 281 Comparative Political Systems: Asia
Traditional and modern political and social structures of China, Japan, Korea, and other Asian states, including the function of the political system within each country. 3 credits.

PS 282 Comparative Political Systems: Europe
Political characteristics of modern European states. Emphasis on political, social, and economic institutions and structures. Special attention to European integration and the European Union; changes in Eastern Europe and the former USSR. 3 credits.

PS 283 Comparative Political Systems: Latin America
Political modernization, development in Latin America, political institutions, national identity, leadership, integration, political socialization, and political ideologies. 3 credits.

PS 285 Comparative Political Systems: Middle East
Analysis of the Arab and non-Arab states in the region with particular attention to the political systems, violence, and the problems of tradition vs. modernity. 3 credits.

PS 304 Political Parties
Prerequisite: PS 121. Voting and electoral behavior, nominations and

campaign strategy, pressure groups, political party structure, and functions of the party system in the American political community. 3 credits.

PS 308 Legislative Process
Prerequisite: PS 121. Legislative process in the American political system: legislative function; leadership, norms, folkways and executive relations. Selection and recruitment of candidates; the committee system; lobbyists; and decision-making. 3 credits.

PS 309 The American Presidency
The role of the President as commander-in-chief, legislative leader, party leader, administrator, manager of the economy, director of foreign policy, and advocate of social justice. Nature of presidential decision-making, authority, power, influence, and personality. 3 credits.

PS 331 Theory and the Supreme Court
An examination of the ways in which the Supreme Court exercises judicial review with particular emphasis on the various theories of review as they have evolved from John Marshall to the present. 3 credits.

PS 332 Constitutional Law
Prerequisite: PS 121. Principles and concepts of the United States Constitution as revealed in leading decisions of the Supreme Court and the process of judicial review. 3 credits.

+PS 340 Campaign Management: Procedures and Operations
A study of the procedures and operations of the contemporary political campaign, including issue development, voter registration, canvassing, media usage, fundraising, scheduling, and campaign data. 3 credits.

+PS 341 Campaign Management: Structure and Organization
Exploration of the structure, organization, and management of the campaign operation, and the handling, roles, and tasks of the campaign personnel. 3 credits.

+PS 344 Campaign Management: Survey Research, Polling, and Computers
A study of the uses and interpretation of survey research, polling projects, and computer techniques and their application to political campaigns. 3 credits.

+PS 346 Campaign Management: Financing and Election Laws
Exploration of the methods used to finance a political campaign; the nature of campaign costs; the role of political action committees; the effects of campaign finance laws; and the technical aspects and political implications of election laws at the federal, state, and local levels. 3 credits.

PS 350 Public Policy: U.S. National Security
The development and operation of U.S. military and national security policy from George Washington to the present, with major emphasis on the twentieth century and post-World War II era. 3 credits.

PS 355 Terrorism
Examination of the modern applications of terrorism in international affairs, paying special attention to ideological and infrastructure determinants. 3 credits.

PS 390 Political Modernization
Comparative analysis of political change and development. Political transition, political integration, and nation building; institutional developments; political parties; military elites; youth; intellectuals; the bureaucracy; economic development; and political culture. 3 credits.

+PS 415 Internship in Legal and Public Affairs
Prerequisite: consent of instructor. Students have the opportunity to work as paraprofessionals in legislatures, government agencies, and party organizations and to share their experiences with other interns in legal and public affairs. 3 credits.

+PS 450 Campaign Management: Internship
Actual work experience in campaign management. 3 credits.

PS 461 Political Theory: Ancient and Medieval
Foundations of Western political thought from the Greek, Roman, and medieval experiences as they apply to the total discipline of political science. 3 credits.

PS 462 Political Theory: Modern and Contemporary
A continuation of the study of political thought from the High Middle Ages to contemporary theorists. 3 credits.

PS 494–498 Special Topics in Political Science
Special studies on a variety of cur-

rent problems and specialized areas in the field not available in the regular curriculum. 3 credits per course.

PS 499–500 Senior Seminar in Political Science I and II
Prerequisite: consent of department chair. Capstone course in which students use the tools of their discipline to examine a selected problem. May be conducted as a proseminar. Required of all political science majors. 3 credits per term.

PS 599 Independent Study
Directed research on special topics to be selected in consultation with the department chair and a sponsoring faculty member. 3 credits.

QUANTITATIVE ANALYSIS

QA 118 Business Mathematics
Prerequisite: M109 or successful completion of qualifying placement test by the Mathematics Department. This course is designed to improve the quantitative reasoning skills of business students. It provides an introduction to two important knowledge bases: linear functions and systems, and the fundamentals of the derivative and integration and their uses in business decision-making. The focus of the course is on the application of these mathematical concepts to personal business, management, marketing, and finance issues. Excel spreadsheet applications are used extensively throughout the course. 3 credits.

QA 216 Business Statistics
Prerequisite: QA 118 or equivalent. A course in elementary probability and statistical concepts and theory, with emphasis on data analysis and presentation; probability theory; sampling distributions; statistical inference; z-test, t-test, and chi-square test; and simple and multiple regression analysis. 3 credits.

QA 328 Quantitative Techniques in Management
Prerequisites: QA 216 and junior standing. An introduction to quantitative techniques in management. Topics include linear programming, assignment problems, transportation algorithms, network and inventory models, and decision theory. 3 credits.

QA 343 Management Information Systems
Prerequisite: QA 216. This course provides methodology of the design, analysis, and evaluation of management information systems (MIS). Topics include organizational implications of information technology, planning and control systems, implementation of an integrated system, technical treatment of MIS management, and application of computers via computer packages in business environments. 3 credits.

QA 350 Quantitative Techniques
Prerequisites: QA 216 and junior standing. Advanced applications of quantitative techniques to the solution of business problems. Topics include classical optimization techniques, nonlinear programming, topics in mathematical programming, and graph theory. 3 credits.

QA 380 Operations Management
Prerequisite: QA 216. Basic review of service and production system designs and performance evaluation. Topics include operations strategy, staff and production scheduling, Just-in-Time and time-based competition, project management, and the role of technology in service and manufacturing operations. 3 credits.

QA 428 Forecasting for Decision-Making
Prerequisite: QA 216. Review of different approaches to forecasting used by management at different levels of decision-making. Techniques include smoothing and decomposition, causal and judgmental methods. Computer applications and modeling are emphasized. 3 credits.

QA 450–459 Special Topics
Prerequisite: QA 216. Coverage of new and emerging topics and applications in quantitative analysis. 3 credits.

QA 480 Project Management
Prerequisite: QA 216. Survey of management techniques applicable to a wide variety of business-related project types. Emphasis on the project management cycle, including selecting, scheduling, budgeting, and controlling projects. Desired qualifications and roles of project managers. Extensive use of project management software. 3 credits.

QA 597 Practicum
Prerequisite: junior standing. A course of study designed especially for the supervised practical application of previously studied theory in a group setting. Completed under the supervision of a faculty sponsor

and coordinated with a business organization. 3 credits.

QA 598 Internship
Prerequisite: QA 216. Supervised field experience for qualified students in an area related to operations management or quantitative analysis. 3 credits.

QA 599 Independent Study
Prerequisites: QA 118, QA 216, and junior standing. Independent research projects or other approved forms of independent study. 3 credits.

RUSSIAN

RU 101–102 Elementary Russian I and II
Stresses pronunciation, aural and reading comprehension, basic conversation, and the fundamental principles of grammar. 3 credits per term.

RU 201–202 Intermediate Russian I and II
Prerequisites: RU 101–102 or the equivalent. Stresses reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to read in their own areas of interest. 3 credits per semester.

RU 450–459 Special Topics
Selected topics of special or current interest in the study of Russian. 3 credits.

SCIENCE

"*" denotes courses usually scheduled every other academic year.

"+" denotes courses offered at the discretion of the department.

+SC 111–112 Physical Science I and II
The meaning of scientific concepts and terms and their relation to other areas of learning and to daily living. Development and unity of physical science as a field of knowledge. Includes astronomy, physics, chemistry, and geology. 3 credits per semester.

***SC 126 Astronomy**
An introduction to present concepts concerning the nature and evolution of planets, stars, galaxies, and other components of the universe. The experimental and observational bases for these concepts are examined. 3 credits.

+SC 135 Earth Science
A dynamic systems approach to phenomena of geology, oceanography, and meteorology. Emphasis on interrelations of factors and processes and on importance of subject matter to human affairs. Suitable for non-science as well as science majors. 3 credits.

SC 450 Special Topics
Selected topics of special or current interest in the study of science. 3 credits.

SYSTEM ENGINEERING

SE 288 System Engineering Concepts and Principles
Prerequisite: sophomore standing. Introduction to system engineering; system thinking; structure of modern systems; development process and organization of development projects; life cycle and testing; system engineering management; risk and standards; needs analysis; concepts exploration and definition; developing of requirements; system development planning; and functional specification. Case studies and plant tours are integrated in the course topics. 3 credits.

SE 346 Probability Analysis
Prerequisite: M 203. Develops the theory of probability and related applications. Covers combinations and permutations, probability space, law of large numbers, random variables, conditional probability. Bayes' Theorem, Markov chains, and stochastic processes. 3 credits.

SE 347 Statistical Analysis
Prerequisites: SE 346 and CS 107 or equivalent. Provides an introduction to the application of statistical techniques to engineering problems. Measures of central tendency and dispersion, estimation, hypothesis testing, correlation and regression, and elementary analysis of variance. 3 credits.

SE 402 Operations Research
Prerequisites: SE 346 and CS 107 or equivalent. The operations research area is oriented to various mathematical methods for solving certain kinds of industrial problems. Topics covered are linear programming, including simplex method; transportation and assignment problems; queuing; dynamic programming; simulation. 3 credits.

SE 403 Operations Research II
Prerequisite: SE 402 or equivalent. Advanced coverage of Bayesian

statistics, utility and game theory, logistics and distribution, scheduling theory, graph theory, and stochastic processes. Includes applications in manufacturing and service industries. 3 credits.

SE 407 Reliability and Maintainability
Prerequisite: SE 346 or equivalent. Reliability measures: hazard models and product life; reliability function; static reliability models; inference theory and reliability computation; dynamic reliability models; and reliability design examples. 3 credits.

SE 428 Six Sigma Quality Planning
Prerequisite: SE 347 or consent of instructor. Improving quality and reducing cost through the use of statistical methods; statistical process control and basic experimental design techniques; well known quality systems, including concept and methodology of six sigma (a quality management program). DMAIC process, ISO standards, quality project management, and commonly utilized six sigma tools are the focus of this course. Plant tours and six sigma implementation cases are included. 3 credits.

SE 435 Simulation and Applications
Prerequisites: SE 346 and CS 107 or equivalent. Corequisite: SE 402. Techniques for modeling of a system (business or scientific/engineering) using computer simulation. Simulation principles are emphasized. Student exercises and design projects are run using a modern simulation package. 3 credits.

SE 441: Supply Chain and Logistics Management
Prerequisite: senior standing. The process of planning, implementing, and controlling flow and storage of goods, services, and related information from point to point of consumption with the customer requirements in mind. Topics include fundamentals of logistics and e-logistics, information systems and e-commerce, inventory concepts and management, material flow and transportation management, warehousing and material handling, the type and use of electronic media in the daily functions of supply chain management, and global logistics. 3 credits.

SE 449 Lean Principles and Practices
Prerequisites: SE 441 or consent of instructor. Concepts of lean production, Japanese production systems, push vs. pull production systems, benchmarking and evaluation schemes, schedule management, overcoming bottlenecks, and performance and productivity improvement techniques applicable to service and manufacturing systems. Workforce issues (affairs) including union acceptance, productivity, workforce education, training, and compensation. 3 credits.

SE 450–459 Special Topics
Prerequisite: consent of instructor. Selected topics of current interest in the field of system engineering. 3 credits.

SE 488 System Engineering Design Process
Prerequisite: SE288, SE347, SE407. Corequisite: SE 403. The process of system design and development to create a product or service. Includes stages of conceptual, preliminary, and detail design and development; system testing, evaluation and validation. Also addresses design issues of reliability, maintainability, human factors, serviceability, producibility and disposability. Team projects and extensive use of software. 3 credits.

SE 498 System Engineering Design Project I
Prerequisite: SE 488 and consent of department. The first course in a two-course year-long design project. With a faculty adviser, the student works with two or more members on an industry-sponsored project. Includes project scoping and definition; needs assessment and analysis; risks, standards and human factors evaluation; conceptual design; developing requirements, functional specification, and simulation of the conceptual design; testing and validation. Work is presented through both a formal report and at a department seminar. Work continues to the follow-up course, SE 499. 3 credits.

SE 499 System Engineering Design Project II
Prerequisite: SE 498 and consent of department. Continuation of SE 498. With faculty and industry advisers, student continues to work on the industry-sponsored project for end-delivery. Includes detailed design requirements and development, operational feasibility, systems models and prototype development, testing, evaluation and validation, operational feasibility, reliability and other characteristics, preparation of life-cycle value cost,

and packaging for final delivery to customer. Work is presented through both a formal report and at a department seminar. 3 credits.

SE 599 Independent Study
Prerequisite: junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credits.

SOCIOLOGY

SO 113 Sociology
The role of culture in society, the person, and personality; groups and group behavior; institutions; social interaction and social change. 3 credits.

SO 114 Contemporary Social Problems
Prerequisite: SO 113 or consent of instructor. The major problems that confront the present social order; the methods now in practice or being considered for dealing with these problems. 3 credits.

SO 115 Women in Society
An overview of women's role in the social system. Discussion includes myths and realities of sex differences. Areas covered include analysis of the relationships of women to the economy, the arts, and the sciences, and how these affect the behavior of women in the contemporary world. 3 credits.

SO 214 Deviance
Prerequisite: SO 113 or consent of instructor (offered in the Spring semester only). Centered around deviance as a social product. The problematic nature of the stigmatization process is explored in areas such as alcoholism, crime, mental illness, and sexual behavior. 3 credits.

SO 218 The Community
Prerequisite: SO 113 or consent of instructor. The community and its provisions for health, education, recreation, safety, and welfare. Theoretical concepts of community, plus ethnographic studies of small-scale human communities. Introduces students to fundamental concepts of community. 3 credits.

SO 220 Physical Anthropology and Archaeology
An introduction to the study of human evolution and of present physical variations among humankind. Includes geologic time, primate evolution, and early humans and their culture. 3 credits.

SO 221 Cultural Anthropology
A systematic study of the culture of preliterate and modern societies and of cultural change. Includes analysis of religion, economics, language, social and political organization, and urbanization. 3 credits.

SO 231 Juvenile Delinquency
Prerequisites: SO 113, P 111. An analysis of delinquent behavior in American society; examination of the theories and social correlates of delinquency and the sociolegal processes and apparatus for dealing with it. 3 credits. (See also CJ 221.)

SO 250 Research Methods
Prerequisite: sophomore standing. The student develops the concepts necessary for selection and formulation of research problems in social science, research design and techniques, and analysis and interpretation of research data. 3 credits.

SO 310 Primary Group Interaction
Prerequisite: SO 113. Exploration of communication in group process. Building a group and analyzing group structure and interaction; the ways people communicate emotionally and intellectually. 3 credits.

SO 311 Criminology
Prerequisites: P 111, SO 113. An introduction to the principles and concepts of criminology. Analysis of the social context of criminal behavior, including a review of criminological theory, the nature and distribution of crime, the sociology of criminal law, and the societal reactions to crime and criminals. 3 credits. (See also CJ 311.)

SO 312 Marriage and the Family
Prerequisite: SO 113 or consent of instructor. The formation, functioning, and dissolution of relationships in contemporary American society are examined from an applied sociology perspective. 3 credits.

SO 313 Sociology of Sport
Prerequisite: SO 113 or consent of instructor. A study of the relationships among sports, culture, and society. Emphasis is on both amateur and professional sports and their impact on the larger social order. Course examines sports from a comparative and historical perspective but also focuses on problems confronting the world of sports in contemporary American society. 3 credits.

SO 315 Social Change
Prerequisite: SO 113 or consent of instructor. Sources, patterns, and processes of social change with examination of classical and modern theories of major trends and developments, as well as studies of perspectives on microlevels of change in modern society. 3 credits.

SO 320 Social Psychology
Prerequisites: P 111, SO 113. The interdependence of social organizations and behavior. The interrelationships between role systems and personality; attitude analysis, development, and modification; group interaction analysis; social conformity; social class and human behavior. 3 credits. (See also P 321.)

SO 321 Social Inequality
Prerequisite: SO 113 or consent of instructor. Organization of social class: standing, power, and process of social mobility in contemporary society. Social stratification: its functions and dysfunctions as it relates to the distribution of opportunity, privilege, and power in society. 3 credits.

SO 331 Population and Ecology
Prerequisite: SO 113 or consent of instructor. Societal implications of population changes and trends; impact of humans as social animals on natural resources, cultural values, and social structures; influence on environmental ethics. 3 credits.

SO 333 Sociology of Aging
Prerequisite: SO 113 or consent of instructor. The sociological phenomena connected with aging in America. Discussion of the connections between personal troubles and social issues encountered by members of this society as they age. An examination of age stratification and the resultant problems of ageism, prejudice, and discrimination. Systematic review of major theoretical framework and research studies; emphasis on the application of sociological theory and research in the field of aging. 3 credits.

SO 337 Human Sexuality
Prerequisite: SO 113 or consent of instructor. A scientific study of human sexual behavioral patterns, social class attitudes, and cultural myths. Topics include reproductive systems, sexual attitudes and behavioral patterns, abortion and sexual laws, and variations in sexual functioning. 3 credits.

SO 340 Medical Sociology
Prerequisite: SO 113 or consent of instructor. An analysis of a major social institution, the health care field. Emphasis placed on sociocultural aspects of the field; general overview of the organization and delivery of health care services, and current problems and issues. 3 credits.

SO 350 Social Survey Research
Prerequisite: P 301 or M 228. Introduction to the logic of social science by a survey research project. Emphasis on the use of computer software in analyzing large data sets. Topics include theory development, survey design, sampling, methods of data collection, and statistical analysis of social science data. This course is part of the technology component of the University Core Curriculum. 3 credits.

SO 390 Sociology of Organizations
Prerequisite: SO 113 or consent of instructor. Classic sociological theories of organization with emphasis on the concepts of bureaucracy, scientific management, human relations, and decision theory. The relevance of these ideas to concrete organization contexts; e.g., civil service, business, social movements and political parties, charitable institutions, and hospitals. 3 credits.

SO 400 Minority Group Relations
Prerequisite: SO 113 or consent of instructor. An interdisciplinary analysis of minority groups with particular attention paid to those regional, religious, and racial factors that influence interaction. Designed to promote an understanding of subgroup culture. 3 credits.

SO 413 Social Theory
Prerequisites: nine credits in sociology. An analysis of the development of sociology in the nineteenth and twentieth centuries with particular emphasis on the theories of Comte, Durkheim, Simmel, Weber, Marx, deTocqueville, and others. 3 credits.

SO 418 Public Opinion and Social Pressure
Prerequisites: SO 113, P 111. An intensive analysis of the nature and development of public opinion with particular consideration of the roles, both actual and potential, of communication and influence. 3 credits.

SO 440 Undergraduate Seminar
Prerequisite: consent of department chair. A detailed examination of selected topics in the field of sociology and a critical analysis of pertinent theories with emphasis on modern social thought. 3 credits.

SO 441 Sociology of Death and Suicide
Prerequisite: SO 113 or consent of instructor. A confrontation with individual mortality and an academic investigation of phenomena such as funerals, terminal illness, and crisis intervention, among many others. 3 credits.

SO 450 Research Seminar
Prerequisite: P 301 or M 228. The student develops and carries out an original research project in social science, reporting this procedure to the class. 3 credits.

SO 451–455 Special Topics in Sociology, Social Services, Anthropology
Prerequisites: SO 113, SO 221, or consent of instructor. Special topics in sociology, anthropology, or social welfare on a variety of current problems and specialized areas not available in the regular curriculum. 3 credits.

SO 501–502 Practicum I and II
Prerequisite: consent of department chair. Field experience in sociology or anthropology. Seminars in conjunction with this experience before off-campus fieldwork is undertaken. Contact during the fieldwork experience and guidance by the mentor provide an opportunity for understanding group and individual dynamics and their repercussions. Follow-up seminars and a paper are required. 1–6 credits.

SO 599 Independent Study
Prerequisites: consent of instructor and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. This course must be initiated by the student. 1–3 credits.

SPANISH

SP 101–102 Elementary Spanish I and II
Focuses on the fundamental principles of grammar. Extensive vocabulary and pronunciation exercises. In SP 102 aural comprehension and pronunciation are tested by oral examination. 3 credits per semester.

SP 201–202 Intermediate Spanish I and II
Prerequisites: SP 101–102 or equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to read in their own areas of interest. 3 credits per semester.

SP 450–459 Special Topics
Selected topics of special or current interest in the study of Spanish. 3 credits.

SP 599 Independent Study
Prerequisite: consent of faculty member and department chair. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1–3 credits.

SOCIAL WELFARE

SW 220 Introduction to Social Services
Course explores two basic questions from a historical perspective: Why are people poor, and how have societies responded to the conditions of poverty? Focus on how the different economic, political, psychological, and sociological arrangements of society and its social institutions create conditions which stimulate and necessitate differing social welfare responses. 3 credits.

SW 340 Group Dynamics
Prerequisite: consent of instructor. Designed for students who seek to develop their leadership skills in working with groups of various types. Explores cognitive and behavioral mastery of a range of complex variables for role effectiveness, including a working knowledge of personal, group, and organizational dynamics; professional skills of facilitation; and values of one's professional identity. 3 credits.

SW 401–402 Field Instruction I and II
Supervised experience relevant to specific aspects of social services in human service agencies, institutions, and organizations at the local, state, and federal levels. Seminars to assist students with the integration of theoretical knowledge and field techniques through lectures and class presentations. Students are required to spend eight hours a week in the field. 3 credits each semester.

SW 415–416 Methods of Intervention I and II
Basic social work theory in conjunction with practice of skills to help students begin to develop professional techniques for intervention at both the macro and micro levels of practice. 3 credits each semester.

SW 450–459 Special Topics
Special topics of selected or current

interest in the study of social welfare. 3 credits.

SW 599 Independent Study
Prerequisite: consent of instructor. Designed to permit students to pursue specific areas of interest that may not be available in the regular curriculum. 1–3 credits.

THEATRE ARTS

T 131 Introduction to the Theatre
Play analysis from a literary standpoint and as it relates to special problems of the actor, director, designers, and backstage personnel. Practical work in all phases within the classroom. Fall semester. 3 credits.

T 132 Theatrical Style
Study of dramatic genres and theatrical conventions through script and critical reading, as well as practical work in class. Spring semester. 3 credits.

T 241 Early World Drama and Theatre
Dramatic literature in theatrical contexts from Classical Greece through Restoration England. 3 credits.

T 242 Modern World Drama and Theatre
Dramatic literature in theatrical contexts from Realism through the present. Includes ethnic drama. 3 credits.

T 341 Acting
Developing of acting skills for the stage through games, improvisation, and scene study. 3 credits.

T 342 Play Directing
Prerequisite: consent of instructor. Fundamentals of directing, staging techniques, working with actors, and direction of a one-act play for workshop presentation. 3 credits.

T 450 Special Topics
Selected topics of special or current interest in the study of theatre. 3 credits.

T 491–492 Production Practicum I and II
Prerequisite: consent of instructor. Practicum in various areas of theatre: acting, directing, administration, technical theatre, and design. Will be directly related to departmental productions. 3 credits each.

T 599 Independent Study
Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 3 credits.

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B.E.E., Cornell University; M.S., Stevens Institute of Technology; D.P.S., Pace University

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B.E.E., M.S., New York University; Ph.D., University of Connecticut

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B.S., University of Washington; Ph.D., Columbia University

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B.M.E., M.S.I.E., Cornell University; M.S., Ph.D., Carnegie Mellon University

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B.S., South Dakota School of Mines; M.S., Ph.D., University of Illinois

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B.S., Quinnipiac College; M.A., M.Phil., Ph.D., Yale University

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B.A., Morehouse College; Ph.D., Fordham University; M.A., John Jay College of Criminal Justice

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B.S., University of New Hampshire; M.S., Columbia University; R.D., Medical College of Virginia

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B.A., Adelphi University; M.Phil., Ph.D., Yale University

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B.S., University of Bridgeport; M.P.S., Quinnipiac College

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Ph.D., Finch University of Health Sciences/Chicago Medical School

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A.S., Hudson Valley Community College; B.S., University of New Haven;
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Alexandria E. Guzman, Assistant Professor, Psychology
B.S., Seton Hall University; M.S., Fordham University;
M.A., Ph.D., State University of New York at Binghamton

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B.S., Tehran University, Iran; M.S., Pahlavi (Shiraz) University, Iran;
Ph.D., University of Toronto

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B.A., University of California at Los Angeles;
M.A., Ph.D., Eberhard-Karls Universitat (Germany)

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B.A., State University of New York College at Plattsburgh;
M.A., Ph.D., University of Connecticut

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B.S., M.S., Southern Connecticut State University; M.F.A., University of Miami;
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B.M., Hartt School of Music; M.F.A., State University of New York at Purchase
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Ph.D., University of California, Riverside

Teal Mercer, Assistant Professor, Dental Hygiene
A.S., University of Bridgeport; B.S., Pennsylvania State University;
M.P.H., University of Connecticut

Rosa A. Mo, Lecturer, Nutrition and Dietetics
B.S., College of the Holy Spirit; M.S., Ed.D., Columbia University;
R.D., Yale-New Haven Hospital

Michael A. Morris, Professor, Psychology
B.A., M.A., Ph.D., Boston College

Suzanne Murphy, Lecturer, Education
B.A., Fordham University; M.A., Yale University; M.S., P.D., Sixth Year Certificate,
Southern Connecticut State University

Ronald H. Nowaczyk, Professor, Psychology
B.A., Northwestern University; M.A., Ph.D., Miami University of Ohio

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B.A., Western Connecticut State University; M.A., Ph.D., Fordham University

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B.S., M.S., University of Bridgeport

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A.A., Queensborough Community College, CUNY; B.A., Queens College; M.S., Brooklyn College, City University of New York; J.D., Bridgeport School of Law at Quinnipiac College; Ph.D.,Wayne State University;

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B.A., Queens College, City University of New York; M.S., State University of New York at Albany; M.A., Ph.D., University of California, Berkeley

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B.S., Xavier University; Ph.D., University of Kentucky

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B.A., M.A., Ph.D., New York University

Eva Sapi, Associate Professor, Biology and Environmental Science
B.S., Vorosmarty Gymnasium; Ph.D., Eotvos Lorand University (Hungary)

Ramesh Sharma, Professor, Mathematics
B.S., M.S., Ph.D., Banaras Hindu University, India; Ph.D., University of Windsor

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B.A., The American University; M.A., Ph.D., DePaul University

Gordon R. Simerson, Professor, Psychology
B.A., University of Delaware; M.A., Ph.D., Wayne State University

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B.S., M.S., Indian Institute of Technology; Ph.D., University of Kentucky

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B.A., Wesleyan University; M.A., Ph.D., Duke University

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B.A., Southern Connecticut State University; M.S., Emerson College; Ph.D., University of Massachusetts

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Louise M. Soares, Professor, Education
B.A., M.A., Boston University; Ph.D., University of Illinois

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B.A., M.A., University of Florida; M.A., Ph.D., University of Pennsylvania

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B.A., LeMoyne College; M.A., Ph.D., Syracuse University

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B.A., University of Connecticut; Ph.D., University of Rhode Island

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B.S., Stetson University; M.A., University of North Carolina at Chapel Hill; Ph.D., Virginia Polytechnic Institute and State University

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B.A., Brigham Young University; M.A., Harvard University; Ph.D., Indiana University

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Robert Law, Education
B.S., Quinnipiac College; M.S., Sixth Year Certificate, Southern Connecticut State University

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B.A., Marymount College; M.S., Sixth Year Certificate, Southern Connecticut State University

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Ming-Lun Lee, Assistant Professor, Department of Sports Management/Hospitality and Tourism Management
B.S., Chung-Shan Medical College, Taiwan; M.S., Purdue University; M.S., DePaul University

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B.A., Regis College; Ph.D., University of South Carolina

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B.S., City College of New York; M.B.A., New York University; C.M.A., C.I.A., C.F.A., C.P.A.

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B.S., M.B.A., University of New Haven; C.P.A.

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B.A., City College, New York; M.B.A., Bernard M. Baruch College; Ph.D., City University of New York

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B.S., Ph.D., University of Texas

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B.S., University of Bridgeport; M.B.A., University of Connecticut; C.P.A.

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M.S., Birla Institute of Technology and Science; Postgraduate Diploma, Institute of Rural Management, India; Ph.D., University of Western Sydney, Australia

Allen L. Sack, Professor, Management and Sociology
B.A., University of Notre Dame; M.A., Ph.D., Pennsylvania State University

Steven J. Shapiro, Associate Professor, Economics and Finance
B.A., University of Virginia; M.A., Ph.D., Georgetown University

Kamal Upadhyaya, Professor, Economics
B.A., Tribhuvan University, Nepal; M.A., Thammasat University, Thailand; Ph.D., Auburn University

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B.A., Shanghai Teacher's University; M.A., Southeast Missouri State University; Ed.S., University of Georgia; Ph.D., Oklahoma State University

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B.Sc. (Hons), Ph.D., University of Hertfordshire, United Kingdom

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B.S., Detroit Institute of Technology; M.S., Ph.D., Wayne State University

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B.A., Muhlenberg College; B.A., B.S., University of Rhode Island; Ph.D., Pennsylvania State University

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B.S., M.S., Purdue University; Ph.D., Northwestern University

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A.S., Middlesex Community College; B.S., M.S., University of New Haven

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B.S., Aryamehr University of Technology, Iran; M.S., Ph.D., Oklahoma State University

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B.S., M.S., National Technical University, Athens; M.S., Polytechnic Institute of New York; Ph.D., Polytechnic University

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B.S.E.E., M.S.M.E., University of Bridgeport; Ph.D., Rensselaer Polytechnic Institute

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B.S., Pennsylvania State University; Ph.D., Bryn Mawr College

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B.S., Manhattan College; M.S., Ohio State University; Ph.D., University of Massachusetts

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B.A., Hamilton College; M.S., Ph.D., Tufts University

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B.S., M.S., University of Rhode Island

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Sorin Iliescu, B.S.M.E., M.S., Coordinator, Master of Science in Fire Science

James O. Matschulat, A.B., M.B.A., Coordinator, Master of Science in National Security and Public Safety

Timothy Palmbach, Coordinator, Master of Science, Forensic Science

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B.A., Lambuth College; M.P.A., Jacksonville State University;
Ph.D., University of South Carolina

Katherine M. Brown, Assistant Professor, Criminal Justice
B.A., University of Texas at Austin; M.A., Ph.D., Sam Houston State University

James J. Cassidy, Associate Professor, Criminal Justice
B.A., California State University; J.D., Villanova School of Law;
Ph.D., Hahnemann University Graduate School

Howard J. Cohen, Professor, Occupational Safety and Health
B.A., Boston University; M.P.H., Ph.D., University of Michigan

Heather Coyle, Assistant Professor, Forensic Science
B.S., State University of New York at Plattsburg;
M.S., Ph.D., University of New Hampshire

Ernest W. Dorling, Senior Lecturer, Criminal Justice
M.P.A., Troy State University, European Campus

Nelson Dunston, Assistant Professor, Fire Science
B.A., St. Mary's College of Maryland; M.S., University of Maryland College Park

Leila Dutton, Assistant Professor, Criminal Justice
B.A., Siena College; M.S., Old Dominion University; Ph.D., University of Rhode Island

Mario T. Gaboury, Professor, Criminal Justice
B.A., University of Connecticut; M.A., University of Maryland;
Ph.D., Pennsylvania State University; J.D., Georgetown University Law Center

Azriel Gorski, Associate Professor, Forensic Science
M.S., The Bloomsburg State College; Ph.D., The Hebrew University of Jerusalem

Howard A. Harris, Professor, Forensic Science
A.B., Western Reserve University; M.S., Ph.D., Yale University;
J.D., St. Louis University Law School

Sorin Iliescu, Assistant Professor, Fire Science
B.S.M.E., University of Bucharest, Romania; M.S., University of New Haven

Robert D. Keppel, Associate Professor, Criminal Justice
M.E., Seattle University; Ph.D., University of Washington–Seattle

Michael P. Lawlor, Associate Professor, Criminal Justice
B.A., University of Connecticut; M.A., University of London, England; J.D., George Washington University National Law Center; State Representative, Connecticut

Henry C. Lee, Professor, Forensic Science
B.A., Taiwan Central Police College; B.S., John Jay College of Criminal Justice; M.S., Ph.D., New York University

Peter Massey, Lecturer, Forensic Science
B.S., Eastern Connecticut State College; M.S., University of New Haven

Robert E. Massicotte, Jr., Assistant Professor, Fire Science
B.S., M.S., University of New Haven

James O. Matschulat, Associate Professor, Criminal Justice and National Security
M.B.A., St. John's University, A.B., Colgate University

Daniel K. Maxwell, Instructor, Criminal Justice
M.S., M.P.A., University of New Haven

Virginia M. Maxwell, Lecturer, Forensic Science
B.Sc., Liverpool University, England; D.Phil., The Queen's College, Oxford University

James Monahan, Associate Professor, Criminal Justice
B.S., University of New Haven; M.S., Ph.D., Florida State University

Lynn Hunt Monahan, Professor, Criminal Justice
B.A., McGill University; M.A., Ph.D., University of Oregon

Donna Decker Morris, Associate Professor, Legal Studies
B.S., Tufts University; J.D., Yale Law School

Fadia Narchet, Assistant Professor, Forensic Science
B.S., Barry University; M.S., Ph.D., Florida International University

William M. Norton, Professor, Criminal Justice
B.S., Louisiana State University; M.S., University of Southern Mississippi; M.S., Ph.D., Florida State University; J.D., University of Connecticut School of Law

Martin J. O'Connor, Associate Professor, Fire Science
B.A., University of New Haven; J.D., University of Connecticut School of Law; M.Div., Yale Divinity School

Timothy Palmbach, Associate Professor, Forensic Science
B.S., M.S., University of New Haven; J.D., University of Connecticut School of Law

David Schroeder, Assistant Professor, Criminal Justice
B.A., University of California, Irvine; M.A., University of Hull; M.Phil., Ph.D., The Graduate School of the City of New York

Christopher M. Sedelmaier, Assistant Professor, Criminal Justice
B.S., The College of New Jersey; M.A., Ph.D., Rutgers University

Frederick P. Smith, Professor, Forensic Science
B.A., Antioch College; M.S., Ph.D., University of Pittsburgh

William L. Tafoya, Professor, Criminal Justice and National Security
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Tracy L. Tamborra, Assistant Professor, Criminal Justice
B.A., M.S., University of New Haven

Bruce J. Varga, Lecturer, Fire Science
B.S., Southern Connecticut State University; M.S., University of New Haven

Richard H. Ward, Professor, Criminal Justice
B.S., John Jay College of Criminal Justice; M.Crim., D.Crim., University of California–Berkeley

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B.S., M.S., University of New Haven

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UNDERGRADUATE ACADEMIC CALENDAR 2008–2009

FALL SEMESTER 2008

August	Tuition and residence charges due	**Friday, Aug. 1**
	Residence halls open for new students at 10 a.m.	**Sunday, Aug. 24**
	Orientation	**Sunday–Tuesday, Aug. 24–26**
	Residence halls open for returning students	**Tuesday, Aug. 26**
	Classes begin	**Wednesday, Aug. 27**
September	Labor Day–no classes	**Monday, Sept. 1**
	Last day to add a course	**Wednesday, Sept. 10**
October	Last day to drop a course	**Friday, Oct. 10**
	No classes	**Monday–Tuesday, Oct. 13–14**
	Last day to petition for January graduation	**Wednesday, Oct. 15**
November	Residence halls close at 10 a.m.	**Wednesday, Nov. 26**
	Thanksgiving weekend–no classes	**Wednesday–Saturday, Nov. 26–29**
December	Wednesday Dec. 10 classes on Monday schedule/Classes end	**Wednesday, Dec. 10**
	Reading day	**Thursday, Dec. 11**
	Exams begin	**Friday, Dec. 12**
	Exams end	**Thursday, Dec. 18**
	Last day of the semester	**Thursday, Dec. 18**
	Residence halls close at 10 a.m.	**Friday, Dec. 19**
January 2009	Commencement, 2 p.m.	**Saturday, Jan. 17, 2009**

INTERSESSION 2009

January	Classes begin	**Monday, Jan. 5**
	Martin Luther King Day–no classes	**Monday, Jan. 19**
	Classes end	**Friday, Jan. 23**

SPRING SEMESTER 2009

January	Tuition and residence charges due	**Friday, Jan. 2**
	Residence halls open for new students	**Thursday, Jan. 22**
	Orientation	**Friday, Jan. 23**
	Residence halls open for returning students	**Sunday, Jan. 25**
	Classes begin	**Monday, Jan. 26**
February	Last day to add a course	**Thursday, Feb. 5**
	Presidents' Day–no classes	**Monday, Feb. 16**
March	Last day to petition for May graduation	**Monday, Mar. 2**
	Last day to drop a course	**Friday, Mar. 13**
	Residence halls close at 5:30 p.m.	**Friday, Mar. 13**
	Spring Recess–no classes	**Monday–Saturday, Mar. 16–21**
	Classes resume	**Monday, Mar. 23**
April	No classes	**Friday, Apr. 10**
May	Tuesday, May 12 classes on Friday schedule/Classes end	**Tuesday, May 12**
	Reading day	**Wednesday, May, 13**
	Exams begin	**Thursday, May 14**
	Exams end	**Wednesday, May 20**
	Last day of the semester	**Wednesday, May 20**
	Residence halls close at 10 a.m.	**Thursday, May 21**
	Commencement, 10 a.m.	**Saturday, May 23**

SUMMER SESSIONS 2009

May	First Summer Session classes begin	**Thursday, May 21**
	Memorial Day–no classes	**Monday, May 25**
June	Last day to petition for August awarding of degrees	**Monday, June 15**
July	Thursday, July 2 classes on Monday/Wednesday schedule/ First Summer Session ends	**Thursday, July 2**
	Second Summer Session classes begin	**Monday, July 6**
August	Second Summer Session ends	**Thursday, Aug. 13**

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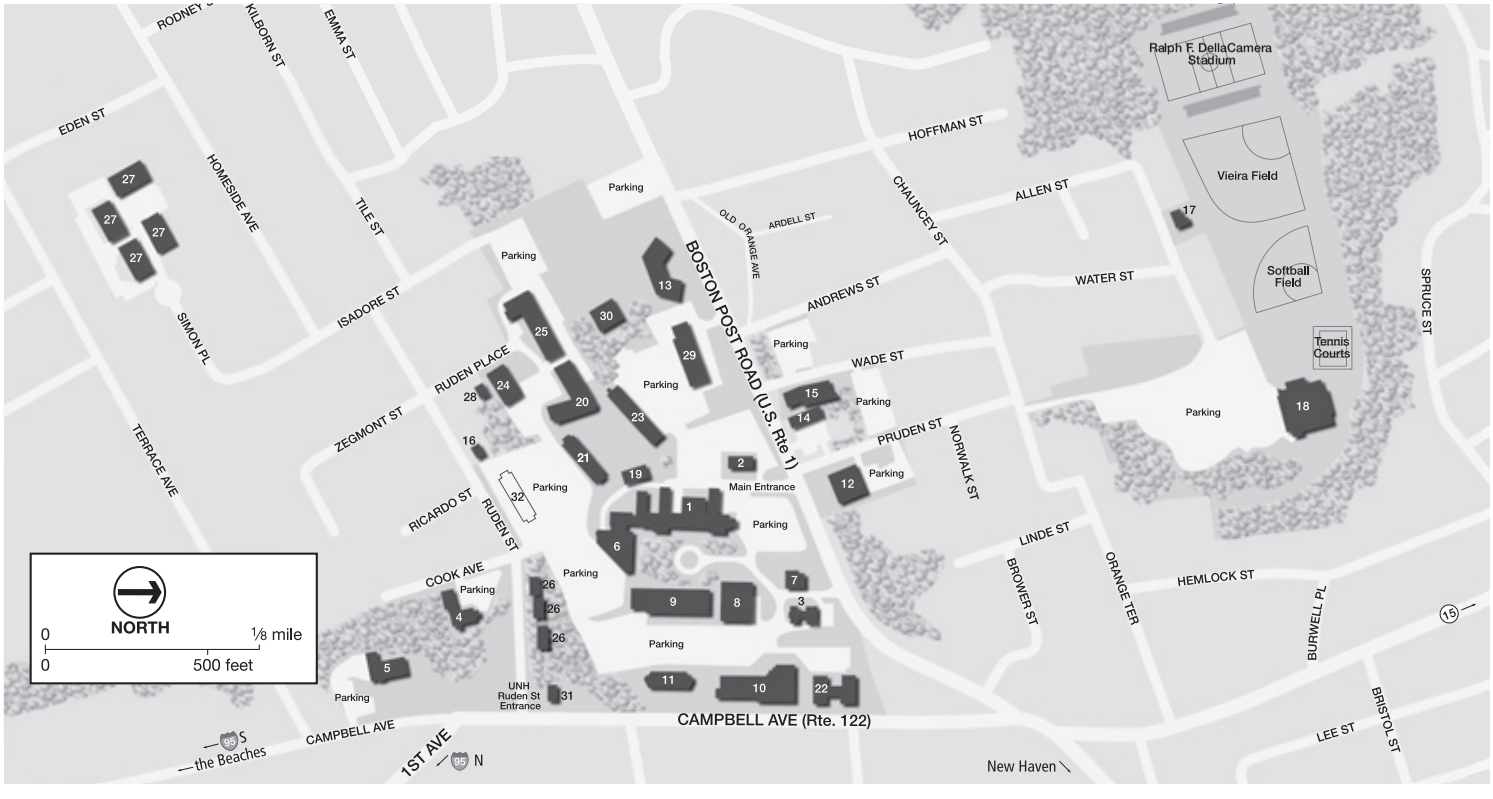

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1 **Maxcy Hall** - President's Office, Administrative Offices, Bursar's Office, College of Arts and Sciences, College of Business, Career Services, Financial Aid
2 **Bayer Hall** - Undergraduate Admissions
3 **Gate House** - Graduate Admissions
4 **South Campus Hall** - Graduate & Undergraduate Registrar's Offices, Henry C. Lee College of Criminal Justice and Forensic Sciences
5 **Harugari Hall** - Classrooms -South Campus
6 **M.K. Peterson Library**
7 **Campus Bookstore**, Campus Police
8 **Bartels Hall** - Student Center, Dining Hall
9 **Buckman Hall** - Tagliatela College of Engineering
10 **Dodds Hall** - Dodds Theater, Classrooms, Henry C. Lee Institute of Forensic Science
11 **Kaplan Hall** - Evening Studies, Classrooms
12 **Echlin Hall** - Information Services, ID Card Office, University College, Executive MBA, Fire Science, Computer Labs
13 **New Hall** - Purchasing, Business Office, Alumni Relations and University Advancement, Residence Hall, Dining Hall
14 **Subway Bldg** - University Marketing and Publications, Public Affairs
15 **Dental Hygiene**
16 **Human Resources**
17 **Athletics Offices** - North Campus
18 **Charger Gymnasium** - North Campus
19 **Psychology Bldg**
20 **Sheffield Hall** - Health Services, Disability Services & Resources, Counseling Center, Residence Hall
21 **Bixler Hall** - Office of Residential Life, Residence Hall
22 **Bethel Hall** - Freshman Residence Hall
23 **Botwinik Hall** - Residence Hall
24 **Dunham Hall** - Residence Hall
25 **Winchester Hall** - Residence Hall
26 **Ruden Street Apt.** - 1, 2, 3, Residence Apartments
27 **Forest Hills Apts.** - 1, 2, 3, & 4, Residence Apartments
28 **15 Ruden Place** - Residence Apartments
29 **David A. Beckerman Recreation Center**
30 **Arbeiter Maenner Chor** - German Club
31 **Facilities**
32 Future site - New Upperclass Residence Hall

300 Boston Post Road
West Haven, Connecticut 06516

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